Draft

Environmental Impact Report for River Park General Plan Amendment and Rezoning Project
SCH #2005062027

Prepared for:

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Acronyms and Abbreviations

µg/m3	micrograms per cubic meter
AB	Assembly Bill
AB 939	Assembly Bill 939
ADT	average daily traffic
af	acre-feet
afy	acre-feet per year
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ARB	California Air Resources Board
basin plan	water quality control plan
BAT	best available technology that is economically achievable
BBWTP	Bryte Bend Water Treatment Plant
BCT	best conventional pollutant control technology
BMPs	best management practice
BO	biological opinion
BOD	biochemical oxygen demand
C-1	Neighborhood Commercial
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CBSC	California Building Standards Code
CC&R	covenants, conditions, and restrictions
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
City	City of West Sacramento
CIWMB	California Integrated Waste Management Board
CIWMP	Countywide Integrated Waste Management Plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers

CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CVP	Central Valley Project
CWA	Clean Water Act
CWA	federal Clean Water Act
dB	decibel
dBA	A-weighted decibel
Delta	Sacramento–San Joaquin River Delta
DFG	California Department of Fish and Game
DO	dissolved oxygen
DOC	California Department of Conservation
DTSC	California Department of Toxic Substances Control
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EHD	Yolo County Health Department, Environmental Health Division
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
g	equals the acceleration speed of gravity
General Construction Permit	NPDES General Permit for Discharges of Storm Water Runoff associated with Construction Activity
General Industrial Permit	NPDES General Permit for Discharges of Storm Water Runoff associated with Industrial Activity
General Permit	General Permit for Storm Water Discharges Associated with Construction Activity
General Plan	City of West Sacramento General Plan
gpd	gallons per day
HCD	California Housing and Community Development Department
HCS	Highway Capacity Software
HR	High-Density Residential
I-5	Interstate 5
I-80	Interstate 80
IESNA	Illuminating Engineers Society of North America
impaired	water quality affected by the presence of pollutants or contaminants
kV	kilovolt
L_{dn}	day-night noise level
L_{eq}	equivalent sound level

LIM	Land Inventory and Monitoring
L_{max}	maximum sound level
L_{min}	minimum sound level
L_n	sound level percentiles
LNWI	Lower Northwest Interceptor
LOS	level of service
LR	Low-Density Residential
maf	million acre-feet
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MOU	Memorandum of Understanding
mph	miles per hour
MR	Medium-Density Residential
msl	mean sea level
MUTCD	Manual of Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NDWA	North Delta Water Agency
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOI	notice of intent
NOP	notice of preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge and Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Services
NRHP	National Register of Historic Places
NTUs	Nephelometric Turbidity Units
NWPs	Nationwide permits
PCBs	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
PM10	particulate matter 10 microns or less in diameter
PM2.5	particulate matter 2.5 microns or less in diameter
Porter-Cologne	Porter-Cologne Water Quality Control Act
POS	Public Open Space
ppm	part per million
PPMP	Pollution Prevention and Monitoring Program
PQP	Public-Quasi Public
PRC	Public Resources Code
Project	River Park General Plan Amendment and Rezoning Project
R-1B	Residential-One Family
R-2	Residential - One Family or Multi Family
R-3	Multiple-Family Residential
RCRA	Resource Conservation and Recovery Act
RD 900	Reclamation District 900
RE	Rural Estate
Reclamation	U.S. Department of the Interior, Bureau of Reclamation

ROG	reactive organic gases
RP	Recreation-Parks
RR	Rural Residential
RRA	Rural Residential
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SO_2	sulfur dioxide
SPCP	spill prevention and control program
SPRR	Southern Pacific Railroad
SR	State Route
SRA	shaded riverine aquatic
SRCSD	Sacramento Regional County Sanitation District
SRWTP	Sacramento Regional Wastewater Treatment Plant
State Water Board	State Water Resources Control Board
Superfund	Comprehensive Environmental Response, Compensation, and Liability Act
SVAB	Sacramento Valley Air Basin
SWANCC	*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*
SWP	State Water Project
SWPPP	stormwater pollution prevention plan
TACs	toxic air contaminants
TDS	total dissolved solids
TMDL	Total Maximum Daily Load
UBC	Uniform Building Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USTs	underground storage tanks
UWMP	Urban Water Management Plan
V/C	volume-to-capacity
VOC	volatile organic compounds
WDRs	waste discharge requirements
Williamson Act	California Land Conservation Act
WRC	water-related commercial
WSA	Water Supply Assessment
WSPD	West Sacramento Police Department
WUSD	Washington Unified School District
WWTP	Wastewater Treatment Plant
YCPHD	Yolo County Public Health Department
YSAQMD	Yolo-Solano Air Quality Management District

Executive Summary

Introduction

This is a summary of the draft environmental impact report (draft EIR) for the proposed River Park General Plan Amendment and Rezoning Project (Project) which includes both the River Park Project area and the Water Related Commercial area. This executive summary identifies the purpose of the draft EIR, provides an overview of the Project, and identifies the impacts and mitigation measures of project implementation. This summary also presents other conclusions required by the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. This summary is intended as an overview and should be used in conjunction with a thorough reading of the environmental document.

The project area is located in the Southport area of the City of West Sacramento in Yolo County. The boundaries of the site are generally the Sacramento River and South River Road to the east and south, Davis Road and existing residences to the north, and the former Yolo Shortline Railroad corridor to the west.

Purpose of the Draft Environmental Impact Report

This draft EIR has been prepared by the City of West Sacramento, as lead agency, pursuant to CEQA (Public Resources Code 21000 *et seq.*); the State CEQA Guidelines (California Code of Regulations 15000 *et seq.*), as amended; and the City's environmental thresholds of significance. CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority. Approval of the proposed Project, general plan amendment, and rezoning constitutes a *project* under CEQA.

An EIR is an informational document used in the planning and decision-making process. It is not the purpose of an EIR to recommend either approval or denial of a project.

An EIR is a public document that assesses the environmental effects related to the planning, construction, and operation of the proposed project and indicates ways to reduce or avoid possible environmental damage. The EIR also discloses significant environmental impacts that cannot be avoided; growth-inducing impacts; effects found not to be significant; and significant cumulative impacts of all past, present, and reasonably anticipated future projects.

This EIR will be used by the City of West Sacramento Planning Commission and City Council to determine whether implementation of the proposed Project will result in significant environmental impacts. If environmental impacts are identified as significant and unavoidable, the City may still approve the Project if it believes that social, economic, or other benefits outweigh the unavoidable impacts. When that is the case, the City must disclose the specific benefits in writing.

EIR Content Requirements

The State CEQA Guidelines (Section 15146) state "An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that may follow." Accordingly, this *program EIR* will concern itself with the information currently known or that can be reasonably forecast about the Project. Later actions within the Project may require future CEQA review.

Public Review Process

The City of West Sacramento encourages public review of this EIR. This draft EIR is being circulated for a 45-day public review period. During this time, written comments may be submitted to the following staff person for consideration in the final EIR:

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Following the close of the public comment period, the City will prepare and publish a second document that contains this draft EIR and all the responses to significant environmental points raised in the review and consultation process. The final EIR will be considered by the City of West Sacramento Planning Commission and City Council and, subsequently, a decision will be made to approve or reject the proposed Project.

Overview of the Proposed Project

The proposed Project involves the creation of a residential village with 2,788 residences of various types, a *village core* near the center of the site aligned with a proposed parkway and regional trail system. The proposal would exceed the level of development currently planned in the Southport Framework Plan by approximately 900 residential units, increase residential density, and add recreational opportunities. The elementary school, most neighborhood park sites, the regional park, and water-related commercial (WRC) areas would be maintained in their respective locations as identified in the Southport Framework Plan. The applicant is requesting the necessary revisions to that plan to support this proposal.

The proposed Project would include an increase in the proportion of medium- and high-density residential uses at the site, in comparison to the existing Southport Framework Plan's provisions, concentrating these uses toward the center of the site. The Project involves the creation of a residential village and would include an increase in the proportion of medium- and high-density residential uses at the site, concentrating these uses toward the center of the site. A network of lakes and waterways would meander through the area providing flood control, stormwater drainage, and recreational functions. The Project includes the development of a circulation plan and an infrastructure plan.

The Project would establish a network of streets and trails providing both motorized and non-motorized access. This includes a system of landscaped pedestrian, bicycle, and equestrian trails, passing through a residential park, an Oak preserve park, an urban park and a regional park. Trails will also link the Project to the Yolo Shortline Rail Corridor and Davis Road. The Project would also include a comprehensive system of arterial and collector streets. Primary ingress and egress would be provided from the north by extensions of Village Parkway and Stonegate Parkway south from Linden Road across Davis Road and from the west by an extension of Village Parkway that would connect with Bevan Road. A series of residential collector and local roads would provide access within River Park.

The Project includes the following proposed City actions:

- **General Plan Amendment:** The proposed general plan amendment would be subject to consideration by the Planning Commission and final approval by the City Council.
- **Southport Framework Plan Amendment:** The proposed plan amendment would be subject to consideration by the Planning Commission and final approval by the City Council.
- **Development Agreement:** The developer proposes to enter into a development agreement contract with the City. The development agreement will describe the public improvements to be installed, allowable development densities and intensities, affordable housing commitments, project phasing, among other items. Approval of the development agreement would establish a vested right to develop the site in accordance with the provisions of the

agreement. The development agreement would be subject to consideration by the Planning Commission, with final approval by the City Council.

- **Rezoning:** Changes in zoning would be subject to consideration by the Planning Commission and final approval by the City Council.
- **Tentative Subdivision Map:** The applicant will submit future tentative subdivision maps dividing the property into residential, commercial, open space, recreational, and other lots. The applicant may also submit large-lot tentative maps. The tentative map proposals would be subject to review by the Planning Commission, with final approval by the City Council. The City Council would review and approve the final maps after all conditions of each tentative map have been met.
- **Realignment of Southport Parkway:** The developer proposes that Southport Parkway be realigned east of Jefferson Boulevard (Figure 2-8). This would be subject to consideration by the Planning Commission and final approval by the City Council.
- **Planned Development Standards:** Adoption of Planned Development Standards will be required.

See Chapter 2, *Project Description*, for a detailed description of the proposed Project. This includes diagrams and tables illustrating and describing the proposed amendments to the General Plan, Southport Framework Plan, and Zoning Ordinance.

Issues to be Resolved

Section 15123 (c) of the State CEQA Guidelines requires an EIR to identify issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects. For the proposed Project, there are no known issues awaiting resolution.

Significant Irreversible Environmental Changes

CEQA requires a discussion of potential significant, irreversible environmental changes that could result from the project. Examples of such changes include commitment of future generations to similar uses, irreversible damage that may result from accidents associated with a project, or irretrievable commitments of resources.

Implementation of the proposed Project would result in the short-term commitment of nonrenewable energy resources and natural resources, including sand and gravel, asphalt, and other resources to construct the Project, along with permanent habitat conversion, as discussed in this draft EIR.

Areas of Known Controversy and Unresolved Issues

State CEQA Guidelines Section 15123(b) requires that the summary section of the EIR include a description of areas of controversy known to the lead agency, including issues raised by agencies and the public and issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

Areas of known controversy include:

- Conversion of agricultural land to urban uses;
- Incompatibility between the Project and nearby rural residences;
- Increased traffic (and traffic-related hazards) in the area;
- Increased traffic congestion at the Capitol City Freeway/Jefferson Boulevard interchange;
- Issues of consistency of the project with the adopted General Plan; and
- Issues of overall levels of growth in the Southport area.

Required Permits and Approvals

The City is the state lead agency for the proposed Project under CEQA and is responsible for certifying the EIR. The discretionary actions required by the City as the lead agency under CEQA for project implementation are listed below.

- Certification of the EIR.
- Approval of future development and infrastructure improvement projects.

Impacts of the Proposed Project

Significant Impacts

The potential environmental impacts that would result from implementation of the proposed Project are summarized in Table ES-1 at the end of this chapter. Table ES-1 provides a summary of the environmental impacts of the proposed Project, including the significance of each impact before mitigation, identifying the appropriate mitigation measures, and listing the significance of each impact based on the presumed implementation of the mitigation measures.

In many cases, impacts would be less than significant. To the extent feasible, the City has incorporated mitigation measures into the proposed Project to avoid or reduce impacts. Those impacts that cannot be mitigated to a less-than-significant level would remain significant and unavoidable, as shown in Table ES-1.

The project would have impacts in the following areas.

- Visual impacts during construction
- Loss of agricultural land, including prime farmland
- Degradation of air quality
- Impacts on biological resources
- Potential impacts on cultural resources
- Geologic hazards due to expansive soils
- Exposure of people to hazards, including hazardous materials and flooding
- Impacts related to drainage and flooding
- Water quality impacts
- Impacts related to consistency with land use plans
- Traffic noise impacts
- Traffic and Circulation Impacts

Significant and Unavoidable Impacts

All of these impacts could be reduced to a less than significant level by mitigation measures proposed in this EIR except the following impacts, which have been identified as significant and unavoidable.

- Impact AG-1: Convert Prime Farmland, as Designated by the Farmland Mapping and Monitoring Program, to Nonagricultural Use
- Impact AIR-1: Temporary Increase in Construction-Related Emissions of ROG, NO_X and PM10 during Grading and Construction Activities
- Impact AIR-3: Conflict with or Obstruct Implementation of Air Quality Attainment Plan
- Impact AIR-4: Generation of PM10, ROG and NO_X Emissions in Excess of Thresholds
- Impact NZ-2: Exposure of Existing Noise-Sensitive Land Uses to Increased Traffic Noise
- Impact TRF-1: Degradation of LOS at Harbor Boulevard/US 50 Westbound Ramps Intersection
- Impact TRF-3: Degradation of LOS at Jefferson Boulevard/Tower Bridge Gateway Westbound Off-Ramp/US 50 Westbound On-Ramp
- Impact TRF-4: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection

- Impact TRF-10: Degradation of LOS at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split during PM Peak Hour
- Impact TRF-11: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour
- Impact TRF-12: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour
- Impact TRF-13: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour
- Impact TRF-14: Degradation of LOS at Jefferson Boulevard/US 50 Westbound On-Ramp/Tower Bridge Gateway Westbound Off-Ramp Intersection during AM and PM Peak Hours
- Impact TRF-15: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection during AM Peak Hour
- Impact TRF-24: Degradation of LOS at at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split During AM and PM Peak Hours
- Impact TRF-25: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour
- Impact TRF-26: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour
- Impact TRF-27: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour
- Impact CE-2: Cumulative Effect of Conversion of Agricultural Lands
- Impact CE-4: Generation of ROG and NO_X, CO, and PM10 Emissions in Excess of YSAQMD Thresholds
- Impact CE-9: Cumulative Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed
- Impact CE-11: Cumulative Impacts on Noise
- Impact CE-14: Cumulative Degradation of LOS at Jefferson Boulevard/Lake Washington Boulevard Intersection during AM and PM Peak Hours
- Impact CE-16: Cumulative Degradation of LOS at SR 275 Eastbound Off-Ramp Diverge to Jefferson Boulevard during AM and PM Peak Hours
- Impact CE-17: Cumulative Degradation of LOS at Westbound US 50 Off-Ramp Diverge to South River Road at the Jefferson Boulevard/South River Road Split during the AM and PM Peak Hours
- Impact CE-18: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from I-80 to Harbor Boulevard during the AM and PM Peak Hours

- Impact CE-19: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from Harbor Boulevard to Jefferson Boulevard during AM and PM Peak Hours
- Impact CE-20: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from South River Road to I-5 during the AM and PM Peak Hours
- Impact CE-21: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from I-5 to South River Road during the AM and PM Peak Hours
- Impact CE-22: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Jefferson Boulevard to Harbor Boulevard during the AM and PM Peak Hours
- Impact CE-23: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Harbor Boulevard to I-5 during the AM and PM Peak Hours

Cumulative Impacts

Section 15130 of the State CEQA Guidelines requires that an EIR consider the project's contribution to any significant cumulative impacts. Cumulative impacts are the incremental effects of a proposed project added to the impacts of other closely related past, present, and reasonably foreseeable future projects, which, together, are cumulatively considerable. The purpose of the cumulative impact analysis is to place the project's contribution into the context of the larger, cumulative impact.

The Project is expected to contribute to the following cumulative impacts:

- Air quality,
- Agricultural resources (loss of agricultural land),
- Noise,
- Traffic congestion, and
- Water quality.

The importance of the Project's contribution to these cumulative impacts is discussed in further detail in Chapter 5, *Other CEQA Considerations*.

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Aesthetics			
Impact AES-1: Obstruct or Adversely Affect a Scenic Vista	Less than significant	None required	–
Impact AES-2: Substantially Damage Scenic Resources, Including, but not Limited to Trees, Rock Outcroppings, and Historic Buildings along a Scenic Highway during Construction and Operation	Less than significant	None required	–
Impact AES-3: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings during Construction	Significant	Mitigation Measure AES-3: Install Temporary Visual Barriers between Construction Zones and Residences	Less than significant
Impact AES-4: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings	Less than significant	None required	–
Impact AES-5: Create a New Source of Substantial Light or Glare during Construction That Would Adversely Affect Daytime or Nighttime Views in the Area	Less than significant	None required	–
Impact AES-6: Create a New Source of Substantial Light or Glare during Project Operation That Would Adversely Affect Daytime or Nighttime Views in the Area	Less than significant	None required	–
Impact AES-7: Conflict with Local Visual Policies	Less than significant	None required	–
Agricultural Resources			
Impact AG-1: Convert Prime Farmland, as Designated by the Farmland Mapping and Monitoring Program, to Nonagricultural Use	Significant	Mitigation Measure AG-1: Provide Compensatory Agricultural Land Protection	Significant and unavoidable
Impact AG-2: Conflict with Existing Agricultural Zoning or Williamson Act Contracts	No Impact	None required	–

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact AG-3: Involve other Changes in the Existing Environment That Could Result in Conversion of Farmland to Nonagricultural Use	Less than significant	None required	–
Air Quality			
Impact AIR-1: Temporary Increase in Construction-Related Emissions of ROG, NO_X and PM10 during Grading and Construction Activities	Significant	Mitigation Measure AIR-1a: Implement Measures That Reduce NO_X Emissions from Heavy-Duty Equipment Mitigation Measure AIR-1b: Implement Best Available Control Measures to Reduce Fugitive Dust Emissions from Construction Activities Mitigation Measure AIR-1c: Implement Construction Phasing to Reduce Daily and Annual Emissions to the Maximum Extent Practicable	Significant and unavoidable
Impact AIR-2: Construction-Related Diesel Health Risk	Less than significant	None required	–
Impact AIR-3: Conflict with or Obstruct Implementation of Air Quality Attainment Plan	Significant	Mitigation Measure Air-3: Update the Southport Framework Plan and Provide New Growth Forecasts to the YSAQMD for Inclusion in the Air Quality Planning Inventory	Significant and unavoidable
Impact AIR-4: Generation of PM10, ROG and NO_X Emissions in Excess of Thresholds	Significant	Mitigation Measure AIR-4: Include Construction and Design Features to Reduce Emissions from Operations	Significant and unavoidable
Impact AIR-5: Exposure of Sensitive Receptors to Substantial Concentrations of CO	Less than significant	None required	–
Impact AIR-6: Expose New Sensitive Land-Uses (Residential Units) to Elevated Pollution Levels and High Cancer Risk Scenarios	Less than significant	None required	

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Biological Resources			
Impact BIO-1: Loss or Degradation of Valley Oak Riparian Woodland Habitat As a Result of Project Construction	Significant	Mitigation Measure BIO-1a: Conduct Mandatory Contractor/Worker Awareness Training for Construction Personnel Mitigation Measure BIO-1b: Install Construction Barrier Fencing to Protect Riparian Habitat and Other Sensitive Biological Resources Adjacent to the Construction Zone Mitigation Measure BIO-1c: Restore or Create Riparian and Seasonal Wetland Habitat to Mitigate Permanent Loss of Riparian and Wetland Habitat	Less than significant
Impact BIO-2: Loss of and Damage to Protected Trees As a Result of Project Construction	Significant	Mitigation Measure BIO-1a: Conduct Mandatory Contractor/Worker Awareness Training for Construction Personnel Mitigation Measure BIO-2a: Minimize Construction Effects on Protected Trees to Be Retained Mitigation Measure BIO-2b: Redesign Project or Compensate for Removal of Protected Trees	Less than significant
Impact BIO-3: Loss of 0.02 Acre of Seasonal Wetland As a Result of Construction of the Regional Park	Significant	Mitigation Measure BIO-1c: Restore or Create Riparian and Seasonal Wetland Habitat to Mitigate Permanent Loss of Riparian and Wetland Habitat	Less than significant
Impact BIO-4: Fill and Removal of Non-Jurisdictional Irrigation Ditches As a Result of Project Construction	Less than significant	None required	–

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact BIO-5: Loss or Disturbance of Valley Elderberry Longhorn Beetles and Their Habitat during Construction of a Regional Park, Oak Preserve Park, and Residential Housing	Significant	Mitigation Measure BIO-1a: Conduct Mandatory Contractor/Worker Awareness Training for Construction Personnel Mitigation Measure BIO-1b: Install Construction Barrier Fencing to Protect Riparian Habitat and Other Sensitive Biological Resources Adjacent to the Construction Zone Mitigation Measure BIO-5a: Minimize Effects on VELB Habitat within the Proposed Oak Preserve Park Mitigation Measure BIO-5b: Establish a Minimum 6-Meter-Wide (20-Foot-Wide) Buffer around All Elderberry Shrubs That Will Be Avoided Mitigation Measure BIO-5c: Transplant Elderberry Shrubs That Cannot Be Avoided or Implement Dust Control Measures during Construction Mitigation Measure BIO-5d: Compensate for Direct Effects on Valley Elderberry Longhorn Beetle Habitat	Less than significant
Impact BIO-6: Loss or Disturbance of Giant Garter Snakes and Their Habitat during Construction of the Regional Park, Oak Preserve Park, and Residential Housing	Significant	Mitigation Measure BIO-1a: Conduct Mandatory Contractor/Worker Awareness Training for Construction Personnel Mitigation Measure BIO-1b: Install Construction Barrier Fencing to Protect Riparian Habitat and Other Sensitive Biological Resources Adjacent to the Construction Zone Mitigation Measure BIO-6a: Minimize Potential Impacts on Giant Garter Snake during Construction within Suitable Habitat Mitigation Measure BIO-6b: Compensate for Permanent Loss of Giant Garter Snake Habitat	Less than significant
Impact BIO-7: Potential Loss or Disturbance of Northwestern Pond Turtles during Construction of a Regional Park, Oak Preserve Park, and Residential Housing	Significant	Mitigation Measure BIO-6a: Minimize Potential Impacts on Giant Garter Snake during Construction within Suitable Habitat Mitigation Measure BIO-7: Conduct a Preconstruction Survey for Northwestern Pond Turtles	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact BIO-8: Loss or Disturbance of Western Burrowing Owls and Their Habitat during Construction of a Regional Park and Residential Housing	Significant	Mitigation Measure BIO-8: Conduct Preconstruction Surveys for Active Burrowing Owl Burrows and Implement the California Department of Fish and Game Guidelines for Burrowing Owl Mitigation, if Necessary	Less than significant
Impact BIO-9: Potential Loss or Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors	Significant	Mitigation Measure BIO-9: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors and Conduct Preconstruction Nesting Bird Surveys	Less than significant
Impact BIO-10: Loss of Approximately 420 Acres of Swainson's Hawk Foraging Habitat Associated with Residential and Regional Park Development	Significant	Mitigation Measure BIO-10: Compensate for Permanent Removal of Swainson's Hawk Foraging Habitat	Significant and unavoidable
Impact BIO-11: Loss or Disturbance of Roosting Bats	Less than significant	None required	–
Impact BIO-12: Potential for Construction-Related Water Quality Effects on Fish in the Sacramento River	Significant	Mitigation Measure HYD-1a: Dry Season Construction Mitigation Measure HYD-1b: Other Provisions for Work in Surface Waters	Less than significant
Impact BIO-13: Potential for Water Quality Effects on Fish in the Sacramento River from Urban Runoff	Significant	Mitigation Measure HYD-5b: Develop Management Plan for Onsite Water Features	Less than significant
Impact BIO-14: Potential for Altered Hydrology of the Sacramento River	Less than significant	None required	–
Impact BIO-15: Potential for the Introduction of Exotic Fish into the Sacramento River and North Delta	Significant	Mitigation Measure BIO-15: Design Pumping Facilities Associated with the Constructed Water Features to Minimize the Potential for Fish Entrainment and Transport to the River	Less than significant
Impact BIO-16: Potential for Habitat Modification in the Sacramento River from Marina and Parkway Construction	Significant	Mitigation Measure BIO-16a: Replace Affected Riparian and Shaded Riverine Aquatic Cover Length, Area, and Habitat Value Mitigation Measure BIO-16b: Minimize the Amount of, and Shading by, Overwater Structures Mitigation Measure BIO-16c: Contribute to Nearshore Cover Habitat in Vicinity of Marina	Less than significant

Table ES-1. Continued

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact BIO-17: Potential for Impacts on Fish Migration from Marina and Parkway Construction	Significant	Mitigation Measure BIO-17: Employ Measures to Minimize Sound and Disturbance Effects	Less than significant
Cultural Resources			
Impact CR-1: Demolition of Existing Residences and Associated Buildings	No Impact	None required	–
Impact CR-2: Potential Disturbance to Unidentified Cultural Resources during Facility Construction	Significant	Mitigation Measure CR-2: Stop Work if Buried Resources Are Discovered Inadvertently	Less than significant
Impact CR-3: Direct or Indirect Destruction of a Unique Paleontological Resource or Site or Unique Geologic Feature	Significant	Mitigation Measure CR-3: Stop Work in Event of Fossil Discovery	Less than significant
Impact CR-4: Inadvertent Discovery of Native American Human Remains	Significant	Mitigation Measure CR-4: Comply with State Laws Relating to Native American Remains	Less than significant
Geology, Soils, and Seismicity			
Impact GEO-1: Potential Structural Damage and Injury from Fault Rupture	Less than significant	None required	–
Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking	Less than significant	None required	–
Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction	Less than significant	None required	–
Impact GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Less than significant	None required	–
Impact GEO-5: Potential Structural Damage and Injury from Development on Expansive Soils	Significant	Mitigation Measure GEO-5: Implement the Corrective Actions Identified as Part of the Wallace-Kuhl & Associates 2004 and 2005 Reports	Less than significant
Impact GEO-6: Construction on Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems	No Impact	None required	–

Table ES-1. Continued

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact GEO-7: Loss of Availability of a Known Mineral Resource or a Locally Important Mineral Resource Recovery Site	Less than significant	None required	–
Hazards and Hazardous Materials			
Impact HAZ-1: Create a Potential Public Health Hazard during Construction	Significant	Mitigation Measure HAZ-1: Measures to Minimize Exposure of People and the Environment to Potentially Hazardous Materials	Less than significant
Impact HAZ-2: Create a Potential Public Health Hazard during Operation	Significant	Mitigation Measure HAZ-1: Measures to Minimize Exposure of People and the Environment to Potentially Hazardous Materials	Less than significant
Impact HAZ-3: Involve the Use, Production, or Disposal of Materials during Construction that Pose a Hazard to People, Animal, or Plant Populations in the Area Affected	Significant	Mitigation Measure HAZ-1: Measures to Minimize Exposure of People and the Environment to Potentially Hazardous Materials	Less than significant
Impact HAZ-4: Involve the Use, Production, or Disposal of Materials during Operation that Pose a Hazard to People, Animal, or Plant Populations in the Area Affected	Significant	Mitigation Measure HAZ-1: Measures to Minimize Exposure of People and the Environment to Potentially Hazardous Materials	Less than significant
Impact HAZ-5: Interfere with Emergency Response Plans or Emergency Evacuation Plans	Significant	Mitigation Measure HAZ-5: Development and Implementation of a Construction Traffic Control Plan	Less than significant
Impact HAZ-6: Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5	Significant	Mitigation Measure HAZ-6: Comply with Environmental Recommendations Contained within Phase I Environmental Site Assessments	Less than significant
Hydrology and Water Quality			
Impact HYD-1: Degraded Surface Water Quality from Construction-Related Earth-Disturbing Activities and Construction-Related Hazardous Materials	Significant	Mitigation Measure HYD-1a: Dry Season Construction Mitigation Measure HYD-1b: Other Provisions for Work in Surface Waters	Less than significant
Impact HYD-2: Contaminants Entering Groundwater from Construction below the Water Table	Less than significant	None required	–

Table ES-1. Continued

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact HYD-3: Degraded Water Quality from Construction and Operation of the Marina and Other River-Based Facilities	Significant	Mitigation Measure HYD-3a: Design and Construct Marina Facilities to Avoid Flood Impacts Mitigation Measure HYD-3b: Complete Specific Impact Analysis and Implement Measures to Maintain Water Quality Associated with Marina-Related Facilities	Less than significant
Impact HYD-4: Surface Runoff Exceeding Capacity of Drainage Facilities as a Result of New Impervious Surfaces	Significant	Mitigation Measure HYD-4: Implement a Drainage Concept Plan	Less than significant
Impact HYD-5: Degraded Water Quality as a Result of Urban Runoff	Significant	Mitigation Measure HYD-5a: Implement Measures to Maintain Water Quality after Construction Mitigation Measure HYD-5b: Develop Management Plan for Onsite Water Features	Less than significant
Impact HYD-6: Substantially Depleted Groundwater Supplies or Interference with Groundwater Recharge	Less than significant	None required	–
Impact HYD-7: Increased Water Demand	Less than significant	None required	–
Impact HYD-8: Increased Sediment and Contaminants in Groundwater and Surface Water as a Result of Infrastructure Failure	Less than significant	None required	–
Impact HYD-9: Degraded Water Quality from Discharges to Surface Water Where Water Bodies Are 303(d) Listed	Less than significant	None required	–
Impact HYD-10: Impaired Operation and Maintenance of Levees Associated with Development of the Project	Significant	Mitigation HYD-10a: Coordinate with Reclamation District 900 Regarding Levee Condition and Maintenance Needs Mitigation HYD-10b: Conduct Levee Assessment Seepage Geotechnical and Geomorphic Study Mitigation HYD-10c: Implement Measures for Levee Protection	Less than significant
Impact HYD-11: Flood Hazards Associated with Dam Failure	Less than significant	None required	–

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Land Use			
Impact LU-1: Conflict with the Goals or Policies of Adopted Plans of the City of West Sacramento	Significant	Mitigation Measure LU-1: Update the Southport Framework Plan	Less than significant
Impact LU-2: Develop Land Uses that are Incompatible with Each Other or with Adjacent Uses	Less than significant	None required	–
Impact LU-3: Physically Divide an Existing Community	No Impact	None required	–
Impact LU-4: Conflict with an Applicable Habitat Conservation Plan or Natural Community Preservation Plan	No Impact	None required	–
Noise			
Impact NZ-1: Exposure of Noise-Sensitive Land Uses to Vibration and Noise during Construction Activities	Significant	Mitigation Measure NZ-1: Employ Noise-Reducing Construction Practices Mitigation Measure NZ-2: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program	Less than significant
Impact NZ-2: Exposure of Existing Noise-Sensitive Land Uses to Increased Traffic Noise	Significant	No mitigation is feasible	Significant and unavoidable
Impact NZ-3: Exposure of Future Noise-Sensitive Land Uses within the River Park Project to Traffic Noise	Less than significant	None required	–
Impact NZ-4: Exposure of Existing and Future Noise-Sensitive Land Uses within the River Park Project and in the Project Vicinity to Marina-Related Noise	Less than significant	None required	–

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Population and Housing			
Impact POP-1: Directly Induce Substantial Population Growth by Proposing New Homes and Businesses	Less than significant	None required	–
Impact POP-2: Indirectly Induce Substantial Population Growth	Less than significant	None required	–
Impact POP-3: Displace a Substantial Number of Existing Housing Units, Necessitating Construction of Replacement Housing Elsewhere	Less than significant	None required	–
Impact POP-4: Displace a Substantial Number of People, Necessitating Construction of Replacement Housing Elsewhere	Less than significant	None required	–
Recreation			
Impact REC-1: Increase the Use of Existing Neighborhood Recreational Facilities Such That Physical Deterioration Would Occur or Be Accelerated	Less than significant	None required	–
Impact REC-2: Include Recreational Facilities that Might Have an Adverse Physical Effect on the Environment	Significant	Mitigation Measure AIR-1a: Implement Measures That Reduce NO_X Emissions From Heavy-Duty Equipment. Mitigation Measure AIR-1b: Implement Best Available Control Measures to Reduce Fugitive Dust Emissions from Construction Activities. Mitigation Measure AIR-1c: Implement Construction Phasing to Reduce Daily and Annual Emissions to the Maximum Extent Practicable Mitigation Measure Air-3: Update the Southport Framework Plan and Provide New Growth Forecasts to the YSAQMD for Inclusion in the Air Quality Planning Inventory Mitigation Measure AIR-4: Include construction and design features to reduce emissions from operations.	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
		Mitigation Measure HYD-1a: Dry Season Construction Mitigation Measure HYD-1b: Other Provisions for Work in Surface Waters Mitigation Measure HYD-3a: Design and Construct Marina Facilities to Avoid Flood Impacts Mitigation Measure HYD-3b: Complete Specific Impact Analysis and Implement Measures to Maintain Water Quality Associated with Marina-related Facilities Mitigation Measure HYD-4: Implement a Drainage Concept Plan Mitigation Measure HYD-5a: Implement Measures to Maintain Water Quality after Construction Mitigation Measure HYD-5b: Develop Management Plan for Onsite Water Features Mitigation Measure NZ-1: Employ Noise-Reducing Construction Practices Mitigation Measure NZ-2: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program Mitigation Measure HAZ-1: Measures to Minimize Exposure of People and the Environment to Potentially Hazardous Materials	
Traffic and Transportation			
Impact TRF-1: Degradation of LOS at Harbor Boulevard/US 50 Westbound Ramps Intersection	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-2: Degradation of LOS at Harbor Boulevard/Industrial Boulevard Intersection	Significant	Mitigation TRF-2: Provide Free Right-Turn Lane on Westbound Approach and Triple Left-Turn Lanes at Harbor Boulevard/Industrial Boulevard Intersection	Less than significant
Impact TRF-3: Degradation of LOS at Jefferson Boulevard/Tower Bridge Gateway Westbound Off-Ramp/US 50 Westbound On-Ramp	Significant	No mitigation is feasible	Significant and unavoidable

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact TRF-4: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-5: Degradation of LOS at Jefferson Boulevard/15th Street Intersection during the PM Peak Hour	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road	Less than significant
Impact TRF-6: Degradation of LOS at Jefferson Boulevard/Devon Avenue/Gateway Drive Intersection during the AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road	Less than significant
Impact TRF-7: Degradation of Jefferson Boulevard/Lake Washington Boulevard Intersection during the PM Peak Hour	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road	Less than significant
Impact TRF-8: Degradation of LOS at Jefferson Boulevard/N. Linden Road Intersection during AM Peak Hour	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road	Less than significant
Impact TRF-9: Degradation of LOS at Jefferson Boulevard/Davis Road Intersection during AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road	Less than significant
Impact TRF-10: Degradation of LOS at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split during PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-11: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-12: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact TRF-13: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-14: Degradation of LOS at Jefferson Boulevard/US 50 Westbound On-Ramp/Tower Bridge Gateway Westbound Off-Ramp Intersection during AM and PM Peak Hours	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-15: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection during AM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-16: Degradation of LOS at Jefferson Boulevard/15th Street Intersection during the AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road	Less than significant
Impact TRF-17: Degradation of LOS at Jefferson Boulevard/Stonegate Boulevard during PM Peak Hour	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road	Less than significant
Impact TRF-18: Degradation of LOS at Jefferson Boulevard/Devon Avenue/Gateway Drive Intersection during AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road Mitigation TRF-18: Add Free Right-Turn Lane to Gateway Drive Approach	Less than significant
Impact TRF-19: Degradation of LOS at Jefferson Boulevard/Lake Washington Boulevard Intersection during AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road	Less than significant

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact TRF-20: Degradation of LOS at Jefferson Boulevard/N. Linden Road Intersection during the AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road	Less than significant
Impact TRF-21: Degradation of LOS at Jefferson Boulevard/Higgins Road Intersection during the AM and PM Peak Hours	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road	Less than significant
Impact TRF-22: Degradation of LOS at Jefferson Boulevard/S. Linden Road Intersection during the PM Peak Hour	Significant	Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road	Less than significant
Impact TRF-23: Degradation of LOS at Jefferson Boulevard/Davis Road Intersection during the AM and PM Peak Hours	Significant	Mitigation TRF-23: Install Traffic Signal at Jefferson Boulevard/Davis Road Intersection	Less than significant
Impact TRF-24: Degradation of LOS at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split During AM and PM Peak Hours	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-25: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable
Impact TRF-26: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact TRF-27: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour	Significant	No mitigation is feasible	Significant and unavoidable
Utility Systems			
Impact US-1: Increased Demand for Fire Protection Services	Less than significant	None required	–
Impact US-2: Increased Demand for Police Protection Services	Less than significant	None required	–
Impact US-3: Increased Need for Schools	Less than significant	None required	–
Impact US-4: Exceed Wastewater Treatment Requirements of the Regional Water Quality Control Board or Exceed the Capacity of Current Wastewater Treatment, Resulting in the Construction of New or Expanded Water or Wastewater Treatment Facilities	Less than significant	None required	–
Impact US-5: Require the Construction or Expansion of Stormwater Drainage Facilities, the Construction of Which Could Cause Adverse Environmental Effects	Significant	Mitigation Measure HYD-1a: Dry Season Construction Mitigation Measure HYD-1b: Other Provisions for Work in Surface Waters	Less than significant
Impact US-6: Exceed Current Water Supply Capacity, Requiring the Acquisition or Expansion of Entitlements	Less than significant	None required	–
Impact US-7: Require Additional Capacity, Substantially Increase Demand, or Affect Energy Supplies for Electrical, Natural Gas, or Telecommunications Service	Less than significant	None required	–
Impact US-8: Exceed the Permitted Capacity of the Landfill Currently Serving the Area	Less than significant	None required	–

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Growth-Inducing Impacts			
Impact GI-1: Fostering of Economic or Population Growth	Less than significant	None required	–
Impact Impact GI-2: Removal of Obstacles to Growth	Less than significant	None required	–
Impact Impact GI-3: Taxation of Community Services or Facilities to Such an Extent that New Services or Facilities Would Be Necessary	Less than significant	None required	–
Cumulative Impacts			
Impact CE-1: Cumulative Effect on Aesthetic and Visual Resources	Less than cumulatively considerable	None required	–
Impact CE-2: Cumulative Effect of Conversion of Agricultural Lands	Cumulatively considerable	No mitigation is feasible	Significant and unavoidable
Impact CE-3: Exposure of Sensitive Receptors to Substantial Concentrations of CO	Less than cumulatively considerable	None required	–
Impact CE-4: Generation of ROG and NO_X, CO, and PM10 Emissions in Excess of YSAQMD Thresholds	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-5: Cumulative Effect on Biological Resources	Cumulatively considerable	Implementation of project-specific mitigation measures would reduce the Project's contribution to a less-than-cumulatively-considerable level.	Less than cumulatively considerable
Impact CE-6: Cumulative Impacts on Cultural Resources	Cumulatively considerable	Implementation of project-specific mitigation measures would reduce the Project's contribution to a less-than-cumulatively-considerable level.	Less than cumulatively considerable
Impact CE-7: Cumulative Increase in Water Demand	Less than cumulatively considerable	None required	–

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact CE-8: Cumulative Increase in Stormwater Runoff	Cumulatively considerable	Implementation of project-specific mitigation measures would reduce the Project's contribution to a less-than-cumulatively-considerable level.	Less than cumulatively considerable
Impact CE-9: Cumulative Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-10: Cumulative Impacts on Land Use	Less than cumulatively considerable	None required	–
Impact CE-11: Cumulative Impacts on Noise	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-12: Cumulative Impact on Population and Housing	Less than cumulatively considerable	None required	–
Impact CE-13: Cumulative Degradation of LOS at Jefferson Boulevard/Devon Avenue/Gateway Drive Intersection during AM and PM Peak Hours	Cumulatively considerable	Mitigation CE-13: Provide Free Right-Turn Lane to Gateway Drive Approach	Less than cumulatively considerable
Impact CE-14: Cumulative Degradation of LOS at Jefferson Boulevard/Lake Washington Boulevard Intersection during AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible.	Cumulatively considerable
Impact CE-15: Cumulative Degradation of LOS at Village Parkway/N. Linden Road Intersection during AM and PM Peak Hours	Cumulatively considerable	Mitigation CE-15: Provide Traffic Signal at Village Parkway/N. Linden Road Intersection	Less than cumulatively considerable
Impact CE-16: Cumulative Degradation of LOS at SR 275 Eastbound Off-Ramp Diverge to Jefferson Boulevard during AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible.	Cumulatively considerable
Impact CE-17: Cumulative Degradation of LOS at Westbound US 50 Off-Ramp Diverge to South River Road at the Jefferson Boulevard/South River Road Split during the AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible.	Cumulatively considerable

Impact	Significance before Mitigation	Mitigation Measure	Significance after Mitigation Incorporated
Impact CE-18: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from I-80 to Harbor Boulevard during the AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible.	Cumulatively considerable
Impact CE-19: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from Harbor Boulevard to Jefferson Boulevard during AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-20: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from South River Road to I-5 during the AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-21: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from I-5 to South River Road during the AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-22: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Jefferson Boulevard to Harbor Boulevard during the AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-23: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Harbor Boulevard to I-5 during the AM and PM Peak Hours	Cumulatively considerable	No mitigation is feasible	Cumulatively considerable
Impact CE-24: Cumulative Effect on Public Services and Utilities	Cumulatively considerable	Implementation of project-specific mitigation measures would reduce the Project’s contribution to a less-than-cumulatively-considerable level.	Less than cumulatively considerable
Impact CE-25: Cumulative Impact on Educational Facilities	Less than cumulatively considerable	None required	–

Chapter 1
Introduction

Purpose of This Document

The California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code [PRC] 21000–21178), requires that an environmental impact report (EIR) be prepared, certified, and considered by decision makers before action is taken on certain projects. In general, an EIR is a detailed informational document prepared by a Lead Agency with the primary purpose to inform decision-makers and the public about the significant environmental effects of a project.

State CEQA Guidelines Section 15161 requires an EIR to examine the expected individual and cumulative impacts of all phases of a proposed project, including planning, construction, and operation. An EIR also identifies means (mitigation measures) to minimize potential adverse impacts and evaluates reasonable alternatives to the proposed project, including the required no-project alternative. In order assist Lead and Responsible Agencies in streamlining and focusing the environmental review of proposed projects, the CEQA Guidelines encourage the use of several different types of EIRs that are categorized based on the nature of the proposed project and the particular decision-making process undertaken to review a project. For the purposes of this document, the discussion below focuses on two types of EIRs: the *project EIR* and the *program EIR*.

Project Environmental Impact Report

The most common type of EIR, the project EIR analyzes the impacts of an individual activity or specific project. The project EIR, like all EIRs, must include the contents required by the CEQA statute and the corresponding CEQA Guidelines. Project EIRs are generally prepared for specific site-development projects, such as large-scale subdivisions or wastewater treatment plants.

Program Environmental Impact Report

A program EIR is a type of *first-tier*[1] document and is generally prepared by a Lead Agency for an agency program or series of actions that can be characterized as one large project. Program EIRs are typically prepared for agency plans, policies, or regulatory programs. Although the required contents of a program EIR are the same as those of a project EIR, in practice there are considerable differences in the level of detail. Because of the general nature of the programs that are typically being evaluated, program EIRs are often more conceptual and abstract. However, CEQA requires the level of detail of the analysis in an EIR to reflect the level of detail in the project being analyzed. Therefore, a program EIR is not limited to general analyses.

Focus of this Document

This document incorporates aspects of both kinds of EIR and describes two distinct types of activity proposed by Richland Planned Communities, Inc., in the City of West Sacramento (City). The River Park General Plan Amendment and Rezoning Project (Project) includes both the River Park Project area and the Water Related Commercial area. Given the site-specific development proposed through the River Park Project, as compared to the more general nature of the Water Related Commercial area, the analysis of the environmental effects of these two separate, yet geographically related actions are analyzed in one EIR that combines program-level analysis for the Water Related Commercial area and project-level analysis for the River Park Project development.

The Project also includes a future elementary school to be built by the Washington Unified School District within the River Park Project boundaries. Because the design of the school and its schedule of construction are not known at this time, the school is analyzed in this EIR at a program level. As described in Chapter 2, *Project Description*, the EIR makes some generic assumptions about the future school’s size and associated facilities based on typical elementary schools. Site-specific analysis of the school and additional CEQA compliance will be the responsibility of the school district at such time as they develop those plans.

Additionally, the development of the project will require construction of the continuation of Village Parkway, off the project site to the west. A western extension of Village Parkway through the project site would provide access to Bevan Road or a future road south of Bevan Road. The preferred alignment for this western extension will be coordinated with future development in the Southwest Village. The EIR includes program-level analysis of construction of Village Parkway, including options for its alignment to the west of the River Park site.

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[1] Tiering refers to the preparation of environmental documents using a multi-level approach where the first-tier includes analysis of general matters contained in a broader EIR and subsequent tiers include analysis of narrower project with later EIRs and Negative Declarations.

To allow for consistency of the analysis, the discussion of each action's environmental effects have been combined into a single chapter for each resource area (e.g., air quality, biology, etc). Within each section, the analyses of impacts related to each of the elements are clearly identified.

EIR Requirements

CEQA and the State CEQA Guidelines provide the statutory requirements for evaluating environmental impacts of the proposed Project. CEQA requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority. Public agencies are required to avoid or mitigate impacts, when feasible, and to balance a variety of public objectives, including economic, environmental, and social objectives when no alternatives or mitigation is feasible. The City has discretionary authority to approve the proposed Project; therefore, it is the lead agency under CEQA.

An EIR is a public informational document used in the planning and decision making process. Although the EIR does not control the ultimate decision on the Project, the City must consider the information in the EIR and respond to each significant impact identified in the EIR. More specifically, the purpose of an EIR is to clearly present:

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

An EIR also discloses growth-inducing impacts; effects found not to be significant; and significant cumulative impacts, considering past, present, and reasonably foreseeable probable future projects.

The EIR represents an objective, good-faith disclosure of the foreseeable environmental impacts that might occur should the project be approved and developed. The EIR does not approve or deny the project.

CEQA requires the City to prepare an EIR that reflects the independent judgment of the agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and the public. The purposes of public and agency review of a draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting counter-proposals.

Reviewers of a draft EIR should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental effects.

Terminology

To assist readers in understanding this EIR, key terms used are defined as follows based on definitions found in the State CEQA Guidelines sections 15350–15387.

- *Project* means the whole of an action that has the potential to result in a physical change in the environment, directly or indirectly.
- *Environment* means the physical conditions in the area that would be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is the area in which significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and built conditions.
- *Impacts* analyzed under CEQA must be related to a physical change in the environment. Impacts are defined as direct or primary effects that are caused by the proposed project and occur at the same time and place, and indirect or secondary effects that are caused by the proposed project and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- *Significant impact* means a substantial or potentially substantial adverse change in any of the physical conditions in the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself is not considered a significant effect on the environment, but a social or economic change related to a physical change may be considered in determining whether the physical change is significant.
- *Mitigation* is defined as:
    - avoiding the impact altogether by not taking a certain action or parts of an action;
    - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
    - rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
    - reducing or eliminating the impact over time through preservation and maintenance operations during the life of the action; or

  - compensating for the impact by replacing or providing substitute resources or environments.

- *Cumulative impacts* refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts.
  - The individual impacts may be changes resulting from a single project or separate projects.
  - The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This EIR uses several terms to describe the level of significance of impacts. These terms are defined as follows.

- A *less-than-significant impact* is adverse but does not exceed the defined thresholds of significance. Less-than-significant impacts do not require mitigation.
- A *significant impact* exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less-than-significant level.
- A *significant and unavoidable impact* exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures.

Organization of the EIR

This EIR is organized in the following chapters:

- The *Executive Summary* presents a brief synopsis of the Project; outlines the impacts and mitigation measures; identifies areas of known controversy, including issues raised by agencies and the public; and identifies unresolved issues. This section also summarizes the proposed Project's growth-inducing, cumulative, significant and unavoidable, and significant irreversible impacts.
- Chapter 1, *Introduction*, provides an overview of the Project, explains the purpose and focus of this EIR, defines terms used in the analysis, outlines the organization of this EIR, identifies agencies that may use this EIR, and discusses the environmental review process.
- Chapter 2, *Project Description*, describes the River Park Project and the Water Related Commercial area as proposed by the City and includes the Concept Site Plan.

- Chapter 3, *Environmental Setting, Impacts, and Mitigation*, is devoted to resource topics. For each resource, data relevant to the environmental setting are presented. The impacts of the proposed Project on the resource are evaluated in terms of significance, and mitigation measures are identified where feasible. As lead agency, the City is responsible for determining which mitigation measures will be appropriate.
- Chapter 4, *Alternatives Analysis*, identifies and discusses the three alternatives to the proposed Project that are being considered to eliminate or reduce significant impacts.
- Chapter 5, *Other CEQA Considerations*, presents the analysis of the proposed Project's cumulative and growth-inducing impacts.
- Chapter 6, *References Cited*, lists a bibliography of works cited in this document.
- Chapter 7, *Report Preparers*, lists the EIR authors, technical specialists, members of the production team, and other key individuals who assisted in the preparation and review of this EIR.
- Technical appendices with supporting data and information are presented at the end of this EIR.

Agencies That May Use the EIR

This EIR may be used by several responsible or trustee agencies that also have review authority over the proposed Project. As stated in State CEQA Guidelines Section 15231:

> A final EIR prepared by a lead agency or a negative declaration adopted by a lead agency shall be conclusively presumed to comply with CEQA for purposes of use by responsible agencies which were consulted pursuant to Sections 15072 or 15082 unless one of the following conditions occurs:
>
> a. The EIR or Negative Declaration is finally adjudged in a legal proceeding not to comply with the requirements of CEQA, or
>
> b. A subsequent EIR is made necessary by Section 15162 of these Guidelines.

The various local, state, and federal agencies that may use the EIR are identified in Chapter 2, *Project Description*.

Environmental Review Process

CEQA does not require formal hearings at any stage of the environmental review process (State CEQA Guidelines Section 15202[a]). However, it does encourage "wide public involvement, formal and informal, in order to receive and evaluate public reactions to environmental issues" (State CEQA Guidelines Section 15201).

The City distributed a notice of preparation (NOP) of a draft EIR for the proposed Project on June 3, 2005 (Appendix A). The NOP was distributed for a 30-day comment period that ended on July 5, 2005. The City held agency and public scoping meetings on the proposed Project on June 21, 2005, in West Sacramento. The scoping meeting was an opportunity for agencies and the public to obtain information about the proposed Project and to provide input regarding the issues they wanted addressed in the draft EIR. Comments on the NOP and received during the scoping meeting were considered in the preparation of this EIR. Appendix A contains written comments received on the NOP of the EIR. This draft EIR will be circulated for a 45-day public and agency review, as required by the State CEQA Guidelines. During the comment period, written comments may be submitted to the address on the title page.

Chapter 2
Project Description

Project Background

The City of West Sacramento is considering a proposed general plan amendment and rezoning for the River Park General Plan Amendment and Rezoning Project (Project) in the Southport area of West Sacramento. The Project involves the creation of a residential *village* on 494.4 acres in the Southport area's Southeast Village (Figures 2-1 and 2-2).

The Southport area is the focus of the Southport Framework Plan (City of West Sacramento 1998), a community plan that refines the *City of West Sacramento General Plan* (General Plan) (City of West Sacramento Department of Community Development 1990a) policies and land use designations for the Southport area. The existing Southport Framework Plan provides for approximately 16,109 residential units, 1.72 million square feet of commercial uses, 2.11 million square feet of office/business park uses, 7.66 million square feet of industrial uses, 544 acres of public/quasi-public uses, and 915 acres of parks and open space.

The Southport Framework Plan divides the Southport areas into four *villages*. The plan's intent is that each village will be a distinct, pedestrian-oriented part of the city, with its own character and activity centers. The project site is located within, and comprises a majority of, the Southeast Village. The Southeast Village was originally envisioned as a small *village core* surrounded by low-density residential uses, with medium- and high-density residential land uses concentrated around the village core that included a small neighborhood commercial site. A total of 22 Rural Estate (RE), 52 Rural Residential (RR), 1,215 Low-Density Residential (LR), 193 Medium-Density Residential (MR), and 414 High-Density Residential (HR) units, for a total of 1,896 residential units were anticipated for buildout of the 648.6 acre Southeast Village under the Southport Framework Plan and EIR. A regional park was proposed to be located at the eastern edge of the village, with an adjacent water-related commercial (WRC) site. Additional neighborhood parks and an elementary school site were included as part of the village core.

Project Location

The 494.4-acre project site is located in the Southport area of West Sacramento. The site is generally bound to the east and south by the Sacramento River and South River Road, to the north by Davis Road and existing residences, and to the west by the former Yolo Shortline Railroad corridor. The site is currently being used for agricultural production and grazing. Existing structures on the site include single-family residences and agriculture-related buildings.

The Sacramento River forms a natural buffer between the project site and the Greenhaven and Pocket area neighborhoods in the City of Sacramento to the east. To the west and south, land uses generally include agricultural land and single-family residences. Lands north of the site are currently undergoing urbanization as part of the Northeast Village of the Southport Framework Plan.

Project Description

The Project would modify the planned development of the Southeast Village. The area is currently planned for residential development ranging from low to high densities, neighborhood commercial, WRC, elementary school, open space, and parkland uses. The Project would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential, low-, medium-, and high-density offerings), a ±40-acre regional park, and community open-space areas (Figure 2-3).

The Project would represent an increase of approximately 900 residential units compared to what was considered by the Southport Framework Plan. A calculation of number of units under the existing Southport Framework Plan and the River Park Project are shown below in Table 2-1.

Table 2-1. Calculation of Number of Units for Existing Southport Framework Plan and the River Park Project

Land Use	Existing Southport Framework Plan and EIR (units)	Proposed Project (units)
RR	52	22
RE	22	0
LR	1,215	728
MR	193	1,446
HR	414	592
Total	**1,896**	**2,788**

The Project also includes changes to the General Plan and the Zoning Map (West Sacramento Municipal Code, Title 17) to generally increase residential densities

Source: EDAW 2004

Figure 2-1
Regional Map

Source: EDAW 2004

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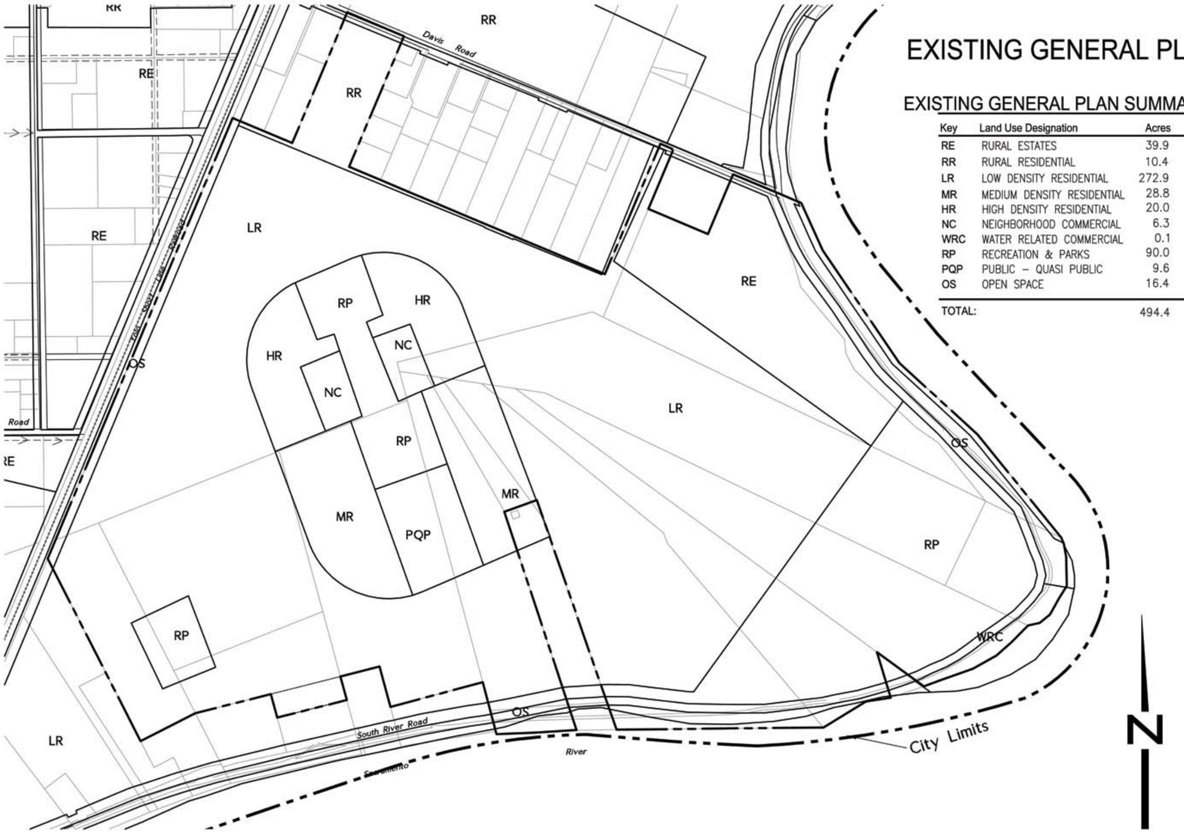
Figure 2-2
Southeast Village Aerial



EXISTING GENERAL PLAN

EXISTING GENERAL PLAN SUMMARY

Key	Land Use Designation	Acres
RE	RURAL ESTATES	39.9
RR	RURAL RESIDENTIAL	10.4
LR	LOW DENSITY RESIDENTIAL	272.9
MR	MEDIUM DENSITY RESIDENTIAL	28.8
HR	HIGH DENSITY RESIDENTIAL	20.0
NC	NEIGHBORHOOD COMMERCIAL	6.3
WRC	WATER RELATED COMMERCIAL	0.1
RP	RECREATION & PARKS	90.0
PQP	PUBLIC – QUASI PUBLIC	9.6
OS	OPEN SPACE	16.4
TOTAL:		494.4

SCALE: 1"= 400'

PROPOSED GENERAL PLAN

PROPOSED GENERAL PLAN SUMMARY

Key	Land Use Designation	Acres
RR	RURAL RESIDENTIAL	22.9
LR	LOW DENSITY RESIDENTIAL	144.3
MR	MEDIUM DENSITY RESIDENTIAL	168.1
HR	HIGH DENSITY RESIDENTIAL	31.9
NC	NEIGHBORHOOD COMMERCIAL	6.0
PARKWAY	PARKWAY	29.9
ROADWAY	– VILLAGE PARKWAY	12.2
OS	OPEN SPACE	24.1
RP	RECREATION & PARKS	52.4
WRC	WATER RELATED COMMERCIAL	2.6
TOTAL:		494.4

Source: Nolte Engineering

Figure 2-3
River Park Concept Plan

and add recreational opportunities. The existing and proposed zoning designations are shown in Figure 2-4 and are described below in Table 2-2.

Table 2-2. Acreage by Zoning Designation Comparing Existing Southport Framework Plan and the River Park Project

Existing Zoning	Southport Framework Plan (acres)	River Park Project (acres)	*Net Change (acres)*
Rural Residential (RRA)	10.4	22.9	*+12.5*
Rural Estates (RE)	39.9	0	*-39.9*
Residential-One Family (R-1B)	270.9	144.3	*-128.6*
Residential-One Family or Multi Family (R-2)	32.0	168.1	*+139.3*
Multiple-Family Residential (R-3)	20.0	31.9	*+11.9*
Neighborhood Commercial (C-1)	6.3	6.0	*-0.3*
Water-Related Commercial (WRC)	0.1	2.6	*+2.5*
Recreation-Parks (RP)	90	82.3	*-7.7*
Public-Quasi Public (PQP)	9.6	0	*-9.6*
Public Open Space (POS)	16.4	24.1	*+7.7*
Roadway	–	12.2	–
Total	**495.6**	**494.4**	**–**

Project Purpose and Objectives

The purpose and objectives of the Project include the following points.

- Preserve the site’s unique natural resources.
- Create a community that captures the most current practice in environmental stewardship and physically connects the project site with city and regional recreational opportunities.
- Provide a range of housing choices for current and future generations of West Sacramento residents.

Applicant’s Objectives

The overall objective of the proposed Project is the orderly and systematic development of an integrated, mixed-use community in the Southport Framework Plan’s Southeast Village compatible with site characteristics and generally consistent with goals and policies of the City’s General Plan and Southport Framework Plan.

In support of this overall objective, the proposed Project is designed to achieve the following more specific objectives:

Objective #1: Establish a mixed-use community implementing the general intent of the City General Plan and Southport Framework Plan to develop Southeast Village with urban land uses that complement existing development in the City.

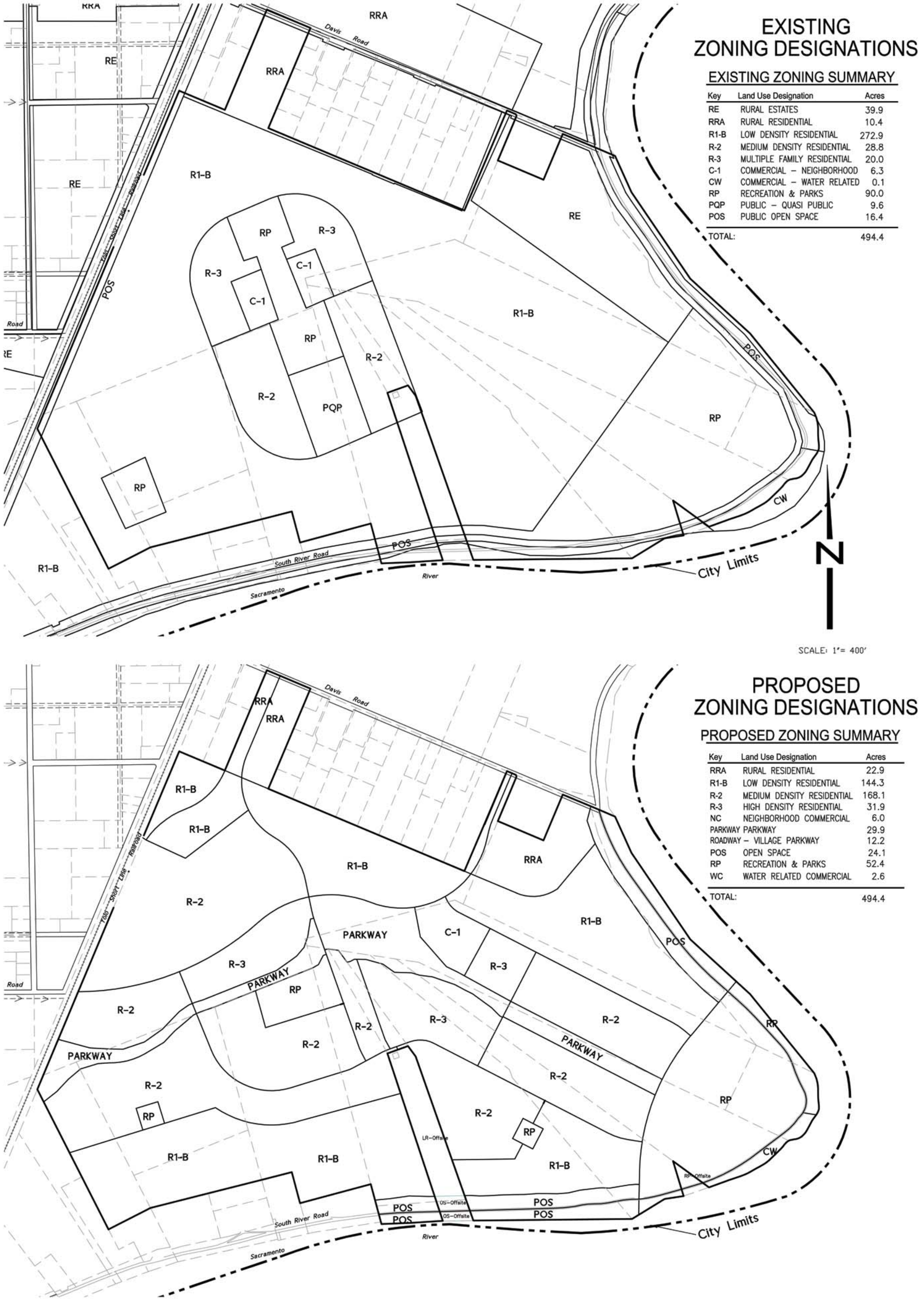
1. Establish a comprehensive land use plan that will guide development of the Southeast Village area in a way that is compatible with and complements existing and planned land uses in other portions of Southport and the City.
2. Update the City's long term vision for the Southeast Village as a mixed-use community, as set forth in the City's General Plan (as amended), by incorporating refinements designed to reflect evolving innovation in land use planning concepts such as those envisioned in the Sacramento Area Council of Governments (SACOG) Blueprint project.
3. Provide a balanced mix of land uses, including residential neighborhoods; service related commercial/retail and other non-residential, employment generating land uses; and PQP land uses such as schools, parks and civic oriented facilities.
4. Provide roadway improvements and other needed infrastructure that benefits existing and future residents that will tie the proposed Project together with existing development in other Southport villages.

Objective #2: Provide a variety of housing types that will serve residents of varying household incomes.

1. Create opportunities for a variety and range of housing types and densities designed to provide more efficient land use, more attainable housing without reducing quality or amenities, more efficient use of public infrastructure, and more environmentally sensitive development patterns.
2. Contribute to the efforts to provide for the growing housing needs of the City and the region by encouraging the production of a broad mix of housing types and densities.

Objective #3: Create integrated neighborhoods that link with the commercial/retail and PQP uses.

1. Create a distinctive focal point for the plan area and a social centerpiece for the surrounding neighborhoods by anchoring the plan with a pedestrian oriented, centrally located village center that will include neighborhood serving retail, an elementary school, and an open space greenway that provides connectivity with surrounding neighborhoods.
2. Incorporate a mix of neighborhoods organized around interior parks and the open space greenway.
3. Provide retail services, entertainment and recreation uses such that those who live and work within the plan area will not have to travel elsewhere for most routine or daily needs and residents who live outside the plan area will be



EXISTING ZONING DESIGNATIONS

EXISTING ZONING SUMMARY

Key	Land Use Designation	Acres
RE	RURAL ESTATES	39.9
RRA	RURAL RESIDENTIAL	10.4
R1-B	LOW DENSITY RESIDENTIAL	272.9
R-2	MEDIUM DENSITY RESIDENTIAL	28.8
R-3	MULTIPLE FAMILY RESIDENTIAL	20.0
C-1	COMMERCIAL – NEIGHBORHOOD	6.3
CW	COMMERCIAL – WATER RELATED	0.1
RP	RECREATION & PARKS	90.0
PQP	PUBLIC – QUASI PUBLIC	9.6
POS	PUBLIC OPEN SPACE	16.4
TOTAL:		494.4

PROPOSED ZONING DESIGNATIONS

PROPOSED ZONING SUMMARY

Key	Land Use Designation	Acres
RRA	RURAL RESIDENTIAL	22.9
R1-B	LOW DENSITY RESIDENTIAL	144.3
R-2	MEDIUM DENSITY RESIDENTIAL	168.1
R-3	HIGH DENSITY RESIDENTIAL	31.9
NC	NEIGHBORHOOD COMMERCIAL	6.0
PARKWAY	PARKWAY	29.9
ROADWAY	– VILLAGE PARKWAY	12.2
POS	OPEN SPACE	24.1
RP	RECREATION & PARKS	52.4
WC	WATER RELATED COMMERCIAL	2.6
TOTAL:		494.4

Source: Nolte Engineering

05304.05 Admin EIR (rev 10-05)

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Figure 2-4
Existing and Proposed Zoning Designations

able to address more of their needs without traveling outside the Southport community.

Objective #4: Provide economic and planning benefits for the City as a whole through residential and commercial/retail development, availability of civic and PQP space, and increased tax revenues.

1. Establish a commercial/retail village center that provides neighborhood services and dining opportunities for the local community.
2. Generate positive fiscal benefits for the City where the municipal revenues generated by the Project are greater than the costs of providing municipal services to the Project.
3. Create a village that integrates neighborhoods, an open space greenway corridor, retail uses and public recreation facilities that support increased land values associated with sustainable development for both the existing and future residents.

Objective #5: Provide opportunities for improved integration of transportation modes and increased transportation efficiency.

1. Encourage non-vehicular travel by linking village neighborhoods to the open space greenway, village center, parks, and school as well as to each other through an interconnected system of pedestrian and bicycle pathways.
2. Establish higher density residential land uses in proximity to public transit to minimize vehicular trip lengths, automobile usage and provide related air quality benefits.
3. Provide an integrated, efficient, and safe circulation system for pedestrians, bicyclists, transit and vehicles.

Objective #6: Provide recreational benefits to the Southeast Village area and City residents through a comprehensive public parks program (including, in particular, the riverside parklands) and the marina use.

1. Maximize active and passive recreational opportunities through the creation of a comprehensive public parks program that includes a linear open space greenway system bisecting the village and connecting the Sacramento River marina and large community park with the future Southport-wide trail system proposed by the City to be located along the former Yolo Shortline railroad.
2. Enrich the interaction between the city and the Sacramento River by incorporating the river’s edge as a component of the plan area parks program and WRC uses (i.e., marina).

Project Characteristics

The proposed Project maintains the village core near the center of the site, as envisioned by the Southport Framework Plan, but aligns it with a proposed parkway and regional trail system. The elementary school, most neighborhood park sites, the regional park, and WRC areas would be maintained in their respective locations as identified in the Southport Framework Plan.

The Project involves the creation of a residential village and would include an increase in the proportion of medium- and high-density residential uses at the site, concentrating these uses toward the center of the site. The Project includes the development of a residential component, elementary school, open space framework, commercial center, WRC area, circulation plan, and infrastructure plan.

Residential Component

The residential component includes the development of 2,788 residences in a range of sizes and types, as described below.

- 22 rural residential units (1 dwelling unit per acre).
- 728 low-density units (5 units per acre).
- 1,446 medium-density units (10 units per acre).
- 592 high-density units (22 units per acre).

Elementary School

The Southport Framework Plan land use diagram shows a ±10.5 acre elementary school site within in the core of the Southeast Village. The proposed Project includes construction of an elementary school on the project site.

The proposed Project also include redesignation and rezoning of the designated school site from PQP to R-2, as it is not clear that the Washington Unified School District (WUSD) will choose to acquire and construct the elementary school at that specific location. Should the WUSD determine a different school site is preferable or an elementary school is unnecessary within the project boundaries, redesignation and rezoning will allow the site currently identified as a school site in the Southport Framework plan and city zoning to be developed with R-2 residential uses.

Although the EIR to be prepared for the Project is a *project EIR* for all land uses on the landward side of the levees along the Sacramento River (see State CEQA Guidelines, §15161), because of the uncertainty of the specific location of the elementary school, in addition to lack of knowledge at this time of the timing of construction of the school, the proposed elementary school site associated with the Project is analyzed herein at only a *programmatic* level (see State CEQA Guidelines, §15168). Additional site-specific CEQA analysis will be required when the school district finalizes future development plans for the site.

Open Space Plan

The open space plan includes development of approximately 106.4 acres of parks and open space: 52.4 acres of parklands (including development of a regional park and three neighborhood parks), 24.1 acres of open space along the Sacramento River, and a 29.9-acre parkway feature (Figure 2-5). The primary feature of the open space plan is the use of an existing agricultural irrigation ditch at the site, which would be expanded and redesigned as an open water/emergent marsh habitat amenity. This wetland feature would serve as the centerpiece of the planned parkway. Native and naturalized plantings along the parkway would be encouraged. In addition, the enhanced parkway would be used to continue conveyance of irrigation flows, collect storm and surface water drainage from River Park and act as a detention basin for stormwater runoff. The parkway would extend from the former Yolo Shortline Railroad corridor at the western boundary of the site easterly to the regional park proposed at the Project’s southeastern boundary. The parkway would provide bicycle, equestrian and pedestrian opportunities and facilities.

Within this interconnected park system, four distinct sections have been defined: (east to west) a regional park, urban park, oak preserve park, and residential park. The regional park would be located in the southeastern portion of the site at the bend in the Sacramento River. Amenities at the regional park may include a small community center, an outdoor amphitheater, multi-use sports fields, lighted basketball and tennis courts, lighted baseball diamonds, a community playground, restroom facilities, and parking areas. The urban park would be constructed along the proposed water feature and would connect the regional park and oak preserve park.

The oak preserve park would include preservation of an existing oak woodland area at the site and the development of a picnic area, pedestrian and bicycle paths, and nature trails. The residential park would connect the oak preserve park and the former Yolo Shortline Railroad corridor that will be developed by the City as a *rails-to-trails* open space system along the western boundary of the project site. The western end of the residential park would include construction of a detention basin/water feature with year-round open water.

Commercial Center

The commercial center would include development of a 5-acre area supporting approximately 45,000–65,000 square feet of commercial and retail uses. The potential mix of commercial and retail uses may include small restaurants, such as a café and coffee shop, and other local serving commercial land uses such as a hair salon, dry cleaner, professional offices, a branch bank, and a daycare center. The commercial center would also be linked to public transportation by providing a centrally located retail/service center that can be reached by various means of transportation, including the planned development of a mass-transit stop adjacent to the commercial center and the creation of a park-and-ride area near the transit stop. The commercial center has been designed to also include a public plaza that fronts onto the oak preserve park.

Water-Related Commercial Area

The Project includes the ultimate development of 2.6 acres of WRC uses along the Sacramento River, which may include a marina, a restaurant, a boating equipment shop, and parking areas. Pedestrians and bicyclists would be able to access the area via a trail from the regional park. For purposes of analysis, it was assumed the marina would have 25 berths, the boat equipment shop would be 5,000 square feet, and the restaurant would be 4,000 square feet. However, no plans have been developed for the marina and Water Related Commercial area beyond these assumptions, and therefore the analysis in this EIR of this element of the project is necessarily general.

For this reason, although the EIR to be prepared for the Project is a *project EIR* for all land uses on the landward side of the levees along the Sacramento River (see CEQA Guidelines, §15161), the proposed WRC land uses associated with the Project are analyzed herein at only a *programmatic* level (see CEQA Guidelines, §15168). Additional, site-specific CEQA analysis will be required when the applicant submits specific future proposals for the Water Related Commercial area.

Circulation Plan

The site would be accessed through a combination of improving or extending existing roadways and the construction of new roadways. Access along the southern and eastern boundaries of the site would be through new roadway connections onto South River Road. Access from the north (Northeast Village) would be from two locations including the extension of Village Parkway from Linden Road across Davis Road and the extension of Stonegate Drive southerly from Linden Road across Davis Road to Village Parkway. The offsite portion of these roadways from the north would be improved in collaboration with the City and adjacent development. Access from the west (Southwest Village) would be from an extension of Village Parkway from or near the existing terminus of Bevan Road and extending easterly to the village center and eventually connecting to Davis Road west of the intersection with South River Road. An alternative alignment for Village Parkway would commence from an off-site realignment west of the project boundary, intersecting the westerly project boundary approximately 700 feet south of Bevan Road. The off-site portion of this alignment would be coordinated with proposed developments in the Southwest Village and the potential impacts of this alternative road alignment are analyzed at a *programmatic* level (see discussion of Alternative 5 in Chapter 4, *Alternatives Analysis*). A series of residential collectors and local roads would provide access within River Park. The Project would include an amendment to the circulation diagram of the Southport Framework plan to implement the above changes.

Source: EDAW 2004

05304.05 EIR (rev 7-05)

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Figure 2-5
Open Space Framework

Infrastructure Plan

The infrastructure plan would consist of three plans: a drainage concept plan, a water concept plan, and a sanitary sewer concept plan. The drainage concept plan is based on the use of the parkway for stormwater conveyance, detention and stormwater quality management. Stormwater discharge and surface runoff would be channeled toward the parkway, where it would be collected and reused in the water feature. The water channels and open water areas of the parkway would be designed to serve as detention basins and stormwater quality management facilities.

The water concept plan would be designed in accordance with the City's *Water Master Plan* (City of West Sacramento 1994, updated 2005), the City's *Standard Specifications* (City of West Sacramento 2002), and the technical memorandum on treated water storage analysis (West Yost and Associates 2003), unless superseded by the 2005 Water Master Plan update. The River Park water system would connect to the City's existing system at two points: the Marshall Road/Jefferson Boulevard and Southport Parkway/Jefferson Boulevard intersections. Water would also be provided through a proposed extension of the Bridgeway Lakes project, with multiple extensions along Jefferson Boulevard to Bevan Road and Davis Road. Water main extensions from the north along Village Parkway would also provide additional connections. A proposed three million gallon water storage tank would be situated in the northeasterly corner of the regional park, serving the Southeast Village and lands to the north.

The sanitary sewer concept plan would be designed in accordance with the *Southport Sanitary Sewer Master Plan* (City of West Sacramento 2003), which is based on an agreement between the City and the Sacramento Regional County Sanitation District to connect to the Lower Northwest Interceptor (LNWI), sewer line which would then convey wastewater south to the Sacramento Regional Wastewater Treatment Plant. The LNWI sewer line will be constructed across the westerly portions of the River Park Project as a separate project, which will include the construction of a manhole on the River Park Project specifically designed as a connection point for a local sewer system.

Required Approvals and Permits

This EIR will be used by the City of West Sacramento to document the potential impacts and to determine whether the impacts could be avoided or mitigated to less-than-significant levels. The City is the lead agency for the proposed Project. This EIR may also be used by regulatory and responsible agencies such as state agencies. Such agencies are responsible for issuing permits and approvals that may be needed to proceed with the proposed Project or that regulate the implementation of best management practices (BMPs). Potential permits and approvals required by the City are identified below.

- Approval by the City of West Sacramento City Council of a general plan amendment to generally increase residential densities and add recreational opportunities.
- Approval by the City Council of amendments to the Southport Framework Plan land use designations to increase residential densities, and to provide more recreational opportunities.
- Approval by the City Council of rezoning the site consistent with the proposed General Plan and Southport Framework Plan changes discussed above.
- Approval by the City Council of a Planned Unit Development with Planned Development Standards.
- Approval by the Planning Commission of large lot tentative, and subdivision map dividing the property into residential, commercial, open space, recreational, and other large lots.
- Approval by the City Council of a development agreement between the applicant and the City.
- Approval of by the City building and grading permits and final maps.

Other project approvals that may be required are listed below.

- Section 404 permit from the U.S. Army Corps of Engineers (Corps).
- Section 401 certification from the Regional Water Quality Control Board (RWQCB)
- Construction activity stormwater permit from the RWQCB.
- Section 1602 Streambed Alteration Agreement from the California Department of Fish and Game (DFG).
- Biological Opinion from the U.S. Fish and Wildlife Service (USFWS) for project impacts on special-status species.
- National Pollutant Discharge Elimination System (NPDES) permit from the RWQCB.
- Department of Toxic Substances Control (DTSC) clearance.
- California Department of Education approval of site acquisition and construction plans for proposed school facilities.
- Washington Unified School District review and approval of site acquisition and construction plans for proposed school facilities.
- Permit from the Reclamation District 900, Bureau of Reclamation/State Water Resources Department for any levee work.

Other state and local approvals for the proposed Project may be required as the Project is implemented. This EIR will serve as the environmental review document for other approvals that may be necessary or desirable for project implementation.

Related Projects

The projects described below were identified by the City as *Related Projects* that could affect similar types of resources in the same timeframe as the proposed Project. These related projects include projects that are not described in detail in the Southport Framework Plan EIR, or an existing project-level environmental document, but could affect the same resources in the same timeframe as the proposed project, contributing to a cumulative impact.

The City has received applications for five major developments in or adjacent to Southport, including the proposed Project (Figure 2-6). The other four projects are:

- Yarbrough;
- The Parks at Southport;
- University Park; and
- Harbor Pointe.

All of these projects involve amendments to the general plan and zoning designations, as well as amendments to the Southport Framework Plan. Two applications involve reconfiguring villages planned in the Southport Framework Plan (River Park and Harbor Pointe), one expands the southwest village core of the Southport Framework Plan (Yarborough), one is located outside the Southport Framework Plan area directly south of the City Limits (University Park), and one proposes changes to the southern portions of the Southport Business Park to residential and commercial (The Parks at Southport). There have also been tentative discussions of converting the Port of Sacramento's Seaway Property in Southport to residential use although no application has been submitted. However, since no application has been filed, this project is not considered a reasonably foreseeable related project and is not described below.

Yarbrough Project

The proposed Yarbrough Project involves the creation of a residential village with 3,004 residences of various types, a *village core* with commercial and mixed uses, an 18-hole golf course, extensive recreational facilities along a new chain of lakes, and an elementary school (to be separately planned and built by the WUSD) on 710 acres in the Southport area's Southwest Village. The proposal would exceed the level of development currently planned in the Southport Framework Plan by 1,847 residential units, eliminate the agricultural buffer, and provide substantially more recreational area. The applicant is requesting the necessary revisions to the Southport Framework Plan to support this proposal.

The Yarbrough Project would establish a network of streets and trails providing both motorized and non-motorized access. This includes a system of landscaped pedestrian, bicycle, and equestrian trails, including the lake promenade; a multi-use regional recreation trail along the levee system on the western and southern sides of the project site; Class 2 bike lanes along Jefferson Boulevard, Southport Parkway, and collector roads within the project site; and pedestrian connectors along selected local streets. The Project would also include a comprehensive system of arterial and collector streets. Jefferson Boulevard would be expanded to four lanes from the northern edge of the project site to the intersection with Southport Parkway in the village core; it would transition to two lanes south of that point. Jefferson Boulevard would cross the proposed lake on a new bridge near the village core. Jefferson Boulevard would be built as a parkway, with a landscaped median and sides.

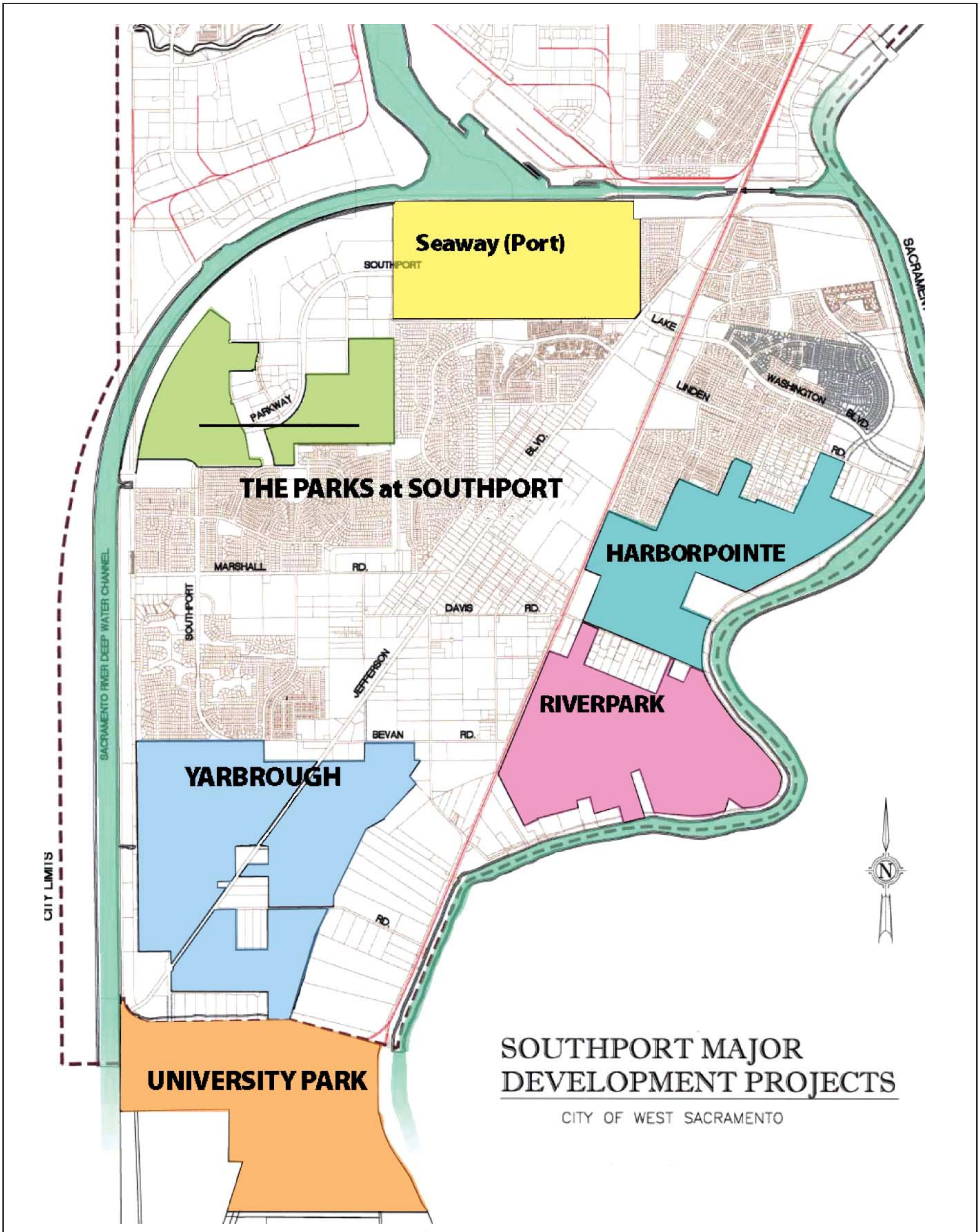
The City is the lead agency responsible for preparing the environmental documentation for the Yarbrough Project. At the time this draft EIR was prepared, the City was preparing a draft EIR.

The Parks at Southport

This application by Blackridge Southport LLC is the first portion of a major application that seeks to amend the General Plan and makes zoning amendments for approximately 279 acres of land within the Southport Business Park. The project area is located generally south of Carlin Drive, east of the Deep Water Ship Channel, west of the Main Drain Canal and north of the Bridgeway Island subdivision. The application calls for rezoning of lands from heavy industrial, light industrial, and business park to low-density residential, medium-density residential, high-density residential, PQP, and recreation and parks. Designations involving high-density residential, mixed-use and neighborhood commercial would remain on the site. The application provides over 22 acres of parks. The applicant is in the process of preparing applications for amendments to PD-21, the Southport Business Park development agreement, and a vesting tentative map. In excess of 2,050 single and multi-family residential units would be planned for the site. An EIR is currently under preparation.

University Park

This is an application to annex 587 acres to the City and to establish General Plan and Pre-Zoning designations for low-density residential, medium-density residential, high-density residential, and open space land uses. The project site is south of the City limits, between the Deep Water Ship Channel, the city’s southern incorporated limits, and the Sacramento River. Approximately 2,500 active adult housing units are proposed. The project also proposes an educational park of 25 to 40 acres, which would include a demonstration school, educational center, and a residential complex for interns and students studying in the Sacramento area. An EIR is currently under preparation.



Source: Summary Report on Southport Development Decisions, City of West Sacramento. (September 2005)

Figure 2-6
Southport Major Development Projects

Harbor Pointe

This application proposed a general plan amendment and rezone on 406 gross acres. At the time of Notice of Preparation for the River Park Project, an active development application was in process for the Harbor Pointe Project and thus it was included in the analysis of the cumulative impacts. On March 22, 2006, the application for the Harbor Pointe project was suspended by the project applicant. However, development of the properties that made up the Harbor Pointe project is still considered to be reasonably foreseeable given its relative consistency with the Southport Framework Plan in terms of land use and density. Since the majority of analysis and draft environmental document for the River Park Project were near completion, the Harbor Pointe project was left in the cumulative analysis contained herein.

Chapter 3
Environmental Setting, Impacts, and Mitigation

This chapter contains an evaluation for CEQA of the environmental impacts of both the proposed River Park Project and the Water Related Commercial Area, collectively referred to as the Project. In this chapter, short- and long-term beneficial and adverse impacts on the physical (natural and man-made), cultural, and aesthetic environments are discussed. The discussion covers both the impact of the Project on the environment and the impact of the environment on the Project.

As discussed in Chapter 2, *Project Description*, the Project would modify the planned development of the Southeast Village. The area is currently planned for residential development ranging from low to high densities, neighborhood commercial, water-related commercial, elementary school, open space, and parkland uses. The Project would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential, low-, medium-, and high-density offerings), a 44-acre regional park, and community open-space areas (Figure 2-3).

This chapter consists of the following sections.

- 3.1, *Visual Resources*
- 3.2, *Agricultural Resources*
- 3.3, *Air Quality*
- 3.4, *Biological Resources*
- 3.5, *Cultural Resources*
- 3.6, *Geology and Soils*
- 3.7, *Hazards and Hazardous Materials*
- 3.8, *Hydrology and Water Quality*
- 3.9, *Land Use and Planning*
- 3.10, *Noise*
- 3.11, *Population and Housing*
- 3.12, *Recreation*

- 3.13, *Traffic and Transportation*
- 3.14, *Utilities and Public Services*

For each resource topic covered in this chapter, the following information is presented with slight variations to account for the specific nature of the individual resource areas.

- **Environmental Setting**
  - ☐ **Existing Conditions:** In this section, the existing site and study area conditions are described for the resource topic.
  - ☐ **Regulatory Setting:** In this section, federal, state, and local policies, regulations, and standards are described for the resource topic.
- **Impact Analysis**
  - ☐ **Approach and Methodology:** This section describes the technical methodology for impact assessment. If models were used to assess impacts, the models are described in this section, as are other technical tools.
  - ☐ **Significance Thresholds:** In this section, the thresholds used to determine the significance of the impacts are presented. The significance conclusions that can be noted at the end of each impact discussion are defined below.
    - **No Impact:** This level of significance is used for impacts where there is clearly no effect. Where it was clear at the outset there would be no impact on a particular resource topic under any of the alternatives, the topic was evaluated at a lesser level of analysis.
    - **Less than Significant:** This level of significance is used for impacts where there would be an impact, but the degree of the impact would not meet or exceed the identified thresholds.
    - **Less than Significant with Mitigation Incorporated:** This level of significance is used for impacts that would meet or exceed the identified thresholds, but implementing mitigation measures would reduce such impacts to a less-than-significant level.
    - **Significant and Unavoidable:** This level of significance is used for significant impacts where mitigation is not available or feasible to reduce the significant impact to a less-than-significant level.
  - ☐ **Impacts and Mitigation Measures:** In this section, the effects of the proposed Project are described. For each significant or potentially significant impact identified, mitigation measures are also identified. As stated above, where mitigation is not available or feasible to reduce the impact to a less-than-significant level, the impact is identified as significant and unavoidable.

Several topics required by CEQA in addition to the resource areas addressed in Chapter 3 are addressed in Chapter 4, *Alternatives Analysis*, and Chapter 5, *Other CEQA Considerations*, including the items listed below.

- Alternatives to the proposed Project.
- Growth-inducing effects.
- Cumulative effects.
- Significant and unavoidable impacts (summarized from Chapter 3).

Section 3.1
Visual Resources

Introduction

Concepts and Terminology

This section describes the environmental setting for the visual resources, the impacts on the visual resources that would result from the Project and alternatives, and the mitigation measures that would reduce these impacts.

Identification of a project area's visual resources and conditions involves three steps:

- objectively identifying the visual features (visual resources) of the landscape,
- assessing the character and quality of those resources relative to overall regional visual character, and
- determining the importance to people (sensitivity) of views of visual resources in the landscape.

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1983). The scenic quality component can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (U.S. Bureau of Land Management 1980). Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, the numbers of views seen, the distance of the viewers, and the viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed.

Visual Character

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlements and development, including roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally, even hourly, as weather, light, shadow, and elements that compose the viewshed change. The basic elements used to describe visual character for most visual assessments are the form, line, color, and texture of the landscape features. The appearance of the landscape is described in terms of the dominance of each of these components.

Visual Quality

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. The concepts of vividness, intactness, and unity are described below (Federal Highway Administration 1983; Jones et al. 1975).

- Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, and in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components in the landscape.

High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer Exposure and Sensitivity

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related in part to the position of the viewer to the resource. Therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration 1983). To identify the importance of views of a resource, a viewshed must be broken into distance zones: foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in a viewshed may vary between different geographic regions or types of terrain, the standard foreground zone is 0.25 to 0.5 mile from the viewer, the middleground zone from the foreground zone to 3 to 5 miles from the viewer, and the background zone from the middleground to infinity (U.S. Forest Service 1974).

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1974; U.S. Soil Conservation Service 1978; Federal Highway Administration 1983). Commuters and non-recreational travelers have generally fleeting views and tend to focus on commute traffic, not on surrounding scenery. Therefore, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes. Therefore, they are generally considered to have high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

Judgments of visual quality and viewer response must be made based on a regional frame of reference (U.S. Soil Conservation Service 1978). The same landform or visual resource appearing in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape, but have very little significance in mountainous terrain.

Environmental Setting

This section discusses the existing conditions related to the visual resources in the project area. Federal, state, and/or local regulations related to the visual resources that would apply to the Project are discussed below.

Existing Conditions

Visual Character of Project Region

The project site is located in West Sacramento, in the southern portion of the Sacramento Valley, directly west of the city of Sacramento. The project region, as discussed in this section, is considered the area within 30 miles of the project site. The region consists primarily of agricultural and suburban land uses, with the urban core of Sacramento anchoring the northeastern boundary. Although many of the western portions of the region are still in agricultural production, there has been and continues to be an increasing conversion of agricultural land to urban and suburban land uses. This trend is evident around the outskirts of Sacramento, such as in Natomas to the north, Elk Grove to the south, and West

Sacramento, Davis, and Woodland to the west. Many of the smaller, agrarian communities in this region, such as Dixon, are experiencing similar growth.

Agricultural land, planted predominantly with row crops, stretches for miles in the region. A patchwork of fields separates the urban center of Sacramento and its suburban outskirts from smaller, outlying cities. These fields offer expansive views that, when haze is at a minimum, extend over agricultural fields and recent development in the foreground to the middleground and background. Depending on the viewer's location in the region, middleground and background views consist of the high-rise buildings of downtown Sacramento rising up above the horizon line, Sierra Nevada foothills to the east, and the Vaca Mountains to the west. These types of landscape views are strongly characteristic of the Sacramento Valley and have contributed to the region's identity.

Growth, radiating outward from the city and town cores, is reducing the amount of agricultural land in the region and closing the gap between the Sacramento metropolitan region and smaller, outlying cities. This growth is changing the visual character from rural to suburban. Development of the smaller cities in the region, including West Sacramento, is typified by a growing core of residential, commercial, and some industrial land uses with agricultural fields on the city outskirts. Residential and commercial development in the region tends to be homogenous in nature, having similar architectural styles, building materials, plan layouts, and commercial entities; and development often lacks a distinctive character from one city to the next.

West Sacramento is bounded by the Sacramento River Bypass to the north, Sacramento River to the north and east, and the Deep Water Ship Channel and Yolo Bypass to the west. West Sacramento is developing in a pattern similar to that of other cities, except the northern portions are already developed, and the natural and human-made waterways and bypasses restrict further development to the north, east, and west. Therefore, most major development is spreading southward as planned for in the Southport Framework Plan, leaving vast areas of remaining agricultural land in the north. Development in the northern, eastern, and western portions of West Sacramento is occurring on disjunct parcels of agricultural land or redevelopment and infilling of vacant parcels in older portions of the city.

Overall, a mix of developed and natural landscapes characterizes the region. The landscape pattern is influenced by development sprawling from existing city cores and the major roadways in the region. Water features in the region include the Sacramento and American Rivers and their tributaries, the Deep Water Ship Channel, the Yolo Bypass (when flooded), numerous north Sacramento–San Joaquin River Delta (Delta) sloughs, and smaller local irrigation ditches.

Visual Character of Project Vicinity

The project vicinity is defined as the area within 0.5 mile of the project site. Most of the site is currently in agricultural production. Representative photographs of the project site were taken on July 29, 2005, to document key views and typical conditions. The photo locations are shown on Figure 3.1-1, and the photos are contained in Figures 3.1-2, 3.1-3, and 3.1-4.

The project area, located west of the Sacramento River to the south end of the City of West Sacramento, although planned for urban uses, is currently predominantly an agricultural area. There are new suburban developments to the north of the project site and a few older residences inside the project site along South River Road. The site is accessed by Davis Road from the north and Gregory Road from the south (Figure 3.1-2, Photo 1). There are few east-west roads accessing South River Road, which borders the western side of the Sacramento River and the project site. There is no direct access to the east side of the river from the River Park proposal site.

Common to the region, when the air quality is not hazy, are expansive views extending over the agricultural fields and recent development in the foreground to vantages in the middleground and background. The high-rise buildings of downtown Sacramento can be seen in the middleground, rising up above the northeastern tree line (Figure 3.1-2, Photo 2). Background views to the Sierra Nevada foothills are more rarely seen to the east (Figure 3.1-2, Photo 3); views of the Vaca Mountains and the Coast Range are more commonly seen to the west, air quality permitting. Additionally, pockets of shrubs, trees, and riparian vegetation located in swales and drainages create a noticeable contrast to the surrounding predominant low-lying grassland and agricultural (Figure 3.1-3, Photos 3 and 4). These types of landscape views are strongly characteristic of the Sacramento Valley and have contributed to the region’s identity. There are no designated scenic highways in the area (California Department of Transportation 2003).

Older residential communities, along Jefferson Boulevard, are established with smaller-sized, lower-density rural housing with mature trees and rural vegetation. Newer suburban residences have been or are being built at a much higher density in areas north of the site along Linden Road and in other portions of West Sacramento than in the past (Figure 3.1-4, Photos 5 and 6). These residences are primarily two-story homes that are close together. Because these areas are fairly new, they lack mature vegetation. These developments alter the visual character associated with agriculture in the project vicinity to one that is visually similar to newly developed areas elsewhere in the Sacramento metropolitan region.

Existing Viewer Groups

The primary viewer groups of the project vicinity are rural residents north of the site, along Davis Road, and south of the site, along South River Road; roadway travelers using Jefferson Boulevard and smaller local roads (Davis Road, South River Road, etc.); and recreationists (fishermen using canals, equestrians, bicyclists, etc.) in the immediate project vicinity.

Rural residents, roadway travelers, and recreationists have the most direct views of the project site. The separation and orientation of rural residences allow inhabitants to have direct views over agricultural fields toward the project site. Close to the site, a lack of built features and dense vegetation and flat topography allow foreground, middleground, and background views that are often unobstructed and typical of the vicinity. If the vantage is from farther away or slightly elevated, as on South River Road, most views of the Vaca Mountains and Coast Range are only partially obstructed by the rooflines of these residences and mature vegetation in the area.

Regulatory Setting

The proposed Project falls within the jurisdiction of the City. Land use changes and development in West Sacramento are subject to policies of the West Sacramento General Plan and the Southport Framework Plan, including visual resource and aesthetic policies, design guidelines, and ordinances such as tree preservation and removal ordinances. The policies and guidelines discussed below apply to the proposed Project.

There are no roadways in or near the project area that are designated in federal, state, or local plans as a scenic highway worthy of protection for maintaining and enhancing scenic viewsheds. Therefore, federal and state guidelines do not apply.

City of West Sacramento General Plan

The City of West Sacramento General Plan identifies the following goals and policies for the implementation plan:

Land Use

Policy A1: The City shall seek to preserve West Sacramento's traditional neighborhood qualities, while recognizing existing City commitments to new projects and accommodating region-serving development in certain areas of the city and in certain segments of the economy.

Policy C8: In approving new commercial projects, the City shall seek to ensure that such projects reflect the City's concern for achieving and maintaining high quality development.

Policy C9: New commercial development shall be designed to avoid the appearance of strip development.

Source: EDAW 2004

Figure 3.1-1
Viewpoints

Photo 1. Looking west from the south end of South River Road towards Gregory Road. This photo depicts an existing home with landscaping and adjacent agricultural land. This is the project's southern site boundary.

Photo 2. Looking north towards downtown Sacramento. This photo depicts older rural development. Note the low-density nature of development, evident by the distance between the homes. Also note the dense, mature vegetation surrounding the homes.

Figure 3.1-2
Existing Site Conditions

Photo 3. Looking west from South River Road. This photo depicts the type of agricultural land present in the project site. On a clearer day views of the Vaca Mountains would be seen in this direction.

Photo 4. Looking southwest from South River Road. This photo depicts the range of landscaping in the area. Note that the land is located next to a levee.

Figure 3.1-3
Existing Site Conditions

Photo 5. Looking west down Davis Road. This photo depicts the northern project boundary. Note the open land to the north of Davis Road, south of Linden Drive.

Photo 6. Looking north to northwest from the intersection at Davis Road and South River Road. This panoramic photo depicts views away from the project site towards new residential development, at the horizon line. Note the views of the white industrial buildings north of the project site.

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Jones & Stokes

Figure 3.1-4
Existing Site Conditions

Recreation and Cultural Resources

Policy A11: New high-activity-level parks and parks intended for night use shall be designed to buffer existing and planned surrounding residential uses from excessive noise, light, and other potential nuisances.

Policy A13: The City shall emphasize the use of drought-tolerant and drought-resistant landscaping in the development of City parks.

Natural Resources

Policy C5: To minimize disturbance to wildlife, the City shall require the provision and maintenance of an adequate setback between significant wetland habitat and adjacent development. The buffer shall be landscaped with native or compatible introduced ornamental vegetation and may be used for passive recreation purposes.

Urban Structure and Design

Policy A1: The City shall endeavor to maintain and enhance the distinctiveness and integrity of the various neighborhoods and districts within West Sacramento.

Policy A4: The City shall seek to preserve the vital qualities of existing, stable neighborhoods and shall promote the development of new neighborhoods with these same qualities.

Policy B1: The City shall seek to preserve the trees and other vegetation along the banks of the Sacramento River for their aesthetic qualities and environmental and ecological values.

Policy B4: The City shall promote the development of important visual and scenic areas along the riverfront, including around the barge canal, for public access, including water-related activities.

Policy C6: The visual impact of automobiles should be minimized in all new development and in the Central Business District.

Policy D2: The City shall require that all new development incorporate the planting of trees and other vegetation to extend the vegetation pattern of older adjacent neighborhoods into new development.

Policy D3: The City shall use street trees to enhance and soften the visual character of special and important streets within West Sacramento.

Policy D4: The City shall identify appropriate streets for inclusion of landscaped medians.

City of West Sacramento Zoning Ordinances

The following excerpts from the City's zoning ordinances are citywide design standards that would apply to the proposed Project. The ordinances listed below have been identified for their direct relation to Project aesthetics; however, other portions of these ordinances indirectly relate to aesthetics, as they are drivers of design, and it is recommended that these ordinances be referred to in their entirety for details. These standards will be supplemented by the Project's proposed Planned Development standards.

Title 17.31 Fences, Walls and Hedges

17.31.010 Maximum Heights

17.31.011 Three Foot Limit

No fencing, walls, structures or hedges over 3 feet in height (except in the R-1-A and R-2 zone) shall be allowed in the following areas:

A. In Residential zones in front setbacks;

B. In Residential zones in street side setbacks within forty-five (45) feet of a street corner;

C. In any zone within ten (10) feet of any street property line or within five feet of the sidewalk where separated sidewalks exist.

D. In any zone within a triangle formed by measuring thirty (30) feet from any street corner down the lot lines and connecting across the property;

E. In Residential zones within a triangle formed by measuring fifteen (15) feet from the rear street side corner of a corner lot down the lot lines and connecting across the property.

17.31.012 Four Foot Limit

In the R-1-A and R-2 north of the Deep Water Ship Channel, zone the maximum height allowed in A., B., and C., above shall be four (4) feet for fences which are at least 95% open to views through the fence.

17.31.013 Seven Foot Limit

No fence or wall over seven (7) feet in height shall be allowed within any setback area in a residential zone.

17.31.020 Required Screening

A. A solid hedge, vine-covered chain-link fence or masonry wall of a minimum of six (6) feet in height shall be provided around the perimeter of all exterior storage or work areas and loading areas (see Landscape Development Guidelines). Display areas for the sale or rental of heavy equipment or commercial vehicles are exempt from the screening requirement.

B. A masonry or concrete wall of a minimum of five (5) feet in height shall be provided around outdoor refuse collection areas (see Section 17.35 and Landscape Development Guidelines).

C. Solid fences or sound walls shall be provided between land uses as required by the Landscape Development Guidelines, The Screen Canopy.

17.32.000 Performance Standards

17.32.010 Purpose and Intent: It is the purpose and intent of these standards to prevent any use which may create dangerous, injurious, noxious or otherwise objectionable conditions.

17.32.020 Applicability: These Performance Standards shall apply to all uses and properties in the City as of the date of adoption of this Ordinance, including existing uses. The Planning Commission may approve extensions for compliance for existing uses with a contract and schedule for full compliance. The maximum time limit of an extension shall be five years and shall be based on the degree of expenditure needed to achieve full compliance compared to the total value of the improvements related to the use and the degree of hazard or impact to the adjoining properties and the community from the existing non-compliance with the Standards.

17.32.030 Standards

N. Lighting: Utilize the Illuminating Engineers Society of North America (IESNA) standards when reviewing exterior lighting for commercial and industrial zones of the City.

Title 17.33.000 Signs

17.33.010 Purpose and Intent: The purpose of this chapter is to create a comprehensive and balanced system of signs which will allow adequate business identification and communication with a quality appearance. Signs authorized under this chapter should:

A. Encourage a desirable urban character consistent with the General Plan;

B. Preserve and improve the appearance of the city as a place to live, work and visit;

C. Eliminate confusing, distracting, or dangerous sign displays which interfere with vehicular traffic;

D. Promote commerce;

E. Provide for fair and equal treatment of sign users;

F. Promote ease of sign ordinance administration; and

G. Provide for eventual elimination of pre-existing, non-conforming signs on a fair and equitable basis.

Title 17.43.020 Off-Street Parking and Loading

17.34.045 Lighting: Parking lot lighting shall be required. All lighting used to illuminate an off-street parking or loading area shall be so arranged as to direct light away from any adjoining lots and public streets.

17.34.047 Landscaping and Screening: Parking areas shall be landscaped in accordance with the Landscape Development Guidelines of the City of West Sacramento.

17.34.070 Loading Zones

17.34.074 Location: Where feasible, loading zones and docks shall be located to the rear of properties. No truck entrance door, loading zone and/or dock serving commercial vehicles shall be permitted to face a residential area within five hundred (500) feet.

17.34.075 Screening: All loading zones and truck parking areas shall be screened from view by a minimum of a six (6) foot high hedge, vine-covered fence or wall plus landscaping as required by Section 17.35 (see Section 17.31.020 Required Screening).

Title 17.35.000 Landscaping Standards: All new development shall provide landscaping in conformance with the Landscape Development Guidelines as adopted by this section.

17.35.010 Landscape Development Guidelines and Tree Ordinance: That document, identified as the City of West Sacramento Landscape Development Guidelines, and incorporated herein by this reference, dated May 1993, is hereby adopted in whole as part of the Zoning Ordinance of the City of West Sacramento, Chapter 17 of the West Sacramento Municipal Code. That document, identified as the City of West Sacramento Tree Preservation Ordinance, which appears as Chapter 8.24 of the Municipal Code, is hereby adopted in whole as part of the Zoning Ordinance of the City of West Sacramento.

17.35.020 Applicability: These standards shall apply to all new development and improvement of existing uses in the City of West Sacramento, including any construction, expansion or improvement on private property which requires the issuance of a building permit or other entitlement by the City, except Business Licenses.

A. This ordinance shall not apply to the following:
   1. Single family developments of four or fewer units/lots;
   2. Construction for which a building permit was approved before the effective date of this Ordinance;
   3. Properties zoned POS (Public Open Space);
   4. Properties designated by the City for riverfront parkway corridors; and
   5. Properties which are controlled by Planned Development permits having their own landscaping regulations.

B. Development of subdivisions for which a tentative map was approved before the effective date of this ordinance, shall be required to comply with the Back-up Landscape Setback Streetscape) requirements to the degree that adequate area has been provided in the subdivision for landscape setbacks.

C. This Ordinance shall not be applied so as to result in the requirement to landscape more than:

  1. 15 percent of the lot area of any commercial development site (i.e., zones C-1, C-2, C-3, C-H, C-W, CBD, PQP);
  2. 20 percent of the lot area of any industrial development site (i.e., zones M-1, M-2, M-3, M-L), or
  3. 25 percent of the lot area of any office/business park development site (i.e., zones PO, BP) or mixed use development site (i.e., zones WF or MU mixed uses); and D. Existing development and expansion of existing developed sites shall comply with Section 17.54.

Southport Framework Plan

The project site is located in the Southeast Village planning area. The project applicant would be required to comply with provisions set forth in the Southport Framework Plan, including Appendix 2, Typical Conditions of Approval for Vesting Tentative Subdivision Maps and Tentative Subdivision Maps, for applicable design, landscaping, and lighting standards. The applicant would also be required to comply with provisions set forth in Southport Framework Plan, Appendix 3, Public Facilities and Services, specifically Section 6, Roadways and Streetscapes, Section 13, Landscaping, Section 14, Fencing, and Section 15, Signage. These sections have been identified for their relation to project aesthetics, as they are drivers of design, and it is recommended that they be referred to in their entirety. Finally, the applicant will be required to comply with specifications provided in the Southport Design Guidelines (City of West Sacramento and PBR 1998, amended 2005) and Southport Architectural Handbook (City of West Sacramento 2001). These documents provide an overall vision and guide for development in the Southport area. The City's Project Review Committee would review development submittals in keeping with standards set forth in the Southport Framework Plan.

Impact Analysis

This section describes the methods used to determine the Project's impacts relating to visual resources and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methods

The analysis of the visual effects of the Project are based on photographic documentation of key views of, and from, the project site; regional visual context; review of *River Park–A Community Design* booklet prepared by the applicant; and review of the Project in regard to compliance with local ordinances and regulations and professional standards pertaining to visual quality.

Thresholds of Significance

Criteria for determining the significance of impacts related to visual resources were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq*.). An impact related to visual resources was considered significant if it would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Impacts and Mitigation Measures

Impact AES-1: Obstruct or Adversely Affect a Scenic Vista (Less than Significant)

The project area is not located in an area designated as a scenic vista. Further, the Southport Framework Plan EIR (Willdan Associates 1994) found that views from Southport are not considered to be unique or of high scenic value. **For these reasons, the Project impacts on scenic vistas are considered to be less than significant. No mitigation is required.**

Impact AES-2: Substantially Damage Scenic Resources, Including, but Not Limited to Trees, Rock Outcroppings, and Historic Buildings along a Scenic Highway during Construction and Operation (Less than Significant)

A large oak grove with more than 200 oak trees is located near the center of the Southeast Village. The Southport Framework Plan placed the “village core” and supporting land uses in the same general area as the oak grove. Development of the Southeast Village according to the Southport Framework Plan would require the removal of a substantial number of these oak trees. The Project would modify the planned development of the Southeast Village and proposes to protect the oak grove and use this natural feature as a central amenity in the Project's Open Space Plan and trail system. This oak preserve area is identified on Figure 2-5 as the Oak Preserve Park. The Oak Preserve Park would include preserving an oak woodland area at the site, planting native riparian vegetation with transitional habitat zones, and developing a picnic area, pedestrian and bicycle paths, and nature trails. The preservation of the oak grove would ensure that the Project would not substantially damage scenic resources, including by removal of a substantial number of trees. Further, no federal, state, or locally designated scenic roadways are located in the project vicinity. **Potential impacts on scenic resources are considered less than significant. No mitigation is necessary.**

Impact AES-3: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings during Construction (Less than Significant with Mitigation Incorporated)

Construction of the proposed Project would create temporary changes in views of and from the project area. Construction activities would introduce considerable heavy equipment and associated vehicles, including dozers, graders, scrapers, and trucks, into the viewshed of the agricultural fields and residential properties. Viewer groups in the project area and vicinity are accustomed to seeing construction activities and equipment from construction that has occurred in the southern and northern portions of West Sacramento and the ongoing construction along Jefferson Boulevard, although project construction would be in proximity to existing residential areas where construction has not yet occurred. Adjacent existing rural residences would have construction occurring adjacent to their backyards, and sensitivity of these residences to such impacts would be high.

Effects on travelers on roadways in the project vicinity, including commuters and those traveling on the roads by car or bicycle for recreation, would be limited because the project site does not currently contain public recreational areas, and thus recreational travelers traveling from the north would likely not get to the project vicinity. Effects on non-recreational roadway users would be less than significant because of the short intervals of time that they are in visual contact with the project site and familiarity with construction along other roadways in the vicinity. The proposed Project has the potential to result in significant visual impacts for adjacent residents. **Implementation of the following mitigation measure would ensure that this impact is reduced to a less-than-significant level.**

Mitigation Measure AES-3: Install Temporary Visual Barriers between Construction Zones and Residences

The applicant or the contractor will install fencing (such as chain link with slats or fencing made of windscreen material) or other structures to obstruct undesirable views of construction activities from residences' backyards that abut the project site. The fencing will be approximately 7 feet high to help maintain the privacy of residents.

Impact AES-4: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings (Less than Significant)

Once the development has been built, permanent visual changes would occur to views of and from the project area. While the development would be located within the city limits, in an area identified by the City for development, and would be visually similar to developments being built nearby, altering the agrarian visual character to one that is suburban would be a significant impact. The proposed Project would require the conversion of open space areas to residential communities. This would create a relatively continuous massing of building and of roofs that are visible to all viewer groups. Walls would help to block views of the development from residences where views once extended over open space. The sprawl of development may be diminished as newly planted trees mature and grow to shield development, but this would take a number of years to produce a noticeable difference. All viewer groups would be greatly affected by this change.

Rural residents make up the most centralized group with permanent views of the project site. The adjacent open space provides an extension of views for rural dwellings. Rural residents are likely to perceive the site as extension of their own lands, because of this visual access, and have a higher sense of ownership over the site. Their present views extend to the fore- and middleground, while some residents may have background views of the ranges. Development of the site would eliminate middle- and background views over the site for rural residents, limiting their view to the foreground of a high-density residential development.

Views for roadway users would also be significantly affected by the alteration of the site character. Viewers on Davis Road presently use a lightly traveled rural roadway, with open space on either side of it. Increased traffic would reduce the viewers' ability to take in their surrounding because of the need to focus on traffic, and their surroundings would consist largely of building masses. Viewers on South River Road have an elevated view over the site, and they would have visual access to the massing of roofs. Increased traffic would also limit viewers' ability to take in their surroundings.

Recreational users of roadways would experience effects similar to roadway users because they use local roadways for cycling, jogging, etc. They would have decreased use of these roadways because increased traffic resulting from new development would lead to more hazardous conditions.

Views of the project site from the river for boaters and fishermen on the river would be substantially altered by the addition of a marina. The marina would impose built features along the riverbank and into waterway. While boaters are not likely to be as sensitive to this change, fishermen, who have strong attachment to local fishing spots, are likely be highly sensitive to the development of the riverbank.

Development of Southport as proposed in the Southport Framework Plan was considered in the Southport Framework Plan EIR to potentially create objectionable views as a result of the intense urban uses developed in the area. The Southport Framework Plan EIR found that “adherence to the Southport Framework Plan Design Guidelines would ensure that no aesthetically offensive views would be created from adjoining areas,” and the EIR found the impact therefore would be less than significant.

The proposed Project’s consistency with the Southport Framework Plan is discussed in Section 3.9, *Land Use*. In Impact LU-1, a discussion of the proposed Project’s consistency with the policies of the Southport Framework Plan is presented. Although the Project would be denser than allowed under the Southport Framework Plan, the design of the Project, including preserving trees and maintaining view corridors, is consistent with the design standards of the Southport Framework Plan.

For these reasons, the Project, consistent with the findings in the Southport Framework Plan EIR, would have a less-than-significant impact on visual character. No mitigation is necessary.

Impact AES-5: Create a New Source of Substantial Light or Glare during Construction That Would Adversely Affect Daytime or Nighttime Views in the Area (Less than Significant)

Construction impacts are similar to those discussed in Impact AES-3. Construction equipment would not introduce sources of glare. Hours of construction for the proposed have not been specified, but City regulations limit construction to between 7 a.m and 7 p.m. Monday through Friday. **Therefore, project construction would result in less-than-significant generation of light and glare. No mitigation is necessary.**

Impact AES-6: Create a New Source of Substantial Light or Glare during Project Operation That Would Adversely Affect Daytime or Nighttime Views in the Area (Less than Significant)

Daytime and Nighttime Glare. Once the development has been built, permanent features such as windows and building surfaces and temporary features such as parked cars would introduce new sources of glare. Lack of mature vegetation would increase the amount of glare. This would be perceived by residences viewing walls (in the buffer) or building surfaces where there used to be open space and by roadway users and recreationists on local roads or the river who would see windows and building surfaces and temporary features such as parked cars or docked boats. Marina lights would reflect on the river's surface and introduce a source of nighttime glare.

Nighttime Light. New, permanent sources of light would be introduced from lighted residences, walkways, roadways, parking areas, and accent lighting throughout the project site, including the park, elementary school, and marina. This would significantly increase the amount of ambient light radiating into the night sky from the site, as the site presently has only a few residences and streetlights as light sources. This ambient light would be perceived by all viewer groups and because of the nature of ambient light would also include residential, commercial, roadway user, and recreationist viewers beyond the project vicinity.

The Southport Framework Plan EIR identified new sources of light and glare generated by the development of Southport as a significant impact "given the predominately undeveloped nature of the Planning Area." The following was identified in the Southport Framework Plan EIR as a "Mitigation Incorporated into the Project:"

> Conformance Principle:
>
> *C.P. 4.11-3* Prior to approval of tentative maps, the Project applicant shall provide detailed lighting, signage, and fencing plans consistent with the City's Planned Development Ordinance and the Southport Design Guidelines, and in conjunction with the landscape plans…Covenants, Conditions, and restrictions (CC&R's) shall limit the exterior lighting on residential dwelling units to mercury vapor, low pressure sodium, incandescent and fluorescent lamps (150 watts or less). All light shall have cut-off lenses that confine light to intended areas of illumination.

In addition to the requirements of the Southport Framework Plan, the city zoning ordinance contains design standards for lighting that would, in combination with the provisions of the Southport Framework Plan, ensure the Project would not result in generation of substantial light and glare causing a significant impact. **Therefore this impact is less than significant. No mitigation is necessary.**

Impact AES-7: Conflict with Local Visual Policies (Less than Significant)

The proposed Project's consistency with the Southport Framework Plan is discussed in Section 3.9, *Land Use*. In Impact LU-1, a discussion of the proposed Project's consistency with the policies of the Southport Framework Plan is presented. Although the Project would be denser than allowed under the Framework Plan, the design of the Project, including preserving trees and maintaining view corridors, is consistent with the design standards of the Southport Framework Plan. **Therefore this impact is less than significant. No mitigation is necessary.**

Section 3.2

Agricultural Resources

Introduction

This section describes the environmental setting for agricultural resources, the impacts on agricultural resources that would result from the Project, and the mitigation measures that would reduce these impacts. Information about the project site and vicinity was obtained from review of the West Sacramento General Plan, the Southport Framework Plan, and data from the Farmland Mapping and Monitoring Program (FMMP). The existing conditions and impacts are essentially the same for the project area and the water-related commercial and proposed elementary school site area; therefore, this discussion encompasses and is applicable to the entire Project, including these program elements.

Environmental Setting

This section discusses the existing conditions related to agricultural resources in the project area.

Existing Conditions

Regional Setting

The Project site is located in the city of West Sacramento, in eastern Yolo County. Yolo County has a long history of agricultural production, and the California Department of Conservation inventoried 400,592 acres of designated Important Farmland in the county in 2002, out of a total county area of 653,452 acres. Of these, 261,648 acres were designated as Prime Farmland, 18,006 acres as Farmland of Statewide Importance, 54,587 acres as Unique Farmland, and 66,351 acres as Farmland of Local Importance. Between 2000 and 2002, Important Farmland in Yolo County experienced a net loss of 9,204 acres that were converted to nonagricultural uses (California Department of Conservation 2005).

Local Setting

The project site is located in the portion of the city of West Sacramento known as Southport. The Southport area is the least built-up part of the city, and much of the land there remains in agricultural use, though the northern and western portions of the Southport area are currently undergoing urbanization. Soils in the area of the project site are predominantly sandy and silt loams (City of West Sacramento Department of Community Development 1990a). The River Park Conceptual Storm Drainage Master Plan (Nolte 2004) notes properties situated north of the South Drain and east of the Yolo Shortline Railroad contain sandy soils and historically have not worked very well for agricultural purposes. The Conceptual Storm Drainage Master Plan (2004) indicates the levee protecting the site failed sometime in the late 1800s, and the Sacramento River deposited approximately 4 feet of sand over the land surface in the southeast quadrant of Southport.

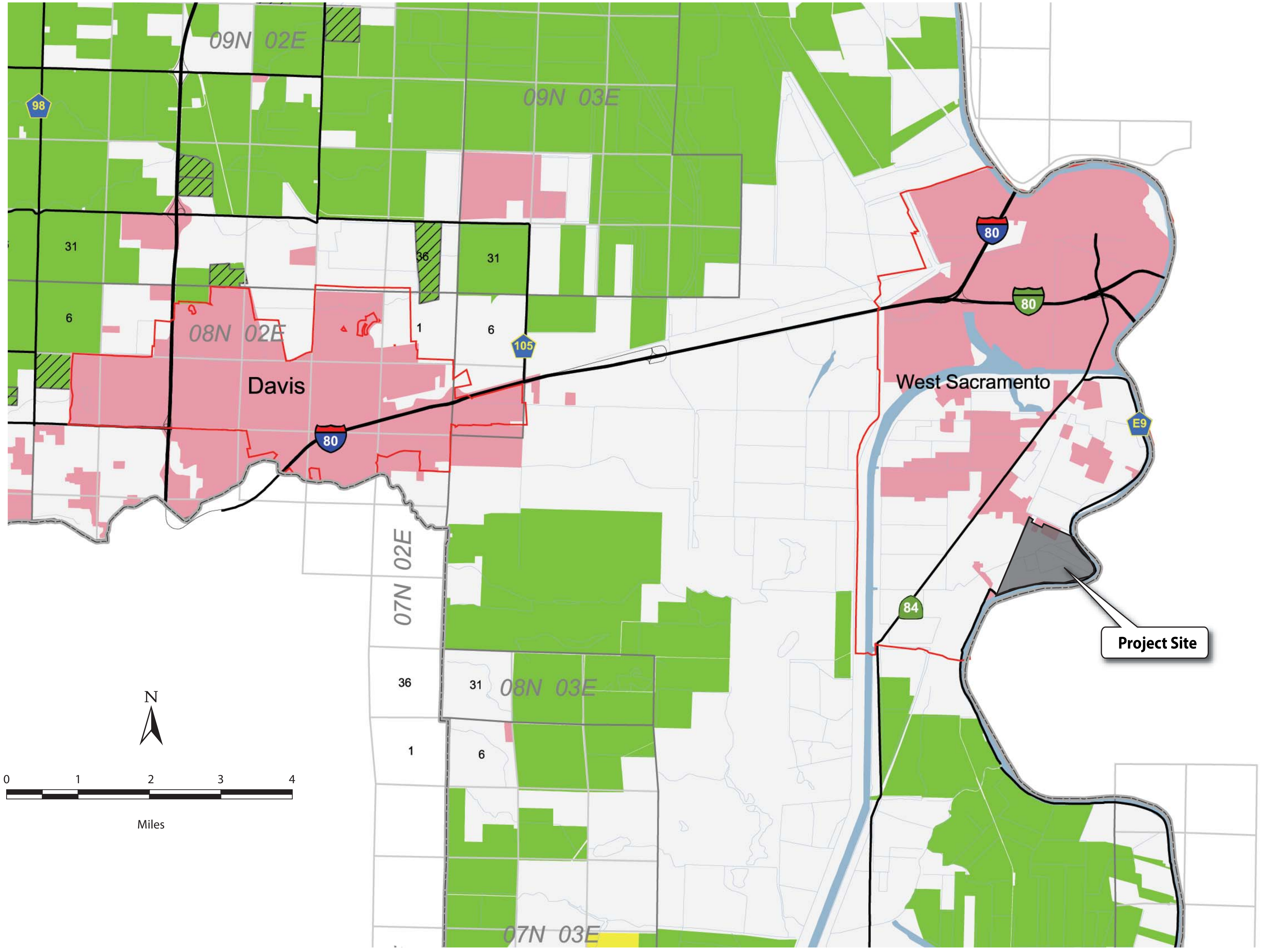
The Southeast Village of Southport has a long history of farming. The farming activity on the River Park property in the late 1930s and early 1940s consisted of a variety of fodder crops, table crops, and orchard crops, but over the years the crops grown in this part of West Sacramento have changed to mostly winter wheat, safflower, and alfalfa. These crops were grown on both the poorer soils of the northern parcels and the more arable southern parcels on rotation. The mid-area parcels recently have been used for asparagus and other vegetable crops, depending on the soil and abilities of the tenant farmers. The southern portions were used as a peach orchard and then later a walnut orchard and for alfalfa, tomatoes, and wheat. The walnut orchard still exists on the property, but the trees stopped producing many years ago. The northwestern portions have always been poor farm ground and have produced mostly oats and grain. An unsuccessful attempt was made to graze the most northeastern parcel in 2005, but since then this property has lain fallow (Chambers pers. comm.).

Existing Land Uses on the Project Site

The project site is currently used for agricultural production (irrigated field and row crops) and grazing. Five structures are on the site—two single-family residences, a garage, and two sheds.

Williamson Act Lands

The Williamson Act provides incentives, through reduced property taxes, to deter the early conversion of agricultural and open space lands (for more information on the Williamson Act, see “California Land Conservation Act of 1965,” below). Agricultural properties adjacent to the Project are not currently enrolled in Williamson Act contracts. The nearest contracted lands are situated more than 1 mile south of the project site, south of the city limits (Figure 3.2-1). Additional sites situated in the Babel Slough and Winchester Lake area and lands situated west of the Deep Water Ship Channel are subject to Williamson Act contracts;



🟩 Williamson Act - Prime Agricultural Land

🟨 Williamson Act - Non-Prime Agricultural Land

▨ Williamson Act - Agricultural Land in Non-Renewal

⬜ Non-Enrolled Land

🟥 Urban and Built-up Land

🟦 Water

☐ Incorporated City Boundary

☐ Public Land Survey System

╲ Highways

Williamson Act - Prime Agricultural Land
Land which is enrolled under California Land Conservation Act contract and meets any of the following criteria (as set forth under California Government Code Section 51201):
1: Land which qualifies for rating as class I or class II in the Natural Resources Conservation Service land use capability classifications;
2: Land which qualifies for rating 80 to 100 in the Storie Index Rating;
3: Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture;
4: Land planted with fruit or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars per acre;
5: Land which has returned from the production of unprocessed agricultural plant production and has an annual gross value of not less than two hundred dollars per acre for three of the previous five years.

Williamson Act - Non-Prime Agricultural Land
Land which is enrolled under California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land. Non-Prime Land is defined as Open Space Land of statewide Significance under the California Open Space Subvention Act (see California Government Code Section 16143), and may be identified as such in other documents. Most Non-Prime Land is in agricultural uses such as grazing or non-irrigated crops. However, Non-Prime Land may also include other open space uses which are compatible with agriculture and consistent with local general plans.

Williamson Act - Land in Non-Renewal
During the Non-Renewal process, the annual tax assessment gradually increases. At the end of the 9-year Non-Renewal period, the contract is terminated.

Non-Enrolled Land
County land not enrolled with the Williamson Act Program.

Urban and Built-up Land
Land occupied by structures with a build density of at least one unit to one and one-half acres. The areal extent of Developed Land was provided by the Department of Conservation's Farmland Mapping and Monitoring Program.

The California Land Conservation Act of 1965 - commonly referred to as the Williamson Act - is the State's primary program for the conservation of private land in agricultural and open space use. It is a voluntary, locally administered program that offers preferential property taxes on lands which have enforceable restrictions on their use via contracts between individual landowners and local governments. For more information on the Williamson Act please contact the Department of Conservation, 801 K Street, MS13-71, Sacramento, CA 95814. Phone (916) 324-0850; email: dlrp@consrv.ca.gov; web page: www.consrv.ca.gov/DLRP

Maps depicting Williamson Act enrollment are produced in cooperation with the participating counties and the California Department of Conservation's Division of Land Resource Protection using manual cartographic methods and Geographic Information Systems. The Department of Conservation is mandated to record, analyze and publish data regarding areas enrolled under Williamson Act contract.

The information necessary to depict areas enrolled under contract was derived from sources supplied by county planning agencies and / or assessor offices. This map is intended for internal review and update only and should be used within the limits of this purpose. All questions regarding the contract status of specific property should be directed to the county assessor or planning agency office.

The Department of Conservation makes no warranties as to suitability of this map for any particular purpose.

Copyright: California Department of Conservation, Division of Land Resource Protection, 2004.

Figure 3.2-1
Williamson Act

none of the sites is adjacent to the River Park Project site. No agricultural preserves or land under Williamson Act contracts falls in the proposed project area (California Department of Conservation 2004) (Figure 3.2-1).

Prime Farmland

The entire 495.6-acre project site is noted on FMMP maps as "Prime Farmland When Drained and Irrigated" (California Department of Conservation 1999) (Figure 3.2-2). Prime Farmland is described as lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops (see discussion under "California Farmland Mapping and Monitoring Program" for more information). To qualify as Prime Farmland, the land must be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. It also must have been used for the production of irrigated crops at some time during the 4 years before mapping data were collected.

Adjacent Land Uses

The properties in the project vicinity are generally engaged in agricultural and rural residential land uses. Land uses west and south of the project site include agricultural lands and rural. Properties to north of the site are currently undergoing urbanization as part of the Northeast Village of the Framework Plan. The Sacramento River forms a natural buffer between the project site and the urbanized Greenhaven and Pocket area neighborhoods in the city of Sacramento to the east.

Regulatory Setting

This section describes the state and local regulations related to agricultural resources that would apply to the Project.

State Regulations

California Farmland Mapping and Monitoring Program

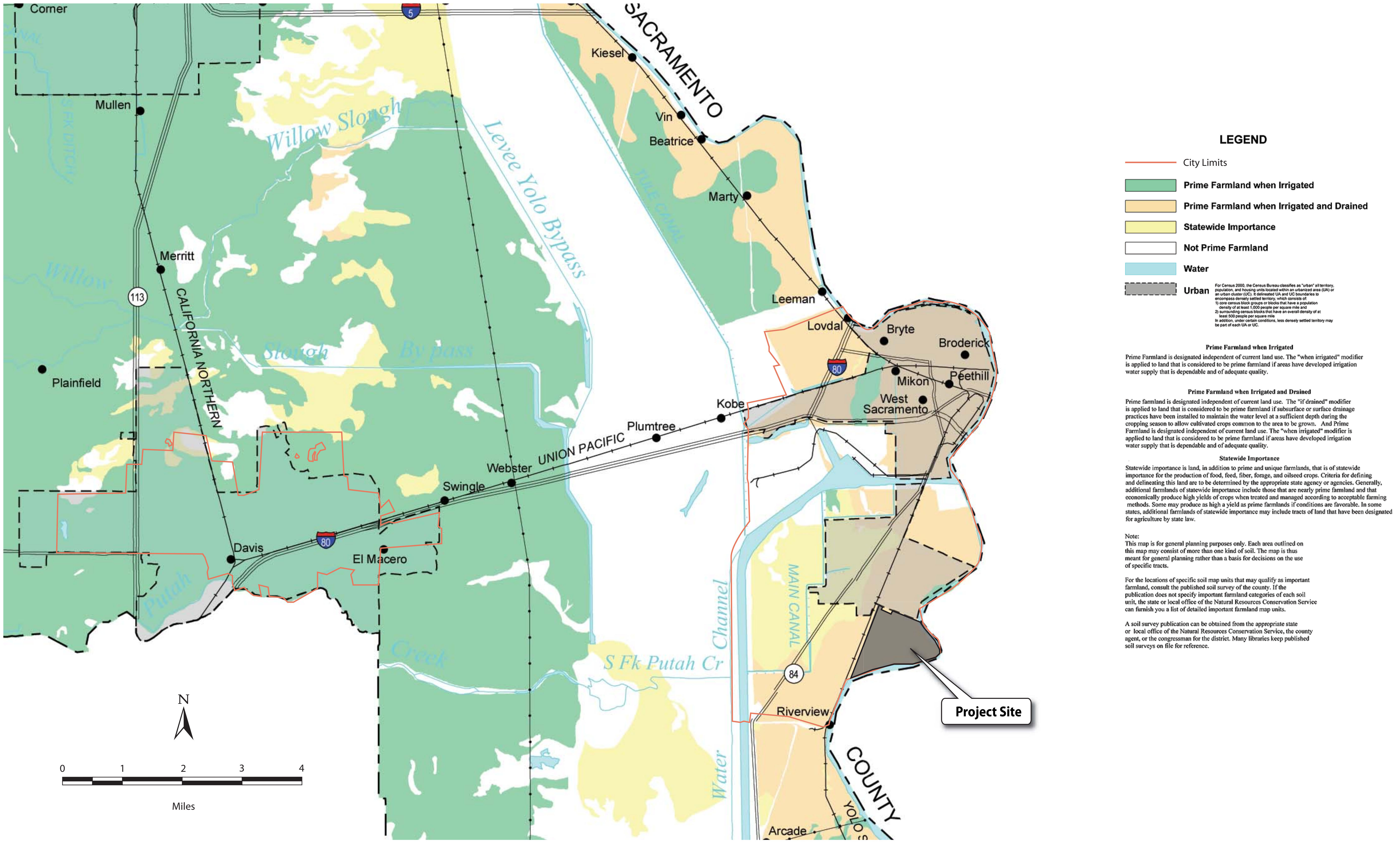
Maps of Important Farmlands are prepared by the California Department of Conservation (DOC) as part of its FMMP. The goal of the FMMP is to provide consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources. Important Farmland maps are prepared periodically for most of the state's agricultural areas based on information from the Natural Resource Conservation Service's (NRCS's) soil survey maps, land inventory and monitoring (LIM) criteria developed by the NRCS, and land use information mapped by the California Department of Water Resources (DWR). These criteria are generally expressed as definitions that characterize the land's suitability for agricultural production, physical and chemical characteristics of the soil, and actual land use. Important Farmland maps generally are updated every 2 years. Data are also released in statistical format, principally the biennial California Farmland Conversion Report.

The Important Farmland mapping system incorporates eight mapping categories, five categories relating to farmlands, and three categories associated with lands used for nonagricultural purposes. The five farmland mapping categories are summarized below.

- **Prime Farmland:** Lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. It also must have been used for the production of irrigated crops at some time during the 4 years before mapping data were collected.
- **Farmland of Statewide Importance:** Lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to those of Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to retain moisture.
- **Unique Farmland:** Lands with lesser-quality soils used for the production of California's leading agricultural cash crops. These lands usually are irrigated but may include non-irrigated orchards or vineyards.
- **Farmland of Local Importance:** Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land:** Lands on which the existing vegetation is suited to the grazing of livestock.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act (Williamson Act) is one of the state's primary mechanisms for conserving farmland. The Williamson Act enables counties and cities to designate agricultural preserves (Williamson Act lands) and offer preferential taxation to private agricultural landowners based on the income-producing value of their property in agricultural use, rather than on the property's assessed market value. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land for a minimum 10-year period. Contracts are automatically renewed annually unless a party to the contract files for nonrenewal or petitions for cancellation. If the landowner chooses not to renew the contract, it expires at the end of its duration. Under certain circumstances, a county or city may approve cancellation of a Williamson Act contract. Cancellation requires private landowners to pay back taxes and cancellation fees.



For Census 2000, the Census Bureau classifies as "urban" all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineated UA and UC boundaries to encompass densely settled territory, which consists of:
1) core census block groups or blocks that have a population density of at least 1,000 people per square mile and
2) surrounding census blocks that have an overall density of at least 500 people per square mile
In addition, under certain conditions, less densely settled territory may be part of each UA or UC.

Prime Farmland when Irrigated

Prime Farmland is designated independent of current land use. The "when irrigated" modifier is applied to land that is considered to be prime farmland if areas have developed irrigation water supply that is dependable and of adequate quality.

Prime Farmland when Irrigated and Drained

Prime farmland is designated independent of current land use. The "if drained" modifier is applied to land that is considered to be prime farmland if subsurface or surface drainage practices have been installed to maintain the water level at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown. And Prime Farmland is designated independent of current land use. The "when irrigated" modifier is applied to land that is considered to be prime farmland if areas have developed irrigation water supply that is dependable and of adequate quality.

Statewide Importance

Statewide importance is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land are to be determined by the appropriate state agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable. In some states, additional farmlands of statewide importance may include tracts of land that have been designated for agriculture by state law.

Note:
This map is for general planning purposes only. Each area outlined on this map may consist of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

For the locations of specific soil map units that may qualify as important farmland, consult the published soil survey of the county. If the publication does not specify important farmland categories of each soil unit, the state or local office of the Natural Resources Conservation Service can furnish you a list of detailed important farmland map units.

A soil survey publication can be obtained from the appropriate state or local office of the Natural Resources Conservation Service, the county agent, or the congressman for the district. Many libraries keep published soil surveys on file for reference.

05304.05

Figure 3.2-2
Important Farmland

Local Regulations

City of West Sacramento General Plan Policy Document

The *City of West Sacramento General Plan Policy Document* (City of West Sacramento Department of Community Development 1990b) sets forth the following relevant goals and policies with regard to agricultural resources:

Goal B: To promote the economic viability of agriculture in West Sacramento and to discourage premature development of agricultural land with non-agricultural uses, while providing for urban needs.

Policies:

1. The City shall support the continuation of agricultural uses on lands designated for urban uses until urban development is imminent.
2. The City shall endeavor to ensure, in approving urban development near existing agricultural lands, that such development will not constrain agricultural practices or adversely affect the economic viability of nearby agricultural operations.
3. The City shall encourage the County of Yolo to retain agricultural uses on lands adjacent to the city.

Southport Framework Plan

The Southport Framework Plan EIR (Willdan Associates 1994) acknowledges that development in the Southport area would result in the conversion of prime agricultural lands and that the City's General Plan has indicated that the loss of agricultural lands would be a significant adverse impact. The City adopted a statement of overriding considerations that indicated that urban development was of greater benefit to the community than preserving agricultural land within the city limits (Willdan Associates 1999). The Framework Plan does not include any goals or policies related to the conservation of agricultural lands as a resource but specifies that buffer provisions must be made to protect future residents from the effects of adjacent agricultural operations as development occurs. Conformance Principles that apply to the conversion of agricultural lands in the project area are as follows:

4.3-1: Depending on the type of pesticide, category of pesticide and type of application, the developer shall provide, for each project proposal, an agricultural buffer in compliance with the Yolo County Agricultural Commission Standards. The buffer could be used for open space or other uses related to agriculture. This buffer may also be accomplished through a phasing plan that limits development within the appropriate agricultural operations. The developer may also purchase temporary agricultural easements on adjacent sites. Once adjacent properties develop to urban uses, the buffer is no longer required.

4.3-2: In conjunction with recordation of the Final subdivision map, the project applicant shall record an agricultural deed notice so that the property owner will be aware of agricultural uses on adjoining lands when purchasing property within the project. The language for the notice shall be reviewed and approved by the Community Development Department prior to recordation.

Impact Analysis

This section describes the methods used to determine the Project's impacts relating to agricultural resources and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methodology

Potential impacts related to agricultural resources that may result from the construction and/or operation of the Project are considered at a project level, and specific mitigation measures to avoid, minimize, or compensate for potentially significant impacts are described immediately following each impact discussion, as necessary. The impacts of the Project and the Water Related Commercial component of the Project are not being examined individually. This is because the Water Related Commercial component would occur on the water side (east side) of the levee along the Sacramento River and in the Sacramento River itself and therefore would not result in the conversion of agricultural land.

Thresholds of Significance

Criteria for determining the significance of impacts related to agricultural resources were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*). An impact related to agricultural resources was considered significant if it would:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (as shown on the maps prepared pursuant to the FMMP of the California Resources Agency) to nonagricultural use;
- conflict with existing zoning for agricultural use or conflict with a Williamson Act contract; or
- involve other changes in the existing environment that, because of their location or nature, could result in conversion of Farmland to nonagricultural use.

Impacts and Mitigation Measures

Impact AG-1: Convert Prime Farmland, as Designated by the Farmland Mapping and Monitoring Program, to Nonagricultural Use (Significant and Unavoidable)

The project site is situated entirely within the boundaries of the Southeast Village of Southport. According to the Southport Framework Plan, the 648.6-acre Southeast Village is planned for urbanization and would be converted entirely to nonagricultural uses. While the preservation of existing productive farmland is stressed by the *City of West Sacramento General Plan Policy Document*, the City of West Sacramento has acknowledged and planned for the development of the Southport area; the area has been planned for urbanization since 1995, when the *Southport Framework Plan* was adopted. This Plan was drafted for the express purpose of regulating and guiding the development envisioned in the Southport area.

The approximately 496-acre Project site is noted on FMMP maps as “Prime Farmland When Drained and Irrigated” (California Department of Conservation 1999) (Figure 3.2-2), and the proposed Project would convert all 496 acres of Prime Farmland to nonagricultural (urban) land uses. The Project proposes a higher density of land uses within the village (an increase of approximately 1,100 residences over the number envisioned in the Southport Plan) on a smaller development footprint, as the proposed Project would be developed on approximately 150 fewer acres of Prime Farmland than that planned in the Southport Framework Plan. The proposed Project would have short- and long-term effects that would lead to conversion of agricultural lands. The Project would also have an indirect effect on farmland conversion by creating pressure to develop surrounding areas slated for development more quickly than originally planned or by creating pressure to develop surrounding areas that are not currently planned for development.

In the long term, implementation of the Project would result in the permanent conversion of prime farmland at the Project site from agricultural and rural residential uses to urban uses. Although conversion is planned by the City, as envisioned in the Southport Framework Plan, the act of development would convert the existing agricultural lands to urban uses, and as a result of the Project, farmland would be converted to another purpose and would no longer be available for agricultural production.

Prime farmland is recognized as a finite resource, and it is found throughout the Southport area, such that the City has little choice but to convert farmland if it is to grow in accordance with its adopted plans and accommodate the population and housing demands of the city and region. A number of policies and programs are in place that attempt to limit the loss of farmland. The General Plan and Southport Framework Plan have planned for new development in the Southport area to occur within the four villages (i.e., the City’s urbanizing areas). Although the City has not previously required acquisition of conservation easements on agricultural land when major development would lead to conversions, this is an option that has been implemented by other local agencies in the Central Valley. Another option that is implemented by the cities of Davis and Dixon in Yolo County includes developing a partnership whereby agricultural conservation easements would be purchased from willing agricultural landowners. While these activities would help conserve those lands, they cannot avoid the continued conversion of agricultural lands adjoining the cities as they grow. Therefore, although this mitigation would substantially lessen the significant effect, there is no feasible mitigation that would reduce this impact to a less-than-significant level because urbanization and agricultural production cannot coexist on the same piece of ground.

Implementation of Mitigation Measure AG-1 would offset the conversion of agricultural lands at the project site and would substantially lessen the significant effect but would not reduce the Project's impacts to a less-than-significant level. **Implementation of Mitigation Measure AG-1 would substantially lessen the significant effect but not reduce this impact to a less-than-significant level. Therefore this impact remains significant and unavoidable.**

Mitigation Measure AG-1: Provide Compensatory Agricultural Land Protection

The development agreement to be entered into by the City and developer will require that the developer provide for a minimum 1:1 conservation of agricultural land in the West Sacramento area prior to the issuance of grading permits or recordation of final maps, whichever comes first, and if feasible, this may be coupled with lands conserved for Swainson's hawk mitigation, when agreeable to the California Department of Fish and Game (DFG).

Impact AG-2: Conflict with Existing Agricultural Zoning or Williamson Act Contracts (No Impact)

The project site is currently zoned for a variety of land uses, including Residential-One Family (R-1B), Rural Residential (RRA), Rural Estates (RE), Residential-One Family or Multi Family (R-2), Multiple-Family Residential (R-3), Neighborhood Commercial (C-1), Recreation-Parks (RP), Public-Quasi Public (PQP), Public Open Space (POS), and Water-Related Commercial (WRC). Although the project site is not currently zoned for agricultural uses, it has been historically, and is currently, used for agriculture.

As described in the "Regulatory Setting" section, according to the DOC, there are no properties in the project site enrolled in Williamson Act contracts (California Department of Conservation 2004). Because the project site is not zoned for agricultural uses and is not enrolled in Williamson Act contracts, the project would not conflict with existing agricultural zoning or Williamson Act contracts. **There would be no impact.**

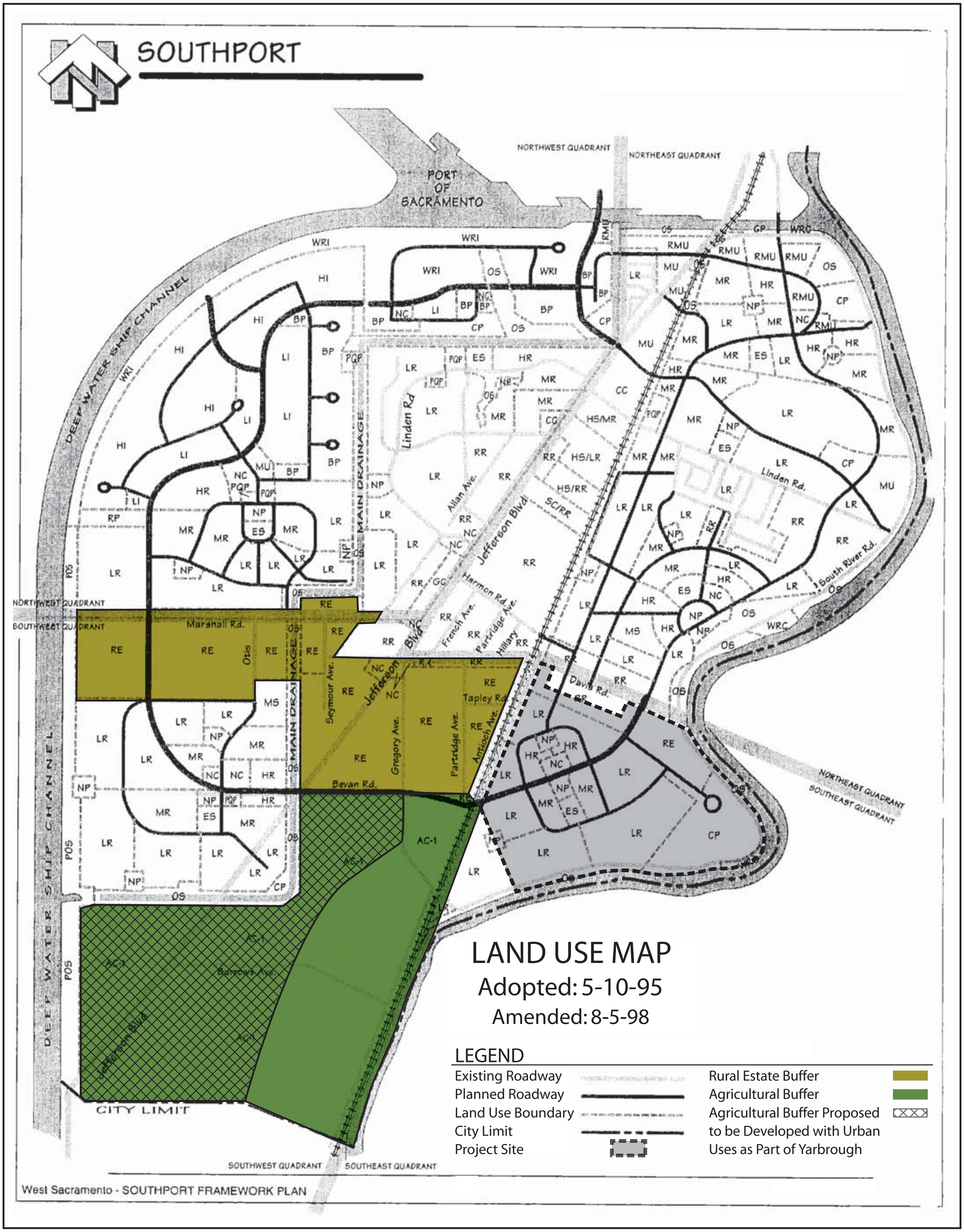
Impact AG-3: Involve other Changes in the Existing Environment That Could Result in Conversion of Farmland to Nonagricultural Use (Less than Significant)

The project site is located in an area of West Sacramento that has been planned for urbanization since the adoption of the Southport Framework Plan in 1995. The Southport Framework Plan includes the transitioning of land uses within and between the four villages of Southport. This transition of land uses helps to minimize land use incompatibilities by varying the intensity of land uses, while intending to avoid segregation of uses. The Southport Framework Plan establishes a gradation of overall land use intensity from the primarily agricultural land uses to the south of Southport to include agricultural and rural estate land uses to act as buffers between the more urbanized centers of the Southwest and Southeast Villages. Figure 3.2-3 depicts the current Southport Framework Plan land use map and identifies the agricultural and rural estate buffers that have been planned between the Southeast Village (proposed for development as River Park) and the Southwest Village (proposed for development as the Yarbrough project). These lands are primarily agricultural (irrigated field and row crops) and rural residential in nature and are designated in the Southport Framework Plan to remain in either agricultural or rural estate uses as part of the agricultural and rural estate buffer lands planned in the Southport Framework Plan. Figure 3.2-3 also identifies the areas of the agricultural buffer that are proposed for conversion to urban uses as part of the Yarbrough project. If the Yarbrough project were approved, the agricultural buffer between the Southeast and Southwest Villages would be substantially reduced. Neither project proposes any changes to the rural estate buffer between the two projects.

Because the proposed Project would place residential development close to active agricultural lands, and lands within the agricultural buffer are already proposed for development as part of another project, the remaining lands in the agricultural buffer may be subject to land use conflicts and development pressures once the Project and the Yarbrough project are completed. However, the Project does not propose development of lands outside of the Southeast Village, and the project site is physically separated from the agricultural buffer by the Yolo Shortline corridor and a 100-foot-wide sewer easement that runs along the western boundary of the site. There is a small amount of Prime Farmland between the project site's southwestern boundary and the Yolo Shortline corridor, but this land is planned for development as part of the original Southport Framework Plan and is not a part of the agricultural buffer.

Given the proximity of the Project to agricultural uses, the Project may result in conflicts with continued agricultural operations on these nearby properties, should these operations include the application of pesticides. The Project would be required to designate setbacks along the western boundary line, in accordance with the buffering provisions included in the Southport Framework Plan, if spraying of pesticides is to be undertaken on agricultural lands in the area. These setbacks would be implemented by the developer during the tentative subdivision map review process and would be implemented in compliance with the County

Agricultural Commission Standards. It is anticipated that the combination of the Yolo Shortline corridor and the 100-foot-wide sewer easement would be sufficient to meet these setback restrictions. The project design, coupled with compliance of the Southport Framework Plan’s setback policies, would ensure operations of the adjoining agricultural lands would not be substantially affected through the introduction of residential uses at the site. **This impact is less than significant. No mitigation is required.**



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Jones & Stokes

Figure 3.2-3
Designated Agricultural Buffers

Section 3.3

Air Quality

Introduction

This chapter describes the environmental setting for air quality, the impacts on air quality that would result from the proposed Project, including elementary school and the water related commercial program elements of the project, and the mitigation measures that would reduce these impacts.

Environmental Setting

This section discusses federal and state ambient air quality standards and existing air quality conditions in the project area, identifies sensitive receptors in the project area, and describes the overall regulatory framework for air quality management in California and the region. Information presented in this section is based in part on communication with the Yolo-Solano Air Quality Management District (YSAQMD).

Existing Conditions

Climate and Meteorological Conditions

The proposed Project is located in Yolo County, which is located in the Sacramento Valley Air Basin (SVAB). The SVAB includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and parts of Solano and Placer Counties. The SVAB is bound on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During winter, the North Pacific storm track intermittently dominates Sacramento Valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Periods of dense and persistent low-level fog, which is most prevalent between storms, are also characteristic of winter weather in the valley. The frequency and persistence of heavy fog in the valley diminishes with the approach of spring. The average yearly temperature range for the Sacramento Valley is 20 to 115°F, with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

In general, the prevailing wind in the Sacramento Valley is from the southwest, from marine breezes flowing through the Carquinez Strait. The Carquinez Strait is the major corridor for air moving into the Sacramento Valley from the west. Incoming airflow strength varies daily with a pronounced diurnal cycle. Influx strength is weakest in the morning and increases in the evening hours. Associated with the influx of air through the Carquinez Strait is the Schultz Eddy, which is formed when mountains on the valley's western side divert incoming marine air. The eddy contributes to the formation of a low-level southerly jet 500–1,000 feet above the surface capable of speeds in excess of 35 miles per hour (mph). This jet is important for air quality in the Sacramento Valley because of its ability to transport air pollutants over large distances.

The SVAB's climate and topography contribute to the formation and transport of photochemical pollutants throughout the region. The region experiences temperature inversions that limit atmospheric mixing and trap pollutants, resulting in high pollutant concentrations near the ground surface. Generally, the lower the inversion base height from the ground and the greater the temperature increase from base to top, the more pronounced the inhibiting effect of the inversion would be on pollutant dispersion. Consequently, the highest concentrations of photochemical pollutants occur from late spring to early fall when photochemical reactions are greatest because of more intense sunlight and the lower altitude of daytime inversion layers. Surface inversions (those at altitudes of 0–500 feet above sea level) are most frequent during winter, and subsidence inversions (those at 1,000–2,000 feet above sea level) are most common in summer.

Ambient Air Quality Standards

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants (Table 3.3-1) and the monitored concentrations of these pollutants (Table 3.3-2). For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (e.g., protection of crops, protection of materials, avoidance of nuisance conditions). For ozone, the U.S. Environmental Protection Agency (EPA) recently replaced the 1-hour standard with an 8-hour standard of 0.08 part per million (ppm), except for areas classified as nonattainment for ozone, which must also attain the 1-hour standard. Additionally, the California Air Resources Board (ARB) recently established an 8-hour ozone standard of 0.07 ppm.

Monitoring data for the last 3 years (2002–2004) are presented in Table 3.3-2. Concentrations are typically expressed in terms of ppm or micrograms per cubic meter ($\mu g/m^3$). The nearest monitoring stations to the project area are the West

Table 3.3-1. Ambient Air Quality Standards Applicable in California

			Standard (ppm)		Standard (μg/m^3)		Violation Criteria	
Pollutant	Symbol	Average Time	California	National	California	National	California	National
Ozone*	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.08	137	157	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20.0	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual average	NA	0.053	NA	100	NA	If exceeded on more than 1 day per year
		1 hour	0.25	NA	470	NA	If exceeded	NA
Sulfur dioxide	SO_2	Annual average	NA	0.03	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable particulate matter	PM10	Annual geometric mean	NA	NA	20	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	NA	50	NA	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual geometric mean	NA	NA	NA	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	12	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	65	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure. National standards shown are the primary (health effects) standards. NA = not applicable.

* The U.S. Environmental Protection Agency recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 part per million. EPA issued a final rule that revoked the 1-hour standard on June 15, 2005. However, the California 1-hour ozone standard will remain in effect.

Source: California Air Resources Board 2003.

Table 3.3-2. Ambient Air Quality Monitoring Data Measured at the West Sacramento 15th Street and Sacramento T Street Monitoring Stations

	West Sacramento 15th Street			Sacramento T Street		
Pollutant Standards	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
Ozone						
Maximum 1-hour concentration (ppm)	–	–	–	0.109	0.111	0.105
Maximum 8-hour concentration (ppm)	–	–	–	0.091	0.091	0.075
Number of days standard exceeded[a]						
NAAQS 1-hour (>0.12 ppm)	–	–	–	0	0	0
CAAQS 1-hour (>0.09 ppm)	–	–	–	6	4	1
NAAQS 8-hour (>0.08 ppm)	–	–	–	3	1	0
Carbon Monoxide (CO)						
Maximum 8-hour concentration (ppm)	–	–	–	4.31	3.40	3.0
Maximum 1-hour concentration (ppm)	–	–	–	5.6	5.8	3.5
Number of days standard exceeded[a]						
NAAQS 8-hour (≥9.0 ppm)	–	–	–	0	0	0
CAAQS 8-hour (≥9.0 ppm)	–	–	–	0	0	0
NAAQS 1-hour (≥35 ppm)	–	–	–	0	0	0
CAAQS 1-hour (≥20 ppm)	–	–	–	0	0	0
Particulate Matter (PM10)[b]						
National[c] maximum 24-hour concentration ($\mu g/m^3$)	82	69	54	77	65	58
National[c] second-highest 24-hour concentration ($\mu g/m^3$)	62	52	47	61	45	49
State[d] maximum 24-hour concentration ($\mu g/m^3$)	87	70	57	81	66	58
State[d] second-highest 24-hour concentration ($\mu g/m^3$)	62	53	49	63	46	50
National annual average concentration ($\mu g/m^3$)	27.2	23.4	23.5	26.7	22.5	–
State annual average concentration ($\mu g/m^3$)[e]	28.0	–	24.1	27.6	23.3	–
Number of days standard exceeded[a]						
NAAQS 24-hour (>150 $\mu g/m^3$)[f]	0	0	0	0	0	0
CAAQS 24-hour (>50 $\mu g/m^3$)[f]	3	2	1	3	1	1
Particulate Matter (PM2.5)						
National[c] maximum 24-hour concentration ($\mu g/m^3$)	–	–	–	73.0	49.0	46.0
National[c] second-highest 24-hour concentration ($\mu g/m^3$)	–	–	–	73.0	49.0	43.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	–	–	–	69.0	41.0	43.0
State[d] second-highest 24-hour concentration ($\mu g/m^3$)	–	–	–	69.0	41.0	48.0
National[b] annual average concentration ($\mu g/m^3$)	–	–	–	14.3	–	–
State[c] annual average concentration ($\mu g/m^3$) [e]	–	–	–	–	–	–
Number of days standard exceeded[a]						
NAAQS 24-hour (>65 $\mu g/m^3$)	–	–	–	4	0	0

Notes: CAAQS = California ambient air quality standards. NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

[g] PM10 and PM2.5 are not monitored at the Costa Mesa monitoring station.

Sources: California Air Resources Board 2005; U.S. Environmental Protection Agency 2006.

Sacramento 15th Street station, which monitors for particulate matter 10 microns or less in diameter (PM10), and the Sacramento T Street station, which monitors for ozone, carbon monoxide (CO), PM10, and particulate matter 2.5 microns or less in diameter (PM2.5).

The pollutants of greatest concern in the project area are CO, ozone, and PM10, and PM2.5. These pollutants and their affects are further described below. Toxic air contaminants (TACs) and greenhouse gases are also discussed below, although no air quality standards exist for these pollutants.

The County's attainment status for each of these pollutants relative to the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) is summarized in Table 3.3-3. California has designated the Yolo County portion of the SVAB as being a serious nonattainment area for ozone, a nonattainment area for PM10, an unclassified area for PM2.5, and an attainment area for CO. The EPA has designated Yolo County as a severe nonattainment area for the 1-hour ozone standard, a serious nonattainment area for the 8-hour ozone standard, an unclassifiable/attainment area for PM10, and a moderate (≤12.7 ppm) maintenance area for CO.

The EPA has classified the County as an attainment area for the PM10 and PM2.5 standards. The ARB has classified the County as being a serious nonattainment area for ozone. The ARB has classified the County as being an attainment area for the CO standard, as a nonattainment area for the PM10 standard, and an unclassified area for the PM2.5 standard.

Table 3.3-3. 2005 Yolo County Attainment Status for State and Federal Standards

Pollutant	Federal	State
1-hour ozone	Severe—15 nonattainment[1]	Serious nonattainment
8-hour ozone	Serious nonattainment	NA[2]
CO	Moderate (≤12.7 ppm) maintenance area	Attainment
PM10	Attainment	Nonattainment
PM2.5	Attainment	Unclassified

[1] Previously in nonattainment area, no longer subject to the 1-hour standard as of June 15, 2005.

[2] The ARB approved the 8-hour ozone standard on April 28, 2005. It is expected to become effective in early 2006.

Ozone

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors—reactive organic gases (ROG) and oxides of nitrogen (NO_X)—react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem.

Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials. Particulate emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

Carbon Monoxide

CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Toxic Air Contaminants

Although ambient air quality standards exist for criteria pollutants, no standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the ARB has consistently found there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor called a Hazard Index is used to evaluate risk. In the early 1980s, the ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Tanner 1983) created California’s program to reduce exposure to air toxics. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588, Connelly 1987) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Sensitive Land Uses

For the purposes of air quality analysis, sensitive land uses are defined as locations where people reside or where the presence of pollutant emissions could adversely affect the use of the land. Sensitive land uses in the vicinity of the project site include residential subdivisions immediately west and north of the project site and isolated single-family residences southwest and northeast of the project site. Additionally, other proposed developments currently undergoing environmental review include the University Park Project (southwest of the proposed project), and several other applications in the Northwest and Northeast Villages of Southport (west and southwest of the proposed Project).

Regulatory Setting

Federal

The federal Clean Air Act (CAA), enacted in 1970 and amended twice thereafter (including the 1990 amendments), establishes the framework for modern air pollution control. The CAA directs the EPA to establish ambient air standards for six pollutants: ozone, CO, lead, nitrogen dioxide (NO_2), particulate matter, and sulfur dioxide (SO_2). The standards are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety and the latter to protect environmental values, such as plant and animal life.

The CAA requires states to submit a state implementation plan (SIP) for areas in nonattainment for federal standards. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards would be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, the EPA is directed to prepare a federal implementation plan.

State

Responsibility for achieving California’s air quality standards, which are more stringent than federal standards, is placed on the ARB and local air pollution control districts. State standards are to be achieved through district-level air quality management plans that are incorporated into the SIP.

The California Clean Air Act (CCAA) requires local and regional air pollution control districts that are not attaining one or more of the state standards for ozone, CO, sulfur dioxide, or nitrogen dioxide to expeditiously adopt plans specifically designed to attain these standards. Each plan must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors.

The ARB's Proposed Air Quality and Land Use Handbook (2005) provides the ARB recommendations for the siting of new sensitive land uses (including residences) near freeways, distribution centers, ports, refineries, chrome plating facilities, dry cleaners, and gasoline stations. The handbook recommends new development be placed at distances from such facilities.

Local

The air quality management agencies of direct importance in Yolo County include the EPA, ARB, and YSAQMD. The EPA has established federal standards for which the ARB and YSAQMD have primary implementation responsibility. The ARB and YSAQMD are responsible for ensuring that state standards are met. The YSAQMD is responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development. At the local level, air quality is managed through land use and development planning practices, which are implemented in the County through the general planning process. The YSAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. The proposed Project may be subject to the following YSAQMD rules. In addition, the program may be subject to additional rules.

RULE 2.3—Ringelmann Chart. This rule establishes limits to the opacity of emissions within the District.

RULE 2.5—Nuisance. This rule prohibits emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.

RULE 2.8—Open Burning, General. This rule limits emissions to the atmosphere from open burning.

RULE 2.9—Open Burning, Certain Materials. This rule prohibits the use of open outdoor fires for the purpose of disposal of petroleum waste, demolition debris, construction debris, tires or other rubber materials, materials containing tar, or for metal salvage or burning of vehicle bodies.

RULE 2.11—Particulate Matter. This rule prohibits the emission of particulate matter in excess of 0.3 grains per cubic foot of exhaust volume.

RULE 2.13—Organic Solvents. This rule limits the emissions of organic solvents into the atmosphere that may result from the use of organic solvents.

RULE 2.14—Architectural Coatings. This rule limits the quantity of volatile organic compounds (VOC) in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District.

RULE 2.16—Fuel Burning Heat or Power Generators. This rule establishes limits for the operation of non-mobile fuel burning equipment for a heat or power generator.

RULE 2.19—Particulate Matter Process Emission Rate. This rule establishes emission rates for processing units, excluding motor vehicles, implements of husbandry, and certain agricultural facilities.

RULE 2.21—Organic Liquid Storage And Transfer. This rule limits emissions of volatile organic compounds from the storage and transfer of organic liquids.

RULE 2.22—Gasoline Dispensing Facilities. This rule limits displaced gasoline vapors from storage tanks, transport vessels, and motor vehicle fuel tanks using ARB certified Phase I and II vapor recovery systems.

RULE 2.28—Cutback And Emulsified Asphalts. This rule limits emissions of organic compounds from the use of cutback and emulsified asphalts in paving materials, paving, and maintenance operations.

RULE 2.32—Stationary Internal Combustion Engines. This rule limits emissions of NO_X and CO from stationary internal combustion engines.

RULE 2.37—Natural Gas-Fired Residential Water Heaters. This rule limits emissions of NO_X from natural gas-fired residential hot water heaters.

RULE 2.39—Wood Products Coating Operations. This rule limits emissions of VOCs from coatings and strippers used on wood products, and from products used for wood product coating surface preparation and cleanup.

RULE 3.1—General Permit Requirements. This rule provides an orderly procedure for the review of new sources of air pollution and of the modification and operation of existing sources through the issuance of permits.

RULE 3.2—Exemptions. The exemptions contained in this Rule shall not apply to an otherwise exempt piece of equipment that is part of a process that requires a permit.

RULE 3.3—Portable Equipment. This rule provides an administrative mechanism, and establishes standards for the registration of certain portable emissions units for operation at Participating Districts throughout the state of California.

RULE 3.4—New Source Review. This rule provides for the review of new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.

RULE 8.1—New Source Performance Standards. This rule stipulates that all new sources of air pollution and all modified or reconstructed sources of air pollution comply with the applicable standards, criteria, and requirements set forth by the Rule.

RULE 9.7—Perchloroethylene Dry Cleaning Operations. This rule controls emissions of perchloroethylene from dry cleaning operations in compliance with the Airborne Toxics Control Measure adopted by the California Air Resources Board (Title 17 and Title 26, California Code of Regulations, Section 93109.

RULE 9.8—Asbestos - Serpentine Rock. This rule limits asbestos emissions to the atmosphere from serpentine rock by prohibiting the use or sale of serpentine rock containing more than one percent (1%) asbestos for surfacing applications.

RULE 9.9—Asbestos. This rule limits asbestos emissions to the atmosphere and requires an appropriate work practice standards and waste disposal procedure.

Impact Analysis

This section describes the CEQA impact analysis relating to air quality for the proposed Project. It describes the methods used to determine the Project's impacts and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Traffic emissions have been evaluated under the following conditions.

- Existing plus project under build Phases 1 and 2.
- Existing plus approved projects plus project under build Phases 1 and 2.
- Project Buildout Year.

Existing Plus Project Scenario Phasing

The South River Road Bridge and Village Parkway segment south to Stonegate Drive are not assumed to be in place in the existing scenario. Table 3.3-4 provides a description of the project development levels and new roadway infrastructure assumed to be in place for each of the phases that is added to the existing scenario (Fehr & Peers 2006).

Table 3.3-4. Description of Phases—Existing Plus Project

Phase	River Park Development Levels	New Infrastructure
1	30% of River Park residential: 225 single family units 610 multi-family units	Stonegate Drive Extension (south to Davis Road)
2A	50% of River Park residential: 375 single family units 1,020 multi-family units	Stonegate Drive Extension (south to Davis Road) Village Parkway (from project north to Stonegate Drive)
2B	30% of River Park residential: 225 single family units 610 multi-family units	Stonegate Drive Extension (south to Davis Road) S. River Road Bridge and approaches
3	100% of River Park Project	Stonegate Drive Extension (south to Davis Road) Village Parkway (from project north to Stonegate Drive) Add S. River Road Bridge and approaches

Source: Fehr & Peers 2006.

Existing Plus Approved Plus Project Scenario Phasing

The South River Road Bridge and Village Parkway segment south to Stonegate Drive are assumed to be in place in the "Existing & Approved Projects" scenario. Table 3.3-5 provides a description of the River Park development levels and new roadway infrastructure that are assumed to be in place for each of the phases that is added to the Existing & Approved Projects scenario.

Table 3.3-5. Description Of Phases—Existing plus Approved plus Project

Phase	River Park Development Levels	New Infrastructure
1	30% of River Park residential: 225 single family units 610 multi-family units	Add Stonegate Drive Extension (south to Davis Road)
2	100% of River Park Project	Add Stonegate Drive Extension (south to Davis Road) Add Village Parkway (from project north to Stonegate Drive)

Source: Fehr & Peers, 2006.

For purposes of air quality analysis, construction of the following were all assumed to occur in the final phase under both scenarios:

- commercial center, school;
- restaurant, marina, boat/tackle shop;
- parks and open space.

For modeling, the phases were further broken down as described in the presentation of methods for specific impacts below.

Approach and Methods

Construction-Related Emissions

Construction of the proposed project would result in the temporary generation of emissions of CO, ROG, NO_X, and PM10. Emissions would originate from mobile and stationary construction equipment exhaust, employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, and VOCs from architectural coatings, and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Construction-related emissions were estimated and analyzed using URBEMIS2002, which is a computer program used to estimate emissions from construction, vehicle trips, and fuel use resulting from land use development projects. To estimate construction emissions, URBEMIS2002 analyzes the type of construction equipment used and the duration of the construction period. A detailed inventory of construction equipment that would be used for the proposed project was not provided; therefore, this analysis is based on anticipated construction equipment calculated by URBEMIS2002 that would be used during construction activities (Table 3.3-6).

Although full project buildout is assumed to be complete by 2025, specific dates or amount of time needed for each phase have not been identified. Consequently the analysis in this EIR assumes construction activities would occur for up to 15 hours per day, with each phase of construction occurring separately and over an 18-month period for each phase of the Existing Plus Project scenario under build Phases 1 and 2, and 24 months for each phase of Existing Plus Approved Projects Plus Project under build Phases 1 and 2. This assumption provides us with the most conservative assessment of emission impacts.

Table 3.3-6. Anticipated Project Construction Equipment

Construction Phase and Total Equipment	Number of Equipment Pieces
Phase 1 Total Equipment Pieces	105
Phase 2A Total Equipment Pieces	96
Phase 2B Total Equipment Pieces*	0
Phase 3A Site Grading	–
Phase 3A Total Equipment Pieces	108
Phase 3B Site Grading	–
Phase 3B Total Equipment Pieces	207
With Bridge Already Completed Phase 1 Total Equipment Pieces	105
With Bridge Already Completed Phase 2 Total Equipment Pieces	207

* Phase 2B does not include any additional residences. Only out of project infrastructure improvements.

Operation-Related Emissions

The primary operational emissions associated with the project are CO, PM10, and ozone precursors emitted as vehicle exhaust. The effects of CO emissions were evaluated through CO dispersion modeling, while emissions of PM10 and ozone precursors were evaluated using the URBEMIS2002 model. Both models are briefly described below.

The URBEMIS2002 Model

Operational emissions of PM10 and ozone precursors were modeled using the URBEMIS2002 model. URBEMIS2002 is a computer program used to estimate emissions from construction, vehicle trips, and fuel use resulting from land use development projects. URBEMIS2002 estimates emissions based on the type of land use and area source and vehicular emissions typically associated with the land use.

The CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Appendix I; Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants, which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

Modeling Procedures

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling runs were obtained from the traffic analysis prepared by the project traffic engineers, Fehr and Peers (2006) and from the Supercumulative Traffic Analysis (DKS Associates 2005). CO modeling was conducted using PM peak-hour traffic volumes.

CO modeling was performed for existing condition, 2025 design-year, and 2025 design-year with-project conditions.

Vehicle Emission Rates

Vehicle emission rates were determined using the ARB Board's EMFAC2002 (version 2.2) emission rate program (Appendix J). Free flow traffic speeds were adjusted to reflect congested speeds using methodology from the Highway Capacity Manual (Transportation Research Board 2000).

Receptor Locations

CO concentrations were estimated at four receptor locations near the intersections. Receptors were chosen based on the CO protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997), and were located 100 feet from the center of the intersection diagonal to represent a worst-case scenario. Receptor heights were set at 5.9 feet.

Meteorological Conditions

Meteorological inputs to the CALINE4 model were determined using methodology recommended in the CO protocol (Garza et al. 1997). The meteorological conditions used in the modeling represent a calm winter period. The worst-case wind angles option was used to determine a worst-case concentration for each receptor. The meteorological inputs include: 1 meter per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to five degrees, and a mixing height of 1,000 meters.

Background Concentrations and 8-Hour Values

A background concentration of 3.6 ppm was added to the modeled 2025 1-hour values to account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. Background concentration of 5.0 ppm was added to the modeled 2025 8-hour values. All background concentration data were taken from the monitoring data provided by the ARB (California Air Resources Board 2005). Actual 1-hour and 8-hour background concentrations would likely be lower than those used in the CO modeling analysis because the average value for the previous three years was applied as background concentrations, and background levels of CO are anticipated to lower as older, more polluting vehicles are replaced with cleaner, less polluting vehicles.

Additional detail on air quality impact methodology and calculations can be found in Appendix B.

Thresholds of Significance

Criteria for determining the significance of impacts related to air quality were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*). An impact related to air quality was considered significant if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people in excess of standards established in a local general plan or applicable standards of other agencies.

In addition, the YSAQMD has specified significance thresholds within its Air Quality Handbook (Yolo-Solano Air Quality Management District 2002) to determine whether mitigation is needed for project-related air quality impacts. According to the YSAQMD's Handbook (2002), the EPA has designated the YSAQMD as in attainment for CO since 1999, which was subsequently deleted as a pollutant of concern and is not included in Table 3.3-7 below. The YSAQMD's thresholds of significance for construction- and operation-related emissions are presented in Table 3.3-7.

Table 3.3-7. Yolo-Solano Air Quality Management District Thresholds of Significance

	Thresholds of Significance (pounds per day)	
Pollutant	Construction	Operation
ROG	82	82
NO_X	82	82
PM10	150	150

Source: Yolo-Solano Air Quality Management District 2002.

Impacts and Mitigation Measures

Impact AIR-1: Temporary Increase in Construction-Related Emissions of ROG, NO_X and PM10 during Grading and Construction Activities (Significant and Unavoidable)

During construction of the proposed Project, emissions would be produced by a variety of sources. They would include criteria pollutant emissions produced by construction equipment and fugitive dust created by wind and the operation of construction equipment over exposed earth. A number of YSAQMD rules and regulations may apply to project construction activities included in this analysis including:

- Architectural coatings and solvents used at the project shall be compliant with District Rule 2.14, Architectural Coatings.
- Cutback and emulsified asphalt application shall be conducted in accordance with District Rule 2.28, Cutback and Emulsified Asphalt Paving Materials.
- In the event that demolition, renovation or removal of asbestos-containing materials is involved, District Rule 9.8 and 9.9 require Air District consultation and permit prior to commencing demolition or renovation work.
- Portable equipment must meet either air district or statewide registration or permitting standards (District Rules 3.1, 3.2 and 3.3 where applicable or H&S 41753.2(b)).

Construction is generally broken down into two phases: an excavation/grading phase and a construction phase. Construction-phase emissions would result from material handling and heavy equipment operations. It is anticipated site-grading activities would result in the highest daily fugitive dust generation. Maximum daily construction emissions are shown in Table 3.3-8. As previously mentioned, construction activities were divided into separate phases and analyzed separately. Consequently, project significance is not a comparison of the sum of all construction phases to the YSAQMD threshold levels. Instead, if one phase of construction is found to have a significant impact, then the entire project is considered to have a significant air quality impact.

Table 3.3-8. Summary of Most Significant Construction Phase (Unmitigated)

Phase 3B	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Full Project Construction Unmitigated Total	2805.38	1634.94	2168.51	672.97
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	–	150

As indicated within Table 3.3-8, construction-related emissions are anticipated to exceed YSAQMD's daily threshold for ROG, NO_X, and PM10. **Implementation of Mitigation Measure AIR-1a, AIR-1b and AIR-1c would reduce this**

impact as shown in Table 3.3-9, but not to a less-than-significant level. Consequently, this impact is considered significant and unavoidable.

Table 3.3-9. Summary of Most Significant Construction Phase (Mitigated)

Phase 3B	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Full Project Construction Mitigated Total	2805.38	1464.80	2168.51	286.95
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	–	150

Mitigation Measure AIR-1a: Implement Measures That Reduce NO_X Emissions from Heavy-Duty Equipment

- During all grading and construction activities at least 10 % of diesel engine-driven construction equipment on site shall be equipped with Tier 1 or Tier 2 engines as certified by the ARB or use engines, aqueous or alternative diesel fuels certified by the applicable air district to provide equivalent benefits.
- At least 40 % of the remaining diesel engine-driven construction equipment shall have diesel particulate filters and lean- NO_X catalysts (or equivalent control devices).
- Minimize idling time to 5 minutes when construction equipment is not in use, unless per engine manufacturer's specifications or for safety reasons more time is required; and
- To the extent practicable, manage operation of heavy-duty equipment to reduce emissions such as maintain heavy-duty earthmoving, stationary and mobile equipment in optimum running conditions which can result in 5% fewer emissions; and
- To the extent practicable, employ construction management techniques such as timing construction to occur outside the ozone season of May through October, or scheduling equipment use to limit unnecessary concurrent operation; and
- Use electric equipment when feasible; and
- Properly maintain equipment according to manufacturers' specifications; and
- District rule 2.3 requires controlling visible emissions not exceeding 40% opacity for more than three minutes in any 1-hour which includes all (on-road and off-road) diesel-powered equipment.

Mitigation Measure AIR-1b: Implement Best Available Control Measures to Reduce Fugitive Dust Emissions from Construction Activities

Table 3.3-10 lists the applicable fugitive dust measures. Strict enforcement of these measures would effectively reduce fugitive dust emission.

Table 3.3-10. Best Available Fugitive Dust Control Measures

Fugitive Dust Source Category	Control Actions
Earth-moving	1. Maintain soil moisture content at a minimum of 12%, as determined by ASTM method D-2216; two soil moisture evaluations must be conducted during the first 3 hours of active operations during a calendar day, and two such evaluations during each subsequent 4-hour period of active operations. For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Disturbed surface areas (except completed grading areas)	2a/b. Apply dust suppression in a sufficient quantity and frequency to maintain a stabilized surface; any areas which cannot be stabilized, as evidenced by wind driven dust, must have an application of water at least twice per day to at least 80% of the unstabilized area.
Disturbed surface areas–completed grading areas	2c. Apply chemical stabilizers within 5 working days or grading completion; OR 2d. Take action 3a or 3c specified for inactive disturbed surface areas.
Inactive disturbed surface areas	3a. Apply water to at least 80% of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible due to excessive slope or other safety conditions; OR 3b. Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR 3c. Establish a vegetative ground cover within 21 days after active operations have ceased; ground cover must be of sufficient density to expose less than 30% of unstabilized ground within 90 days of planting, and at all times thereafter; OR 3d. Utilize any combination of control actions 3a, 3b and 3c such that, in total, they apply to all inactive disturbed surface areas.
Unpaved roads	4a. Water all roads used for any vehicular traffic at least once per every two hours of active operations; OR 4b. Water all roads used for any vehicular traffic once daily and restrict vehicle speed to 15 mph; OR 4c. Apply chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	5a. Apply chemical stabilizers; OR 5b. Apply water to at least 80% of the surface areas of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR 5c. Install a three-sided enclosure with walls with no more than 50% porosity that extend, at a minimum, to the top of the pile.
Track-out control	6a. Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and width of at least 20 feet; OR 6b. Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
All categories	7. Any other control measures approved by the District where necessary.

Mitigation Measure AIR-1c: Implement Construction Phasing to Reduce Daily and Annual Emissions to the Maximum Extent Practicable

The project applicant will implement construction phasing that reduces the total active construction area on a daily and annual basis to reduce total construction emission to the maximum extent practicable while still meeting project objectives.

Impact AIR-2: Construction-Related Diesel Health Risk (Less than Significant)

YSAQMD staff indicated construction equipment diesel-related cancer risks are not considered to be an issue because of the short-term nature of construction activities (O'Brien pers. comm.). The assessment of cancer risk is typically based on a 70-year exposure period. Construction activities are sporadic, transitory, and short-term in nature. Emissions from construction cease when the construction period ends. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons. **Consequently, the estimation of diesel risks associated with construction activities is considered to be less than significant. No mitigation is required.**

Impact AIR-3: Conflict with or Obstruct Implementation of Air Quality Attainment Plan (Significant and Unavoidable)

The CCAA requires nonattainment districts with severe air quality problems to provide for a 5 % reduction in nonattainment emissions per year. The YSAQMD and the Sacramento Metropolitan Air Quality Management District prepared an Air Quality Attainment Plan for the SVAB in compliance with the requirements of the Act. The plan requires best available retrofit technology on specific types of stationary sources to reduce emissions. The CCAA and the Air Quality Attainment Plan also identify transportation control measures as methods of reducing emissions from mobile sources. The CCAA defines transportation control measures as, "any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling or traffic congestion for the purpose of reducing motor vehicle emissions." The Air Quality Attainment Plan for the SVAB identifies the provisions to accommodate the use of bicycles, public transportation and traffic flow improvements as transportation control measures.

A traffic impact study was prepared by Fehr and Peers to evaluate impacts on the surrounding local roadway system due to traffic generated by the proposed development. The traffic impact study recommends mitigation measures, such as street improvements or traffic signals, for intersections and street segments which fall below an acceptable level of service (LOS) due to the impact of future traffic. The study allocates a proportionate share of the mitigation measures to the project. The proposed mitigation measures are traffic flow improvements, which are recognized transportation control measures in compliance with the Air Quality Attainment Plan.

The Air Quality Attainment Plan, like the West Sacramento General Plan, recognized growth of the population and economy within the air basin. This Project is not consistent with the current West Sacramento General Plan and proposes development and housing in excess of the approved General Plan and Southport Framework Plan designations for the project site. Because the proposed Project would create growth beyond what was anticipated and analyzed by the West Sacramento General Plan and therefore the Air Quality Attainment Plan, the Project would include emissions in excess of the planning inventory for the Air Quality Attainment Plan and the Project would conflict with or obstruct implementation of the air quality plan. Consequently, this impact is considered significant. **Mitigation Measure AIR 3a would reduce the impact, but not to a less that significant level, and for this reason, the impact is significant and unavoidable.**

Mitigation Measure Air-3: Update the Southport Framework Plan and Provide New Growth Forecasts to the YSAQMD for Inclusion in the Air Quality Planning Inventory
The City of West Sacramento will prepare an update to the Southport Framework plan and will provide new growth forecasts to the YSAQMD for inclusion in future air quality planning inventories.

Impact AIR-4: Generation of PM10, ROG and NO_X Emissions in Excess of Thresholds (Significant and Unavoidable)

Long-term air quality impacts are those associated with the change in permanent use of the project site. Two types of air pollutant sources must be considered with respect to the proposed Project: area and mobile sources. Area sources include emissions from onsite activities and natural gas combustion for heating requirements, as well as emissions from personal product use. Mobile source emissions result from vehicle trips, including employees, deliveries, and maintenance activities.

Area source emissions result from fuel and personal product use, as well as onsite activities. Electricity and natural gas are utilized by almost every commercial and residential development. The URBEMIS2002 computer model was used to predict emissions from natural gas usage and landscape maintenance.

The proposed Project would generate motor-vehicle trips that would cause emissions of air pollutants. Emission calculations for design year with-project conditions are based on the daily trip generation data provided by the project traffic engineers, Fehr and Peers (2006). The results of these calculations are summarized in Table 3.3-11.

After mitigation, the residual emissions would still be greater than the YSAQMD significance thresholds because the majority of operational emissions are from motor vehicle trips, and the mitigation measures available do not address emissions from motor vehicles. **For this reason, the impact is significant and unavoidable.**

Table 3.3-11. Maximum Project Emissions

Full Project Buildout	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Natural gas	1.75	22.57	10.19	0.05
Hearth	42.52	6.68	340.63	55.56
Landscaping	0.44	0.05	3.12	0.00
Consumer products	136.37	–	–	–
Architectural Coatings	34.30	–	–	–
Vehicular Emissions	186.67	190.83	1898.14	191.11
Phase Total	402.05	220.15	2252.09	246.72
YSAQMD Threshold for Operations	82	82	NA	150

Mitigation Measure AIR-4: Include Construction and Design Features to Reduce Emissions from Operations

The URBEMIS2002 model identifies several measures that can be used to minimize emissions associated with residential projects. These measures include:

- solar water heater,
- central water heater,
- increase insulation beyond Title 24, and
- use of electric landscape maintenance equipment on commercial buildings.

URBEMIS quantifies the effectiveness of these mitigation measures. In addition to the measures considered in the URBEMIS model, implementation of the following measures as part of the design and operations of the proposed Project will further reduce impacts, although not to a less-than-significant level for the reasons described above.

- Use low-NO_x emission water heaters when solar water heaters are not applicable.
- Provide shade trees to reduce building cooling requirements.
- Install energy-efficient and automated air conditioners.
- Exterior windows should all be double-paned glass.
- Energy-efficient (low-sodium) parking lights should be used.

- Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces, as required by the Southport Framework Plan Design Guidelines.

Impact AIR-5: Exposure of Sensitive Receptors to Substantial Concentrations of CO (Less than Significant)

CO is a localized pollutant and a project may contribute or cause a localized CO "hot spot" or exceedance of the ambient air quality threshold for CO. In the evaluation and screening of CO "hot spots", the worst-case intersections and conditions are selected for screening, and the CO concentrations are modeled. In the event that modeling identifies a projected exceedance, additional intersections may be added to the analysis. For the purposes of CO "hot spot" analysis, the super cumulative conditions were analyzed at four intersections. This scenario represents the highest total traffic volumes and the longest delay times and congestion. CO modeling protocol analysis was conducted to evaluate whether the super cumulative scenario would cause or contribute to localized violations of the state or federal ambient standard in the project vicinity. CO concentrations at sensitive receptors near congested roadways and intersections were estimated using CALINE4 dispersion modeling. Table 3.3-12 summarizes CO modeling results for base year (2002) and future year (2025) with and without project conditions.

Table 3.3-12. Modeled Carbon Monoxide Levels Measured at Receptors Near the Project Area

		Existing		Future no project		Future with project	
Intersection	Receptor	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO
3rd Street/ Tower Bridge Gateway	1	5.2	3.7	5.3	3.8	5.3	3.8
	2	5.2	3.7	5.3	3.8	5.3	3.8
	3	5.3	3.8	5.3	3.8	5.3	3.8
	4	5.2	3.7	5.3	3.8	5.3	3.8
Jefferson Boulevard/ US 50 Eastbound Ramps	5	6.2	4.3	5.3	3.8	5.3	3.8
	6	6.1	4.2	5.3	3.8	5.4	3.8
	7	6.2	4.3	5.3	3.8	5.3	3.8
	8	6.1	4.2	5.3	3.8	5.3	3.8
Jefferson Boulevard/ Lake Washington Boulevard	9	5.6	3.9	5.2	3.7	5.3	3.8
	10	5.5	3.9	5.2	3.7	5.2	3.7
	11	5.5	3.9	5.2	3.7	5.3	3.8
	12	5.6	3.9	5.2	3.7	5.2	3.7
Southport Parkway/ Lake Washington Boulevard	13	5.3	3.8	5.3	3.8	5.3	3.8
	14	5.3	3.8	5.3	3.8	5.3	3.8
	15	5.3	3.8	5.2	3.7	5.3	3.8
	16	5.4	3.8	5.3	3.8	5.4	3.8

Notes:

Receptors 1 through 4 represent receptors located 100 feet diagonally from the intersection center

Background concentrations of 5.0 ppm and 3.6 ppm were added to the modeling 1-hour and 8-hour results, respectively

The federal and state 1-hour standards are 35 and 20 ppm, respectively

The federal and state 8-hour standards are 9 and 9.0 ppm, respectively

As indicated in Table 3.3-12, no violations of the state or federal 1- or 8-hour CO standards are anticipated in the project area under super cumulative conditions including the project. **Therefore, the impact of proposed project traffic conditions on ambient CO levels in the project area is considered less than significant. No mitigation is required.**

Impact AIR-6: Expose New Sensitive Land-Uses (Residential Units) to Elevated Pollution Levels and High Cancer Risk Scenarios (Less Than Significant)

Without proper consideration of existing conditions, pollution levels, and background cancer risks and appropriate land-use considerations, new sensitive receptors may be subject to elevated cancer risk associates with existing sources of TACs. The proposed Project would add new sensitive land uses (residential units) that could be exposed to elevated cancer risks without consideration of certain sources of air pollutions and associated elevated cancer risk. The ARB has developed recommendations to address the issue of siting “sensitive land uses” near specific sources of air pollution:

- High traffic freeways and roads,
- Distribution centers,
- Rail yards,
- Ports,
- Refineries,
- Chrome plating facilities,
- Dry cleaners, and
- Large gas dispensing facilities.

This impact analysis considers whether the proposed project is consistent with the ARB Land Use Guidance (California Air Resources Board 2005) and whether the proposed residential receptor would have an elevate cancer risk.

The proposed residential units are not located within 500 feet of a high traffic freeway or road (roads with vehicle trips in excess of 100,000 per day). The nearest freeway or road in this category is Interstate 80 located 3 miles from the nearest residential units proposed in the Project.

There are no existing distributions centers within 1,000 feet of the proposed Project and no new distribution centers are included in the Project. The nearest distributions centers are located at the Port of Sacramento which is more than 2 miles from the project boundary.

There are no railyards within 1000 feet of the project boundary or in the close proximity to the proposed Project.

The Port of Sacramento is more than 2 miles from the project boundary and is located Northwest of the proposed Project. The predominant wind direction in the area is from the Southwest. Therefore, the proposed Project is upwind of the Port of Sacramento. Because the proposed Project is not immediately downwind of the Port of Sacramento, the proposed sensitive land uses would be consistent with the ARB guidance. Based on the distance to the Port and the prevailing wind directions, the new residential receptors would not be expected to experience elevated pollutions levels or associate health risks from Port operations. In addition, the ARB has draft Guidance and proposed regulations for Risk Reduction from California Ports. The proposed Guidance and regulations would substantially reduce diesel health risk to sensitive receptors near Ports.

There are no refineries, chrome plating facilities, dry cleaners, or large gas dispensing facilities in the vicinity of the project.

The siting of the proposed residential units is consistent with the ARB Land-use guidance. Based on the evaluation of the surrounding land-uses and source, the new residential receptors would not be exposed to increased health risks from incompatible land uses or large pollution sources. **This impact is less than significant. No mitigation is necessary.**

Assessment of Impacts of Phasing Mitigation Measure

As discussed in detail in Section 3.13, *Traffic and Transportation*, a phasing plan for this project was developed as a mitigation measure for identified traffic impacts. The phasing plan ties project construction to necessary roadway improvements. For the purposes of assessment of the effects of phasing the project as described in the traffic section of this EIR on air quality, the same development assumptions were used as were used in the traffic study. Additionally, it was assumed that the commercial development would all occur in the last phase of development.

Impacts Assessment

Emissions from operation and construction were analyzed at Full Project Buildout as well as each phase as shown in Table 3.3-13. The impact analysis for the phasing mitigation was developed to ensure that emissions would not increase on an interim basis for one of the proposed phases. Based on this analysis, none of the phases would result in higher emissions than the emissions presented at Full Project Buildout. The phasing mitigation does not result in impacts that have not already been disclosed. The phasing plan would not result in emissions in excess of the proposed Project. While the projected emissions would be less than those for the proposed Project, emissions under the phasing plan would still be significant and unavoidable for both construction and operational impacts.

Table 3.3-13. Operation Emissions by Phase

Description	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Phase 2A	185.35	102.95	1051.91	120.81
Phase 2B	113.85	56.32	583.73	65.53
Phase 3	402.05	220.15	2252.09	246.72
With Bridge Already Completed Phase 2	402.05	220.15	2252.09	246.72
YSAQMD Operation Thresholds	82	82	550	150

Section 3.4
Biological Resources

Introduction

This section describes the environmental setting for biological resources, the impacts on biological resources that would result from the Project and alternatives, and the mitigation measures that would reduce these impacts.

Environmental Setting

This section discusses the methods used to evaluate the biological resources present in the study area and describes the existing conditions related to biological resources in the study area. Federal, state, and local regulations related to biological resources that would apply to the Project are discussed in the *Regulatory Setting* section below.

Methods

For the purpose of this EIR, the study area was defined by the limits of the River Park study area, depicted in Figure 3.4-1.

The methods used to identify biological resources within the study area consisted of reviewing the existing information on biological resources in the study area, conducting field surveys, and coordinating with resource agencies.

Sources of Information on Study Area Biological Resources

To prepare for the field surveys, biologists reviewed existing information related to the study area and coordinated with resource agencies to determine the types and locations of biological surveys that were previously conducted in the study area and to evaluate whether special-status species or their habitats could occur in the study area. The following pertinent sources of information were reviewed:

- California Natural Diversity Database (CNDDB) records search for the Sacramento West, Sacramento East, Davis, Gray's Bend, Taylor Monument, Rio Linda, Saxon, Clarksburg, and Florin U.S. Geological Survey (USGS) 7.5-minute quadrangles (California Natural Diversity Database 2005);
- California Native Plant Society's (CNPS's) 2002 *Inventory of Rare and Endangered Plants of California;*
- U.S. Fish and Wildlife Service (USFWS) list (dated August 5, 2005) of endangered, threatened, and proposed species for the project region (Appendix C);
- *Rare Plant Survey for River Park* (ECORP 2004a);
- *Wetland Delineation for River Park* and revised wetland delineation map (ECORP 2004b, 2005a);
- *Special-Status Species Assessment for River Park* (ECORP 2005b);
- *Valley Elderberry Longhorn Beetle Habitat Survey for River Park* (ECORP 2005c);
- *Initial Arborists' Report and Inventory Summary* (Sierra Nevada Arborists 2004) and *Supplemental Arborist Report and Inventory Summary* (Sierra Nevada Arborists 2005);
- *Biological Assessment for Valley Elderberry Longhorn Beetle, Giant Garter Snake, and Delta Smelt for the Lower Northwest Interceptor Project* (Jones & Stokes 2004); and
- *Biological Opinion issued for the Proposed Lower Northwest Interceptor Project (Reference No. 1-1-04-F-0029), Sacramento and Yolo Counties, California* (U.S. Fish and Wildlife Service 2005).

All survey reports previously prepared for the Project are on file with the City of West Sacramento Planning Department.

Field Surveys and Personnel

Biological field surveys have been conducted in the study area in 2004 and 2005 (see Table 3.4-1 for dates and types of surveys). On July 25, 2005, Jones & Stokes conducted a reconnaissance-level field survey of the study area to support preparation of this EIR.

Jones & Stokes

Figure 3.4-1
Biological Resources in the Study Area

Table 3.4-1. Biological Resource Survey and Wetland Delineation Dates

Survey Dates	Survey Purpose
November 26, 2003; December 2, 10, and 18, 2003; and May 25, 2005	Special-status species habitat evaluation and wetland delineation
June 10, 2004	Rare plant surveys
August 6 and 11, 2004; and May 23, 2005	Valley elderberry longhorn beetle habitat surveys
January 28–February 2, 2004; May 24, 2005	Tree survey
July 25, 2005	Follow-up reconnaissance-level survey

The goals of the July 25, 2005 reconnaissance field survey are listed below.

- Characterize biological communities and describe associated wildlife habitat uses within the study area.
- Document existing conditions in the study area to ensure that habitat quality and suitability for special-status species have not changed since prior evaluations.
- Confirm the location of previously mapped elderberry shrubs (host plant for valley elderberry longhorn beetle [VELB]) within the study area.
- Confirm presence of potential waters of the United States that would be subject to federal regulations and other wetland habitats that may be considered sensitive by state and federal agencies.

Lists of plant and wildlife species observed or detected by sign in the study area during field surveys are provided in Appendix D.

Methods used to document special-status species and waters of the United States (including wetlands) are described in Appendix E.

Existing Conditions

The study area is located in the Sacramento Valley subregion of the California Floristic Province (Hickman 1993). The area is relatively level and varies from 0 to 15 feet above mean sea level. Most of the study area is fallow or active agricultural land farmed for safflower and wheat. Two small orchards are also present. The area was likely a historic floodplain along the Sacramento River. Riparian corridors occur along the edge of the Sacramento River and along irrigation ditches within the site.

The report on the existing conditions for the biological communities and special-status species is provided in Appendix E.

Regulatory Setting

This section describes the federal, state, and local plans, policies, and laws relevant to biological resources in the study area.

Federal Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (ESA) protects fish and wildlife species and their habitats that have been identified by USFWS or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. Federally protected special-status species that have the potential to occur in the study area are discussed in Appendix E.

ESA is administered by USFWS and NOAA Fisheries. In general, NOAA Fisheries is responsible for protection of ESA-listed marine species and anadromous fishes, whereas other listed species are under USFWS jurisdiction. Provisions of Sections 7 and 9 of ESA are relevant to this Project and are summarized below.

ESA Authorization Process for Federal Actions (Section 7)

Section 7 of ESA provides a means for authorizing take of threatened and endangered species by federal agencies. Under Section 7, the federal agency conducting, funding, or permitting an action (the lead federal agency) must consult with USFWS or NOAA Fisheries, as appropriate, to ensure that the proposed action would not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, USFWS or NOAA Fisheries issues a biological opinion (BO), with a determination that the proposed action either:

- may jeopardize the continued existence of one or more listed species (*jeopardy finding*) or result in the destruction or adverse modification of critical habitat (*adverse modification finding*), or
- would not jeopardize the continued existence of any listed species (*no jeopardy finding*) or result in adverse modification of critical habitat (*no adverse modification finding*).

The BO issued by USFWS or NOAA Fisheries may stipulate discretionary "reasonable and prudent" conservation measures. If the project would not jeopardize a listed species, USFWS or NOAA Fisheries issues an incidental take statement to authorize the proposed activity. For the proposed Project, the applicant would submit a BA for vernal pool fairy shrimp and vernal pool tadpole shrimp to USFWS, in compliance with Section 7 of ESA (16 USC 1536).

ESA Prohibitions (Section 9)

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations.[1] *Take*, as defined by ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

Clean Water Act

The federal CWA was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers EPA to set national water quality standards and effluent limitations and includes programs addressing both *point-source* and *nonpoint-source* pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

Permits for Fill Placement in Waters and Wetlands (Section 404)

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following:

- areas within the ordinary high water mark of a stream, including nonperennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- seasonal and perennial wetlands, including coastal wetlands.

On January 9, 2001, the U.S. Supreme Court made a decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (SWANCC) [121 S.CT. 675, 2001] that affected Corps jurisdiction in isolated

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[1] In some cases, exceptions may be made for threatened species under ESA Section 4[d]; in such cases, USFWS or NOAA Fisheries issues a "4[d] rule" describing protections for the threatened species and specifying the circumstances under which take is allowed.

waters. Based on SWANCC, the Corps no longer has jurisdiction or regulates isolated wetlands (i.e., wetlands that have no hydrologic connection with a water of the United States).

Applicants must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. The Corps may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. Nationwide permits (NWPs) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project. Waters of the United States in the study area are under the jurisdiction of the Sacramento District of the Corps.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The Corps cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, ESA, and the National Historic Preservation Act have been met. In addition, the Corps cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board (State Water Board) is authorized by EPA to oversee the NPDES program through the RWQCBs (see the related discussion under “Porter-Cologne Water Quality Control Act” below). The project corridor and vicinity are under the jurisdiction of the Central Valley RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent (NOI) to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the best management practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of MBTA. Examples of permitted actions that do not violate MBTA are the possession of a hunting license to pursue specific gamebirds, legitimate research activities, display in zoological gardens, bird-banding, and other similar activities. USFWS is responsible for overseeing compliance with MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

State Regulations

California Endangered Species Act

California implemented the California Endangered Species Act (CESA) in 1984. The act prohibits the take of endangered and threatened species, but habitat destruction is not included in the state's definition of take. Under CESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include harm or harassment. DFG administers the act and authorizes take through either Section 2080.1 (for species listed under ESA and CESA) or Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act of 1977, which prohibits importing rare and endangered plants into California, taking rare and endangered plants, and selling rare and endangered plants. Swainson's hawk is the only state listed species that has the potential to occur in the study area. A discussion of Swainson's hawk and other state special-status species that have the potential to occur in the study area is provided in Appendix E.

State Regional Water Quality Control Board

Porter-Cologne Water Quality Control Act

Water Code Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the *waters of the state* to file a report of discharge (an application for waste discharge requirements)." Under the Porter-Cologne Water Quality Control Act (Porter-Cologne) definition, the term *waters of the state* is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The SWANCC ruling, described above, has no bearing on the Porter-Cologne definition. Although all waters of the United States that are within the borders of California are also waters of the state, the converse is not true (i.e., in California, waters of the United States represent a subset of waters of the state). Thus, California retains authority to regulate discharges of waste into any waters of the state, regardless of whether the Corps has concurrent jurisdiction under Section 404.

If the Corps determines that a wetland is not subject to regulation under Section 404 of the CWA, Section 401 water quality certification is not required. However, the Regional Water Quality Control Board (RWQCB) may impose waste discharge requirements (WDRs) if fill material is placed into waters of the state.

California Fish and Game Code

Section 1602

Under Section 1602 of the California Fish and Game Code, public agencies are required to notify DFG before undertaking any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, DFG is required to propose reasonable project changes to protect the resources. These modifications are formalized in a streambed alteration agreement that becomes part of the plans, specifications, and bid documents for the project.

Fully Protected Species

The California Fish and Game Code provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists protected amphibians and reptiles. Section 3515 prohibits take of fully protected fish species. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5, and fully protected birds under Section 3511. Migratory nongame birds are protected under Section 3800. Mammals are protected under Section 4700. The California Fish and Game Code defines *take* as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for take related to scientific research, all take of fully protected species is prohibited. Fully protected species that have the potential to occur in the study area include white-tailed kite and golden eagle.

Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.

Local Regulations

City of West Sacramento General Plan

Chapter 6, Environmental Conservation, of the *City of West Sacramento General Plan* identifies policies designed to protect habitat and biological resources that are applicable to the resources located in the study area.

Southport Framework Plan

The Southport Framework Plan contains a conservation element addressing biotic resources. The Southport Framework Plan requires the preparation of site-specific biotic resource surveys to be prepared on a project-by-project basis, including a wetlands delineation and tree survey. These surveys have been prepared for the project site and are discussed in this section of the EIR.

Additionally, the Southport Framework Plan calls for the following:

- clearly delineating trails and pathways along the corridors,
- providing fencing, dense native plantings (such as blackberry), or other barriers where damage from intrusion is likely to occur; and
- implementing resource management programs designed to inform users of the sensitivity of the corridors and restrict access through signage and interpretive displays.

The Southport Framework Plan states that habitat conservation would occur in balance with required maintenance of levees for flood control.

City of West Sacramento Tree Preservation Ordinance

The City of West Sacramento Tree Preservation Ordinance is found in the Municipal Code, Title 8, Health and Safety, Chapter 24, Tree Preservation. The City of West Sacramento uses the following definitions for heritage trees and landmark trees.

> “Heritage tree” means any living tree with a trunk circumference of seventy-five inches or more or a native oak with a trunk circumference of fifty inches or more, both measured four feet six inches from ground level. The circumference of multi-trunk trees shall be based upon the sum of the circumference of each trunk (City of West Sacramento 2004a).

A *landmark tree* means a tree or stand of trees that is especially prominent or stately or that is historically significance as designated by the city council. It is unlawful in the city of West Sacramento to perform any of the following acts with respect to a heritage or landmark tree without a tree permit issued by the city tree administrator (City of West Sacramento 2004a).

- Move, remove, cut down, poison, set fire to or permit fire to burn in proximity to, or perform or fail to perform any act that results in the unnatural death or destruction of a landmark or heritage tree.
- Perform any activity that would interfere with or retard the natural growth of any landmark or heritage tree.
- Perform any work or permit any work to be performed within the dripline area of a landmark or heritage tree.
- Trim or prune any branch of a landmark or heritage tree which is 5 inches in diameter or greater.
- Change the appropriate amount of irrigation or drainage water provided to any landmark, heritage, or street tree.
- Trench, grade, pave, or otherwise damage or disturb any exposed roots within 1 foot outside the drip line area of any landmark, heritage, or street tree.
- Park or operate any motor vehicle within 1 foot outside the drip line area of any landmark, heritage, or street tree.
- Place or store any equipment or construction materials within 1 foot outside the dripline area of any landmark, heritage, or street tree.
- Place, apply, or attach any signs, ropes, cables, or any other items to any landmark, heritage, or street tree.
- Cut or trim any branch of any landmark, heritage, or street tree that is 5 inches in diameter or greater.
- Place or allow to flow any oil, fuel, concrete mix, or other deleterious substance into or over within 1 foot outside the drip area of any landmark, heritage, or street tree.

Tree permits require the applicant to replace the tree with a living tree on the property or within the city of West Sacramento in a location approved by the tree administrator. The applicant must replace the tree and continue to replace the replacement tree if the tree dies any time within 3 years of the initial planting. Replacement is not required if a tree is removed because it poses a risk or if the tree hosts a plant parasite (City of West Sacramento 2004a).

Replacement trees are required at the ratio of 1-inch diameter of replacement plant for every 1-inch diameter of tree removed. Replacement trees may be a combination of 15-gallon-size trees, which are the equivalent of a 1-inch-diameter tree, or 24-inch box trees, which are the equivalent of a 3-inch-diameter tree (City of West Sacramento 2004a).

If trees cannot be replaced onsite, the applicant must pay an in-lieu fee, which would be used to purchase and plant trees elsewhere in the city of West Sacramento (City of West Sacramento 2004a).

Impact Analysis

California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally is considered to result in a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. The State CEQA Guidelines define *rare, threatened, or endangered species* as those listed under CESA and ESA, as well as any other species that meets the criteria of the resource agencies or local agencies (e.g., DFG-designated "species of special concern" and CNPS-listed species). The State CEQA Guidelines state that the lead agency preparing an EIR must consult with and receive written findings from DFG concerning project impacts on species that are listed as endangered or threatened. The effects of a proposed project on these resources are important in determining whether the project has significant environmental impacts under CEQA.

This section describes the CEQA impact analysis relating to biological resources for the Project and alternatives. It describes the methods used to determine the Project's impacts and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methods

Impacts on biological resources were assessed based on preliminary design drawings and site-specific information gathered during field surveys. The majority of the study area is analyzed based on project-level analysis, except for the potential marina portion of the proposed park and the extension of Village Parkway to Bevan Road, which are analyzed at a program level.

Construction and operation activities could result in direct and indirect impacts on biological resources caused by ground disturbance or vegetation clearing as part of project construction.

The mitigation measures presented in this section have been identified to avoid, minimize, and compensate for potential impacts on biological resources.

Thresholds of Significance

The State CEQA Guidelines (14 CCR 15000 *et seq.*) were used to determine whether the Project would have a significant impact on biological resources. A project would have a significant impact on biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by DFG, USFWS, or NOAA Fisheries;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or
- degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of an endangered, rare or threatened species.

Additionally, the Project likely would cause a significant impact if it resulted in:

- documented resource scarcity and sensitivity, both locally and regionally;
- decreased local and regional distribution of common and sensitive biological resources;
- long-term degradation of a sensitive plant community because of substantial alteration of land forms or site conditions (e.g., alteration of wetland hydrology);
- substantial loss of a plant community and associated wildlife habitat;
- fragmentation or isolation of wildlife habitats, especially riparian and wetland communities;
- substantial disturbance of wildlife because of human activities;
- disruption of natural wildlife movement corridors;

- substantial reduction in local population size attributable to direct mortality or habitat loss, lowered reproductive success, or habitat fragmentation of:
    - ☐ species qualifying as rare, threatened, and endangered under CEQA,
    - ☐ species that are state or federally listed as threatened or endangered, or
    - ☐ portions of local populations that are candidates for state or federal listing and federal and state species of concern; or
    - ☐ substantial reduction or elimination of species diversity or abundance.

Assumptions and Mechanisms

Impact Assumptions

This impact analysis assumes proposed development within the River Park project area would result in permanent direct impacts on biological resources located within the development footprint and short-term or long-term indirect impacts on biological resources located within the study area but outside the development footprint. In assessing the magnitude of potential impacts, the following assumptions were made regarding Project and potential impacts on biological resources.

- Removal of sensitive biological communities, including wetlands and waters of the United States could cause a substantial localized decrease in those communities.
- All vegetation would be removed in areas proposed for development. Wildlife in these areas would be displaced or destroyed during construction, and their natural movement corridors would be disrupted.
- Native oak tree removal would be minimized because the majority of oak woodland habitat within the study area would be preserved as a park as identified on the Figure 2-5.
- With the exception of the proposed regional park and marina, valley oak riparian woodland on the Sacramento River side of the levee would not be removed or disturbed by project construction.
- Floristic surveys were conducted in the study area in 2004. No special-status plants were located in the study area during these surveys; thus, proposed development within the study area would not affect special-status plants.
- The portion of Village Parkway proposed for the area west of the River Park project area could either extend along the existing Bevan Road or approximately follow the existing irrigation ditch on the north side of the ditch. Impacts of this offsite portion of the Village Parkway are analyzed at a programmatic level.

The Project likely would cause a significant impact if it resulted in:

- documented resource scarcity and sensitivity, both locally and regionally;

- decreased local and regional distribution of common and sensitive biological resources;
- long-term degradation of a sensitive plant community because of substantial alteration of land forms or site conditions (e.g., alteration of wetland hydrology);
- substantial loss of a plant community and associated wildlife habitat;
- fragmentation or isolation of wildlife habitats, especially riparian and wetland communities;
- substantial disturbance of wildlife because of human activities;
- disruption of natural wildlife movement corridors;
- substantial reduction in local population size attributable to direct mortality or habitat loss, lowered reproductive success, or habitat fragmentation of:
    - species qualifying as rare and endangered under CEQA,
    - species that are state or federally listed as threatened or endangered, or
    - portions of local populations that are candidates for state or federal listing and federal and state species of concern; or
    - substantial reduction or elimination of species diversity or abundance.

Impact Mechanisms

Biological resources could be directly or indirectly affected during construction activities associated with the Project. Impacts on biological resources fall into the three categories: temporary, short-term, and long-term. These categories are defined below.

- A *temporary* impact is one that would occur only during construction and/or subsequent restoration.
- A *short-term* impact is one that would last from the time construction ceases to 3 years after construction and/or subsequent restoration.
- A *long-term* impact would last longer than 3 years after construction and/or subsequent restoration and typically would be associated with road construction and future road maintenance activities. In some cases, a long-term impact could be considered a permanent impact.

The following types of activities could cause impacts on biological resources.

- Grading and paving activities during construction.
- Soil compaction, dust, and water runoff from the construction area.
- Construction-related noise from equipment.
- Degradation of water quality in the Sacramento River, resulting from construction and development runoff containing petroleum products.

- Traffic and other human use effects on and off the project site.

Impacts and Mitigation Measures

Impact BIO-1: Loss or Degradation of Valley Oak Riparian Woodland Habitat As a Result of Project Construction (Less than Significant with Mitigation Incorporated)

Valley oak riparian woodland would be affected by construction of the River Park project components planned for the area surrounding the valley oak riparian woodland in the central part of the study area. These components include the Oak Preserve Park, greenway system, and redesign of the irrigation ditch as an open water amenity. While the majority of the valley oak riparian woodland in this area would be preserved, some individual trees and understory vegetation would likely be removed during construction. Alteration of the woodland vegetation could degrade the habitat value of the riparian area.

The narrow band of riparian habitat along the irrigation ditch that runs in a north-south direction in the central part of the study area would be entirely removed for construction of residential areas and Stonegate Drive.

Construction of a marina for the proposed Project would require the removal of valley oak riparian vegetation on the levee bank of the Sacramento River. Depending on the final location of the marina, differing extents of riparian habitat would be affected. Riparian habitat on the levee extends up to approximately 100 feet wide, depending on the specific location. The southeast corner of the study area at the bend in the river supports the widest portion of riparian habitat.

Riparian habitat is a sensitive natural community and is protected by state and federal laws and regulations. Loss or degradation of riparian habitat would be considered a significant impact. **Implementation of Mitigation Measures BIO-1a, BIO-1b, and BIO-1c would reduce this impact to a less-than-significant level.**

Mitigation Measure BIO-1a: Conduct Mandatory Contractor/Worker Awareness Training for Construction Personnel

Before any work occurs in the project area, including grading, a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid impacts on biological resources, particularly wetlands, streams, riparian habitat, protected trees, and special-status wildlife (i.e., valley elderberry longhorn beetle, active nests of migratory bird and raptors, giant garter snake), and the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the Project, the contractor will ensure that the personnel receive the mandatory training before starting work.

Mitigation Measure BIO-1b: Install Construction Barrier Fencing to Protect Riparian Habitat and Other Sensitive Biological Resources Adjacent to the Construction Zone

The contractor will install orange construction barrier fencing to identify environmentally sensitive areas that are to be avoided. The construction specifications will require that a qualified biologist identify riparian habitat, protected trees, and other sensitive biological habitat onsite and identify areas to avoid during construction. Sensitive communities within the area that would generally be required for construction, including staging and access, should be fenced off to avoid disturbance in these areas. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected area will be designated an environmentally sensitive area and clearly identified on the construction specifications. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:

> The Contractor's attention is directed to the areas designated "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the project proponent. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.

Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.

Mitigation Measure BIO-1c: Restore or Create Riparian and Seasonal Wetland Habitat to Mitigate Permanent Loss of Riparian and Wetland Habitat

Prior to any work that could disturb wetland or riparian habitat within the project corridor, the project applicant will obtain the following permits as required:

- Corps—Nationwide or individual permit as required under CWA Section 404;
- Central Valley RWQCB—Water quality certification under CWA Section 401;

- DFG—streambed alteration agreement.

Consultation with these agencies will govern how the disturbance of riparian and wetland habitats will be mitigated.

In order to ensure that implementation of the Project results in no net loss of riparian or wetland habitat functions and values, the project applicant will compensate for the loss of riparian and wetland habitat through either onsite restoration/creation and/or offsite protection and enhancement of riparian and wetland habitat. The size and location(s) of the area(s) to be restored/created will be determined based on appropriate mitigation ratios derived in consultation with DFG and the Corps. Potential riparian mitigation sites include areas along the Sacramento River that could be enhanced by removal of nonnative species and noxious weeds, such as giant reed and tree-of-heaven, and by planting native riparian species found in the surrounding area. Sparsely vegetated areas could also be enhanced through planting of native woody species. Seasonal wetland areas could be created on benches constructed within the high-water mark of the drainage along the proposed parkway.

A restoration biologist with experience in mitigation planning will prepare a riparian and wetland mitigation plan. The plan will be implemented under the biologist’s guidance. Subject to approval by DFG and the Corps, the riparian and wetland mitigation plan will address temporary and permanent impacts. Factors that will be considered in developing an effective mitigation plan in consultation with the Corps include the following.

- **Function and values.** Wildlife species, percentage of vegetative cover and/or density, approximate plant height; plant and animal species diversity, root development, and canopy stratification.
- **Hydrological regime.** Sources of water, discharge points, areas affected by seasonal flooding, direction of flow, and size of watershed.

Specific measurable criteria for the above factors will be incorporated into the plan in conformance with applicable regulatory requirements and the Corps’ guidelines. The habitat mitigation plan will include a list of recommended species, design specifications, an implementation plan, a maintenance program, and a monitoring program. A minimum of 5 years of monitoring (longer if required as a condition of permits) will be conducted to document the degree of success or failure in achieving success criteria (to be determined as part of the mitigation plan) and to identify remedial actions. The mitigation plan for riparian and wetland habitats will be considered successful when the following criteria are met.

- The restored site is composed of a mix of species similar to that removed during the construction activity.

- The restored site has at least the same level of absolute cover of native vegetation currently present in impacted areas.
- Plantings are self-sustaining without human support (e.g., weed control, rodent and deer control, irrigation).
- Functions and values of the restored habitat are comparable to those of impacted habitat.

Annual monitoring reports will be submitted to DFG, the Corps, NOAA Fisheries, USFWS, and other interested agencies. Each report will summarize data collected during the monitoring period, describe how the habitats are progressing in terms of the success criteria, and discuss any remedial actions performed. Remedial action will be required if any of the above criteria are not met during the monitoring period. Additional reporting requirements that may be specified as permit conditions will be incorporated into the mitigation plan.

Impact BIO-2: Loss of and Damage to Protected Trees As a Result of Project Construction (Less than Significant with Mitigation Incorporated)

Construction activities associated with the Project could result in the disturbance or loss of individual protected trees. Protected trees could be removed or affected during staging, trimming for equipment access, and other construction-related activities. Although many trees would be preserved and protected as a part of the project design, up to 51 valley oaks protected under the City's tree ordinance would be removed during construction within the proposed Stonegate Drive and adjacent residential area. An additional 19 protected valley oaks would be removed along the north-south irrigation ditch in the central part of the project area that would be removed for construction of the proposed residential area and Southgate Drive. Additional protected trees may be removed or indirectly affected by adjacent construction activities in the project area.

The loss of trees could conflict with the City tree ordinance. Loss of protected trees would be considered a significant impact. I**mplementation of Mitigation Measures BIO-1a, BIO-2a and BIO-2b would reduce this impact to a less-than-significant level.**

Mitigation Measure BIO-2a: Minimize Construction Effects on Protected Trees to Be Retained

The applicant will implement the following tree-protection measures prior to and during project construction.

- Retain a certified arborist to oversee protection of native trees to be retained on the project site.
- Any tree or root pruning required for construction will first be approved by the certified arborist.

- Any injuries to retained trees will be evaluated as soon as possible by the certified arborist for appropriate treatment.

Mitigation Measure BIO-2b: Redesign Project or Compensate for Removal of Protected Trees

To the maximum extent feasible, the project design will avoid loss of any protected tree.

As part of project design, the applicant will retain a certified arborist to survey trees in the proposed project corridor, including potential contractor laydown areas, and identify and evaluate trees that will be removed. If the arborist's survey does not identify any protected trees that would be removed or damaged as a result of the proposed project, no further mitigation is necessary.

Measures will be taken to avoid impacts on protected trees, as detailed in the City's tree ordinance. Protected trees that are lost as a result of the project will be replaced according to the provisions of the ordinance, which generally requires a 1-inch-diameter replacement for each inch lost. Any trees planted as remediation for failed plantings will be planted as stipulated here for original plantings and monitored for a period of 5 years following installation. Tree replacement will occur after project construction. If trees are unable to replaced, an in-lieu fee is required in accordance with City ordinance 8.24.084: "If the property owner is unable to replace the tree on his/her property or within an area approved by the tree administrator, the tree administrator will require the property owner to pay an in-lieu fee to the city. Such fees will be set by city council resolution and be used for the purpose of purchasing and planting trees elsewhere in the city of West Sacramento."

Impact BIO-3: Loss of 0.02 Acre of Seasonal Wetland As a Result of Construction of the Regional Park (Less than Significant with Mitigation Incorporated)

Construction of the regional park would result in the loss of 0.02 acre of seasonal wetland. Regional park development would result in the placement of fill material into the seasonal wetland. This wetland is considered a potential water of the United States and provides important habitat functions. This impact is considered significant because it would result in the removal of a potential water of the United States. This impact would be significant. **Implementation of Mitigation Measure BIO-1c would reduce this impact to a less-than-significant level.**

Impact BIO-4: Fill and Removal of Non-Jurisdictional Irrigation Ditches As a Result of Project Construction (Less than Significant)

Construction of the proposed roads, residential areas, and regional park would result in the fill and removal of potentially non-jurisdictional irrigation ditches in the project area. Construction of Village Parkway toward Bevan Road could also indirectly affect an irrigation ditch. Unless these features are ultimately considered jurisdictional by the Corps, they would not be regulated. The ditches are primarily valuable in terms of their habitat suitability for special-status species, such as giant garter snake. Impacts on this species' habitat are addressed below under Impact BIO-6. **This impact would be considered less than significant.**

Impact BIO-5: Loss or Disturbance of Valley Elderberry Longhorn Beetles and Their Habitat during Construction of a Regional Park, Oak Preserve Park, and Residential Housing (Less than Significant with Mitigation Incorporated)

Construction activities associated with the proposed Regional Park, Oak Preserve Park, and residential housing developments could result in the loss of VELBs—a species federally listed as threatened—and removal or disturbance of elderberry shrubs, the host plant for VELB.

A total of 95 elderberry shrubs with stems measuring more than 1 inch in diameter at ground level were documented in the study area. Seven of the 95 elderberry shrubs (depicted as shrubs 1 through 5, 54, and 55 on Figure 3.4-1) are growing within the proposed Regional Park area in the eastern portion of the study area. Another 76 elderberry shrubs (depicted as shrubs 12 through 53, 56, and 62 through 94 on Figure 3.4-1) occur within the proposed Oak Preserve Park. Although many of these 76 elderberry shrubs would likely be retained within the Oak Preserve, reconstruction of the existing drainage and construction of new trails through the Oak Preserve would occur within areas supporting elderberry shrubs. Eleven of the 95 elderberry shrubs occur within areas designated as residential development. The remaining elderberry shrub (depicted as shrub 95 on Figure 3.4-1) occurs within the proposed Waterfront Marina area and would require transplanting prior to construction of the marina.

Up to 95 elderberry shrubs could be directly or indirectly affected during construction of the proposed Regional Park, Oak Preserve Park, and residential housing. Any elderberry shrub that occurs within the designated construction area would need to be transplanted prior to any ground-disturbing activities.

Because the project could result in take of VELB, a federally listed species, USFWS would be consulted to obtain an incidental take permit.

Removal of habitat or loss of individuals of a federally listed species would violate the ESA. This impact would be significant. **Implementation of Mitigation Measures BIO-1a and BIO-1b (described above) and BIO-5a, BIO-5b, BIO-5c, and BIO-5d (described below) would reduce this impact to a less-than-significant level.**

Mitigation Measure BIO-5a: Minimize Effects on VELB Habitat within the Proposed Oak Preserve Park

A total of 76 elderberry shrubs (shrubs 12 through 53, 56, and 62 through 94) that provide potential habitat for VELB are located within the area proposed as an oak preserve. To the extent feasible, the proposed Oak Preserve Park and associated amenities (i.e., wetland feature, trails, and picnic areas) should be designed to avoid and minimize impacts on VELB habitat.

Mitigation Measure BIO-5b: Establish a Minimum 6-Meter-Wide (20-Foot-Wide) Buffer around All Elderberry Shrubs That Will Be Avoided

Before any ground-disturbing activity, the applicant or its contractor will ensure that a minimum 4-foot-tall temporary, plastic mesh–type construction fence (Tensor Polygrid or equivalent) is installed at least 20 feet from the driplines of elderberry shrubs occurring within the Oak Preserve and that this fence will be retained onsite. This fencing is intended to prevent encroachment by construction vehicles and personnel. The exact location of the fencing will be determined by a qualified biologist, with the goal of protecting sensitive biological resources (i.e., habitat for VELB). The fencing will be strung tightly on posts set at a maximum interval of 10 feet. The fencing will be installed in a way that prevents equipment from enlarging the work area beyond what is necessary to complete the work. The fencing will be checked and maintained weekly until all construction is completed. This buffer zone will be marked by a sign stating the following:

> This is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.

No construction activity, including grading, will be allowed until this condition is satisfied. The fencing and a note reflecting this condition will be shown on the construction plans.

Mitigation Measure BIO-5c: Transplant Elderberry Shrubs That Cannot Be Avoided or Implement Dust Control Measures during Construction

A minimum of 19 elderberry shrubs are growing within proposed development areas (associated with the Regional Park and residential housing) and will require transplanting prior to any ground-disturbing activities. Some of the 76 elderberry shrubs located within the proposed Oak Preserve may also require transplanting if they occur within areas proposed for park improvements (including trails, picnic areas, and drainage reconstruction). In the event that elderberry shrubs can be retained onsite but occur within 20 feet of proposed construction activities, dust control measures will be required to minimize direct effects to these shrubs. Therefore, the applicant will implement one of the following mitigation measures for each elderberry shrub that occurs within 20 feet of proposed construction activities.

- All elderberry shrubs that occur within proposed development areas will be transplanted to a USFWS-approved conservation area in accordance with the *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (U.S. Fish and Wildlife Service 1999a). These elderberry shrubs will be transplanted when they are dormant (after they lose their leaves), in the period starting approximately in November and ending in the first 2 weeks of February. A qualified specialist familiar with elderberry shrub transplantation procedures will supervise the transplanting. The location of the conservation area transplantation site will be approved by USFWS before removal of the shrubs.

OR

- If it is determined that elderberry shrubs can be avoided but that construction activities will occur within 20 feet of the shrubs, the applicant will ensure that dust control measures (e.g., watering) are implemented in the vicinity of the shrub. To further minimize impacts associated with dust accumulation, the elderberry shrubs will be covered by a protective cloth (i.e., burlap) during all ground-disturbing activities occurring within 20 feet of the shrubs. The cloth will be removed daily and immediately after ground-disturbing activities are completed. In addition, temporary construction fencing will be placed around the dripline of the elderberry shrubs before the start of construction activities to ensure that the shrub is not inadvertently removed.

Mitigation Measure BIO-5d: Compensate for Direct Effects on Valley Elderberry Longhorn Beetle Habitat

In addition to implementation of the above mitigation measures identified to minimize impacts on VELB, the applicant will compensate for direct impacts on all elderberry stems measuring 1 inch or more at ground level (i.e., VELB habitat) that are located within 20 feet of construction activities. Compensation will include replacement plantings of elderberry seedlings or cuttings and associated native plantings in a USFWS-approved conservation area, at a ratio between 1:1 and 8:1 (ratio = new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes, and whether the shrub is located in riparian habitat (Table 3.4-2).

Table 3.4-2. U.S. Fish and Wildlife Service–Approved Compensation Ratios for Valley Elderberry Longhorn Beetle Habitat

Location	Diameter of Stems at Ground Level in Centimeters (inches)	Exit Holes Y/N?	Elderberry Seedling Ratio	Associated Native Plant Ratio[a]
Nonriparian	2.5–7.6 (1–3)	No:	1:1	1:1
		Yes:	2:1	2:1
Nonriparian	7.6–12.7 (3–5)	No:	2:1	1:1
		Yes:	4:1	2:1
Nonriparian	>12.7 (>5)	No:	3:1	1:1
		Yes:	6:1	2:1
Riparian	2.5–7.6 (1–3)	No:	2:1	1:1
		Yes:	4:1	2:1
Riparian	7.6–12.7 (3–5)	No:	3:1	1:1
		Yes:	6:1	2:1
Riparian	>12.7 (>5)	No:	4:1	1:1
		Yes:	8:1	2:1

[a] Ratio of native trees/plants to each elderberry seedling.

According to current design plans, elderberry shrubs 1 through 11, 54, 55, 57 through 61, and 95 (depicted on Figure 3.4-1 and listed in Table 3.4-3) will be directly affected. Additional elderberry shrubs located within the proposed Oak Preserve Park may also be directly affected during drainage reconstruction and construction of new trails and picnic areas, but design plans for the Oak Preserve Park have not been finalized and impacts on VELB habitat in this area cannot be quantified at this time.

Mitigation credits for VELB can be purchased at a USFWS-approved mitigation bank or an onsite or offsite conservation area and management plan can be developed according to USFWS *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (1999a). Final compensation requirements and mitigation ratios for the proposed Project will be determined through consultation with USFWS before project initiation.

Impact BIO-6: Loss or Disturbance of Giant Garter Snakes and Their Habitat during Construction of the Regional Park, Oak Preserve Park, and Residential Housing (Less than Significant with Mitigation Incorporated)

Construction activities associated with the proposed Regional Park, Oak Preserve Park, and residential housing (including a possible school site) could result in the loss of giant garter snake, a state and federally threatened species, and removal of suitable giant garter snake aquatic and upland habitat. Within the study area, suitable giant garter snake aquatic habitat occurs within existing agricultural ditches. Adjacent annual grasslands and agricultural fields located within

200 feet of suitable aquatic habitat also provide potential upland basking sites and overwintering habitat for giant garter snakes.

As part of the Project, the 5- and 8-foot-wide agricultural ditches (shown on Figure 3.4-1) would be filled during construction of residential development. The primary 8-foot-wide agricultural ditch (also shown on Figure 3.4-1) that extends from the former Yolo Shortline Railroad corridor at the western boundary of the site eastwards to the regional park proposed at the Project's southeastern boundary would be widened and reconstructed to serve as a wetland amenity and centerpiece for the proposed urban parkway. This wetland feature would be planted with native and naturalized plantings and would continue to convey irrigation flows and collect stormwater and surface water drainage. Because the wetland feature would be surrounded by urban development and subject to ongoing disturbance, it is unlikely to continue to provide suitable giant garter snake habitat.

As currently designed, the Project would result in the permanent loss of approximately 5.17 acres of suitable aquatic habitat (agricultural ditches) and 215.3 acres of suitable upland habitat (annual grasslands and agricultural fields) for giant garter snakes. Acreage calculations for upland habitat (annual grasslands) were determined using a 200-foot zone around suitable aquatic habitat. Because all suitable giant garter snake aquatic and upland habitats within the study area would be converted to urban uses not conducive to giant garter snake, all project-related impacts are assumed to be permanent.

Because the project could result in take of giant garter snake, a federally listed species, USFWS would be consulted to obtain an incidental take authorization under Section 7 of the ESA.

Removal of habitat or loss of individuals of a federally listed species would constitute a significant impact. **Implementation of Mitigation Measures BIO-1a and BIO-1b (described above) and BIO-6a and b (described below) would reduce this impact to a less-than-significant level.**

Mitigation Measure BIO-6a: Minimize Potential Impacts on Giant Garter Snake during Construction within Suitable Habitat

To avoid and minimize impacts on giant garter snake, the applicant or its contractors will implement the following measures:

- All construction activity within giant garter snake aquatic and upland habitat in and around agricultural ditches will be conducted between May 1 and October 1, the active period for giant garter snakes. This would reduce direct impacts on the species because the snakes would be active and respond to construction activities by moving out of the way.
- Prior to any construction within suitable giant garter snake aquatic habitat (agricultural ditches), the habitat will be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of dewatered habitat.

Table 3.4-3. Summary of Stem Counts for Elderberry Shrubs within the Project Area

Shrub ID Number	Effect on Shrub (Direct/Indirect)	Presence of Exit Holes Y/N	Riparian Habitat Y/N	Number of Stems (By Diameter)			
				<1 inch	1–3 inches	3–5 inches	>5 inches
1	Direct	N	N	3	3	1	2
2	Direct	Y	N	13	1	1	2
3	Direct	N	N	19	2	3	1
4	Direct	N	N	3	0	0	1
5	Direct	N	N	0	0	0	1
6	Direct	Y	N	0	0	0	1
7	Direct	Y	N	3	0	0	1
8	Direct	Y	N	0	0	0	1
9	Direct	Y	N	0	1	0	1
10	Direct	Y	N	13	5	1	5
11	Direct	Y	N	0	0	0	1
12	Unknown	N	Y	10	1	0	0
13	Unknown	N	Y	19	1	0	0
14	Unknown	Y	Y	8	1	0	0
15	Unknown	N	Y	8	1	0	0
16	Unknown	N	Y	1	1	0	0
17	Unknown	Y	Y	2	3	0	0
18	Unknown	N	Y	2	0	0	0
19	Unknown	N	Y	4	0	1	0
20	Unknown	Y	Y	7	1	1	0
21	Unknown	N	Y	2	1	0	0
22	Unknown	N	Y	1	1	0	0
23	Unknown	N	Y	4	1	0	0
24	Unknown	Y	Y	2	2	0	0
25	Unknown	Y	Y	5	1	0	0
26	Unknown	Y	Y	6	0	0	1
27	Unknown	N	Y	3	0	0	0
28	Unknown	N	Y	11	0	0	0
29	Unknown	Y	Y	15	1	1	1
30	Unknown	N	Y	10	0	0	0
31	Unknown	Y	Y	5	0	1	0
32	Unknown	N	Y	24	1	0	0
33	Unknown	N	Y	5	0	0	0
34	Unknown	Y	Y	11	0	0	3
35	Unknown	Y	Y	9	3	2	0
36	Unknown	N	Y	61	0	0	0
37	Unknown	N	Y	6	0	0	0
38	Unknown	N	Y	3	0	0	0
39	Unknown	N	Y	5	0	0	0
40	Unknown	Y	Y	2	0	0	1
41	Unknown	Y	Y	3	1	1	0
42	Unknown	Y	Y	8	1	0	0

Table 3.4-3. Continued

Shrub ID Number	Effect on Shrub (Direct/Indirect)	Presence of Exit Holes Y/N	Riparian Habitat Y/N	Number of Stems (By Diameter)			
				<1 inch	1–3 inches	3–5 inches	>5 inches
43	Unknown	Y	Y	9	1	0	0
44	Unknown	N	Y	2	0	0	0
45	Unknown	Y	Y	7	0	1	0
46	Unknown	N	Y	10	0	0	0
47	Unknown	Y	Y	3	0	0	1
48	Unknown	N	Y	10	0	0	0
49	Unknown	Y	Y	11	1	0	0
50	Unknown	Y	Y	12	1	1	0
51	Unknown	N	Y	4	1	0	0
52	Unknown	Y	Y	16	2	1	0
53	Unknown	N	Y	10	0	0	0
54	Direct	N	N	3	2	0	1
55	Direct	Y	N	13	3	2	3
56	Unknown	N	N	3	1	0	2
57	Direct	N	N	22	4	4	0
58	Direct	N	N	28	2	1	0
59	Direct	N	N	13	0	2	1
60	Direct	N	N	43	0	0	3
61	Direct	N	N	30	4	2	1
62	Unknown	Y	Y	11	2	0	1
63	Unknown	Y	Y	6	2	0	1
64	Unknown	Y	Y	11	0	0	1
65	Unknown	N	Y	6	0	0	0
66	Unknown	N	Y	15	1	0	0
67	Unknown	N	Y	0	1	0	1
68	Unknown	Y	Y	0	0	0	1
69	Unknown	N	Y	3	1	0	0
70	Unknown	Y	Y	1	0	0	0
71	Unknown	N	Y	2	1	0	0
72	Unknown	Y	Y	0	0	0	1
73	Unknown	Y	Y	1	1	1	0
74	Unknown	N	Y	2	0	0	1
75	Unknown	Y	Y	0	0	0	2
76	Unknown	Y	Y	4	0	0	3
77	Unknown	Y	Y	0	1	0	0
78	Unknown	N	Y	11	0	0	0
79	Unknown	N	Y	7	0	1	0
80	Unknown	Y	Y	2	0	1	2
81	Unknown	Y	Y	2	0	1	0
82	Unknown	N	Y	2	0	0	0
83	Unknown	Y	Y	0	0	0	1
84	Unknown	Y	Y	2	0	0	1

Table 3.4-3. Continued

Shrub ID Number	Effect on Shrub (Direct/Indirect)	Presence of Exit Holes Y/N	Riparian Habitat Y/N	Number of Stems (By Diameter)			
				<1 inch	1–3 inches	3–5 inches	>5 inches
85	Unknown	Y	Y	6	0	0	1
86	Unknown	N	Y	0	0	1	0
87	Unknown	N	Y	5	0	0	1
88	Unknown	Y	Y	0	1	0	0
89	Unknown	Y	Y	1	0	0	1
90	Unknown	N	Y	0	0	0	1
91	Unknown	Y	Y	2	2	0	1
92	Unknown	N	Y	6	1	1	0
93	Unknown	N	Y	2	0	0	0
94	Unknown	N	Y	4	0	0	0
95	Direct	N	Y	0	9	0	1
Total Stem Counts				**679**	**79**	**33**	**57**

Note: Elderberry shrub data was obtained from surveys conducted by ECORP Consulting Inc. on August 6 and 11, 2004 and May 23, 2005 (ECORP 2005c).

- A USFWS-approved biologist will conduct a preconstruction survey in suitable habitat no more than 24 hours before construction and will be onsite during construction activity in potential aquatic and upland habitat. The construction area will be resurveyed whenever there is a lapse in construction activity of 2 weeks or more.
- If a giant garter snake is encountered within the construction work area, construction activities must cease until the snake moves out of the work area unassisted. Capture and relocation of trapped or injured individuals can only be attempted by USFWS-permitted personnel. The applicant or its contractors will notify USFWS within 24 hours and submit a report, including dates, locations, habitat description, and any corrective measures taken to protect the snake(s) encountered. For each giant garter snake encountered, the biologist will submit a completed CNDDB field survey form (or equivalent) to DFG no more than 90 days after completing the last field visit to the project site.
- Construction personnel will participate in a USFWS-approved worker environmental awareness program. A qualified biologist will inform all construction personnel about the life history of giant garter snake and the terms and conditions of the BO. Proof of this instruction will be submitted to USFWS Sacramento field office.
- To ensure that construction equipment and personnel do not affect giant garter snake aquatic habitat outside the construction work area (specifically along the western boundary of the project area), orange barrier fencing will be erected to clearly delineate the aquatic habitat to be avoided.
- A post-construction compliance report prepared by a qualified biologist will be forwarded to the chief of the Endangered Species Division of USFWS Sacramento field office within 60 days after completion of the Project. This report will include dates that construction occurred, pertinent information about the applicant’s success in implementing project mitigation measures, an explanation of any failures to implement mitigation measures, any known project impacts on federally listed species, any occurrences of incidental take of federally listed species, and any other pertinent information.

Mitigation Measure BIO-6b: Compensate for Permanent Loss of Giant Garter Snake Habitat

To compensate for the permanent loss of 5.17 acres of suitable aquatic habitat and 215.3 acres of suitable upland habitat for giant garter snake, the applicant will purchase offsite giant garter snake habitat credits from a USFWS-approved conservation area servicing the project area within Yolo County. Permanent impacts will be compensated at a minimum ratio of 3:1.

Within the study area, the agricultural ditch located along the western boundary of the site and the adjacent aquatic and upland habitat within 200 feet of the ditch overlaps with the LNWI project area. This habitat will be temporarily disturbed during construction of the LNWI and has already been mitigated for by the Sacramento Regional County Sanitation District at a 2:1 ratio. USFWS issued a BO for the LNWI project on September 10, 2004 (Reference No. 1-1-04-F-0029). This prior compensation would be deducted from the total compensation required for the Project.

Final compensation requirements and mitigation ratios for the Project will be determined through consultation with USFWS before project initiation.

Impact BIO-7: Potential Loss or Disturbance of Northwestern Pond Turtles during Construction of a Regional Park, Oak Preserve Park, and Residential Housing (Less than Significant with Mitigation Incorporated)

Adult northwestern pond turtles could be crushed and killed during construction activities associated development of a Regional Park, Oak Preserve Park, and residential housing that occurs in suitable aquatic habitat (agricultural ditches). In addition, adult northwestern pond turtles and nests containing hatchlings or eggs could be crushed and killed during the movement of construction equipment in annual grasslands within 1,312 m (400 ft) from suitable aquatic habitat.

This impact would be significant. **Implementation of Mitigation Measures BIO-6a (described above) and BIO-7 (described below) would reduce this impact to a less-than-significant level.**

Mitigation Measure BIO-7: Conduct a Preconstruction Survey for Northwestern Pond Turtles

To avoid construction-related impacts on northwestern pond turtles, the applicant or its contractor will retain a qualified wildlife biologist to conduct a preconstruction survey for northwestern pond turtles no more than 48 hours before the start of construction. The wildlife biologist will look for adult pond turtles, in addition to nests containing pond turtle hatchlings and eggs. If a northwestern pond turtle is located in the construction area, the biologist will move the turtle to a suitable aquatic site, outside the construction area. If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, the applicant will consult DFG to determine and implement appropriate avoidance measures, which may include a “no-disturbance” buffer around the nest site until the hatchlings have moved to a nearby aquatic site.

Impact BIO-8: Loss or Disturbance of Western Burrowing Owls and Their Habitat during Construction of a Regional Park and Residential Housing (Less than Significant with Mitigation Incorporated)

Conversion of the existing habitat (annual grassland) to rural residential development would result in the loss of approximately 396 acres of annual grassland, which provides potential burrowing owl nesting and foraging habitat. If burrowing owls are nesting within or adjacent to areas where ground disturbance would occur, construction activities could result in the removal of an occupied burrowing owl breeding or wintering burrow site and loss of burrowing owl adults, young, or eggs.

No burrowing owls were observed in the study area during field surveys. Because burrowing owls have been documented within 1.25 miles from the study area (California Natural Diversity Database 2005) and the study area provides suitable habitat for burrowing owls, there is potential for burrowing owls to occupy the study area prior to project construction.

Removal of a large amount of potential nesting and foraging habitat (396 acres) could result in a substantial decrease in the available habitat for locally nesting burrowing owls. This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level and avoid violating the MBTA and California Fish and Game Code.

Mitigation Measure BIO-8: Conduct Preconstruction Surveys for Active Burrowing Owl Burrows and Implement the California Department of Fish and Game Guidelines for Burrowing Owl Mitigation, if Necessary

DFG (1995) recommends that preconstruction surveys be conducted to locate active burrowing owl burrows in the construction work area and within a 250-foot-wide buffer zone around the construction area. The applicant or its contractor will retain a qualified biologist to conduct preconstruction surveys for active burrows according to DFG's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995). The preconstruction surveys will include a breeding season survey and wintering season survey. If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the applicant will implement the following measures.

- Occupied burrows will not be disturbed during the breeding season (February 1–August 31).
- When destruction of occupied burrows is unavoidable during the nonbreeding season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on protected lands approved by DFG. Newly created burrows will follow guidelines established by DFG.

- If owls must be moved away from the project site during the nonbreeding season, passive relocation techniques (e.g., installing one way doors at burrow entrances) will be used instead of trapping, as described in DFG guidelines. At least 1 week will be necessary to complete passive relocation and allow owls to acclimate to alternate burrows.
- If active burrowing owl burrows are found and the owls must be relocated, the applicant will offset the loss of foraging and burrow habitat on the project site by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified on the project site. The protected lands should be located adjacent to the occupied burrowing owl habitat on the project site or at another occupied site near the project site. The location of the protected lands will be determined in coordination with DFG.

Impact BIO-9: Potential Loss or Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors (Less than Significant with Mitigation Incorporated)

Construction activities associated with the proposed residential development and regional park could result in the removal or disturbance (e.g., trimming) of trees and shrubs that provide potential nesting habitat for special-status birds and raptors, such as the Swainson’s hawk (threatened under CESA), Cooper’s hawk and loggerhead shrike (species of special concern under CESA), and white-tailed kite (fully protected under California Fish and Game Code 3511). Trees and shrubs in the study area can also provide nesting habitat for several common migratory birds and raptors, including western bluebird, western kingbird, Anna’s hummingbird, lesser goldfinch, American goldfinch, red-shouldered hawk, and red-tailed hawk.

In addition, non-native annual grasslands provide potential nesting habitat for ground nesting birds such as state species of special concern northern harrier, and non-special-status birds such as mallard, red-winged blackbird, and ring-necked pheasant. If construction occurs during the breeding season (generally between March 1 and September 15), construction activities (e.g., tree and shrub removal, excavation, grading) within the study area could disturb or remove occupied nests of Swainson’s hawk, Cooper’s hawk, white-tailed kite, northern harrier, and loggerhead shrike. This disturbance could cause nest abandonment and subsequent loss of eggs or developing young at active nests located in the study area. All migratory birds and raptors are protected under the MBTA and California Fish and Game Code Sections 3503 and 3503.5. Swainson’s hawks are protected under CESA.

This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level and avoid violating the CESA, MBTA, and California Fish and Game Code.

Mitigation Measure BIO-9: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors and Conduct Preconstruction Nesting Bird Surveys

To avoid and minimize impacts on nesting special-status and non-special-status migratory birds and raptors, the applicant or its contractor will implement one or more of the following surveys and restrictions.

- If feasible, conduct all tree and shrub removal and grading (within annual grasslands) during the nonbreeding season (generally between August 16 and February 28) for most special-status and non-special-status migratory birds.
- If construction activities are scheduled to occur during the breeding season for special-status and non-special-status migratory birds and raptors (generally between March 1 and August 15), a qualified wildlife biologist (with knowledge of the species to be surveyed) will be retained to conduct the following focused nesting surveys prior to the start of construction and within the appropriate habitat.
  - ☐ **Swainson's Hawk, Cooper's Hawk, and White-Tailed Kite.** Tree-nesting surveys for Swainson's hawk, Cooper's hawk, and white-tailed kite will be conducted before any construction disturbances occurring in or near suitable nesting habitat (valley oak riparian woodlands, and areas supporting large oak or eucalyptus trees) within the construction work area and up to 500 feet outside the construction work area between March 1 and August 15.
  - ☐ **Loggerhead shrike and Non-Special-Status Migratory Birds and Raptors.** Tree- and shrub-nesting surveys for loggerhead shrike and other non-special-status migratory birds and raptors will be conducted prior to any tree and shrub trimming or removal activities within and immediately adjacent to the construction work area between March 1 and August 15.
  - ☐ **Northern Harrier.** Ground-nesting surveys for northern harrier and other ground-nesting non-special-status migratory birds will be conducted before any construction disturbances occurring in annual grasslands and agricultural areas within and immediately adjacent to the construction work area between March 1 and August 15.

The nesting surveys should be conducted within 1 week prior to initiation of construction activities that will occur in suitable habitat between March 1 and August 15. If no active nests are detected during these surveys, then no additional mitigation is required.

If surveys indicate that special-status or non-special-status migratory bird or raptor nests are found in the survey area identified above for each species, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified wildlife biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers will be determined by the biologist (coordinating with DFG) and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed in order to make an appropriate decision on buffer distances. Suitable buffer distances may vary between species.

If construction activities are scheduled to occur within an area that supports an active nest site or within an established no-disturbance buffer, construction would be delayed until after the breeding season or until the young have fledged (as determined by the biologist).

Impact BIO-10: Loss of Approximately 420 Acres of Swainson's Hawk Foraging Habitat Associated with Residential and Regional Park Development (Significant and Unavoidable)

Conversion of the existing annual grasslands and agricultural lands to residential development and intensely managed regional parks would result in the loss of approximately 420 acres of suitable Swainson's hawk foraging habitat (grassland and suitable agricultural lands). DFG's *Staff Report Regarding Mitigation for Impacts to Swainson's hawks in the Central Valley of California* (California Department of Fish and Game 1994) identifies permanent loss of foraging habitat within a 10-mile radius of a known Swainson's hawk nest site to be a significant impact on Swainson's hawk and their developing young. Swainson's hawks were observed nesting and foraging within the study area during the July 2005 field survey.

Removal of a large amount of foraging habitat (420 acres) could result in a substantial decrease in the available foraging habitat for locally nesting Swainson's hawk and the subsequent loss of developing young. This impact would be significant. **Implementation of Mitigation Measure BIO-10 would substantially lessen the significant effect but not reduce this impact to a less-than-significant level. Therefore, the impact is significant and unavoidable.**

Mitigation Measure BIO-10: Compensate for Permanent Removal of Swainson's Hawk Foraging Habitat

Nonnative annual grasslands in the study area provide suitable foraging habitat for locally nesting Swainson's hawk. DFG recommends mitigation for the removal of Swainson's hawk foraging habitat at a ratio determined by the distance to the nearest active nest (California Department of Fish and Game 1994). Swainson's hawks were observed nesting in the study area during the 2005 breeding season, resulting in a compensation ratio of 1:1 (one acre replaced for every 1 acre removed). This mitigation could be accomplished either by developing a project-specific mitigation agreement that would be submitted to DFG for approval or by purchasing Swainson's hawk mitigation credits at a DFG-approved mitigation bank. Any potential breeding habitat lost as a result of project development (i.e., cottonwoods, valley oaks, or willows) must be replaced at a minimum of 1:1 ratio onsite mitigation as an acreage-based habitat creation/restoration along the preserved riparian corridor. A mitigation plan will be in place prior to project implementation to ensure restoration activities ensue after construction and proper success criteria are established and approved by DFG pursuant to Sections 3503 and 2081 of the California Fish and Game Code.

The applicant has previously paid mitigation fees for approximately 140 acres of the project site associated with subdivision maps processed by the City for portions of the project site. The mitigation required will reflect this previous contribution.

Impact BIO-11: Loss or Disturbance of Roosting Bats (Less than Significant)

Valley oak riparian woodlands in the study area provide potential roosting habitat and maternal colony sites for special-status and non-special-status bats (long-legged myotis, pallid bat, and Yuma myotis are designated as federal species of concern; pallid bat is also designated as a state species of special concern). Because the majority of the woodlands in the study area would be retained as an Oak Preserve, impacts on roosting bats and potential maternal colonies would be minimized. Neither construction nor operation of the project would result in the direct loss of bats or removal of roosting habitat. **This impact would be less than significant. No mitigation is required.**

Impact BIO-12: Potential for Construction-Related Water Quality Effects on Fish in the Sacramento River (Less than Significant with Mitigation Incorporated)

General construction activities in the project area could potentially increase erosion processes, thereby increasing the potential for releasing sediment and other water quality constituents into the Sacramento River.

Excessive sediment quantities deposited in or near stream channels can degrade aquatic habitats. Sediments can smother developing fish eggs, degrade spawning habitat, and decrease food production. Fine sediments can also increase the river's turbidity. Increased turbidity can increase fish mortality; reduce feeding opportunities for fish, including anadromous species; and cause fish to avoid biologically important habitat.

Although unlikely, refueling, operation, and storage of construction equipment and materials could result in accidental spills of pollutants, such as concrete, sealants, oil, and paint, into the river. Pollutants entering the river would cause mortality to, and reduced growth of, the egg, larval, and juvenile life stages of fish. Furthermore, these pollutants could adversely affect the movement of special-status species, including juvenile Chinook salmon and steelhead, if they entered the river.

Compliance with the NPDES general construction permit requirements and SWPP plus implementation of Mitigation Measure HYD-1a (Dry Season Construction) and HYD-1b (Other Provisions for Work in Surface Waters) would reduce this impact to a less-than-significant level. A more detailed discussion of these mitigation measures is provided in Section 3.8, *Hydrology and Water Quality*.

The details of these mitigation measures would be submitted to DFG with the application for a streambed alteration agreement, pursuant to Section 1601–1607 of the California Fish and Game Code before construction begins.

Impact BIO-13: Potential for Water Quality Effects on Fish in the Sacramento River from Urban Runoff (Less than Significant with Mitigation Incorporated)

Currently, most of the project area is used for agricultural production and grazing and excess irrigation runoff and storm drainage is collected in a drainage ditch and pumped into the Sacramento River. Under the Project, the artificial waterway would be used to collect and store onsite drainage. The increase in new impervious surfaces combined with the runoff from urbanized areas potentially would result in an increase in contaminated runoff. Of particular concern would be the potential for eutrophication of the onsite water features, which could result in low dissolved oxygen levels, elevated water temperatures, and increase pollutant constituents (e.g., toxic metals) that ultimately could be discharged to the Sacramento River. The potential for impacts would likely be greatest during the initial storm event or “first flush” when pollutant constituents would be concentrated.

Although the potential exists for degradation of water quality associated with urbanization, the Project would result in a tradeoff of pollutant constituents, which under existing conditions are related to agricultural production and grazing.

Pollutants entering the river could cause mortality to, and reduced growth of, the egg, larval, and juvenile life stages of fish. Furthermore, if pollutants enter the river they could adversely affect special-status fish species, which use the Sacramento River for migration, spawning, and rearing.

Although most of the discharges from the Project would occur in the winter and spring, when dilution would greatly limit the amount of nutrient and pollutant constituent loading in the river, this impact is considered potentially significant because of the potential for direct effects on fish, particularly associated with the “first flush.”

Implementation of Mitigation Measure HYD-5b (Develop Management Plan for Onsite Water Features) would reduce this impact to a less-than-significant level. A more detailed discussion of this mitigation measure is provided in Section 3.8, *Hydrology and Water Quality*.

Impact BIO-14: Potential for Altered Hydrology of the Sacramento River (Less than Significant)

The amount of water that would be discharged to the Sacramento River would likely increase in winter with the Project as a result of the anticipated increase in surface runoff in response to the new impervious surfaces. The increase in discharge may alter the hydrology of the Sacramento River and adversely affect fish. Flow influences the distribution, abundance, and survival of fish.

However, alterations would likely be minor because the parkway stormwater conveyance would serve as a detention and stormwater quality management facility. Stormwater discharges and surface runoff would be channeled toward the parkway, where it would be collected and reused in the water feature, minimizing the need for discharge to the Sacramento River. Furthermore, the incremental flow contributed to the Sacramento River from the Project associated with the discharge of stormwater would likely be negligible compared to the existing volume of flow in the Sacramento River.

This impact is considered less than significant. No mitigation is required.

Impact BIO-15: Potential for the Introduction of Exotic Fish into the Sacramento River and North Delta (Less than Significant with Mitigation Incorporated)

The potential exists that any species of fish introduced into the Project's water features could establish populations and subsequently be introduced into the Sacramento River and North Delta. Fish eggs, larvae, juveniles, and adults of exotic species could be entrained and pumped to the Sacramento River during or after storm events, or at any time that water is pumped from the constructed water features to the river. The addition of exotic fish species to the Sacramento River and North Delta could have a direct, adverse effect on native fish, including special-status species such as Chinook salmon, steelhead, and delta smelt, by increasing mortality through predation.

This impact is considered significant. **Implementation of Mitigation Measure BIO-15 would reduce the potential for this impact to a less-than-significant level.**

Mitigation Measure BIO-15: Design Pumping Facilities Associated with the Constructed Water Features to Minimize the Potential for Fish Entrainment and Transport to the River
Pumping facilities that convey stormwater from constructed water features to the river will be designed to minimize the potential for fish entrainment and transport to the river. Design considerations may include the use of fish screens and/or pumps that minimize the potential for the passage of live fish. DFG will be consulted during the design phase of the pumping facilities to ensure that appropriate criteria are used in the design of the pumping facilities to minimize the transport of fish.

Water-Related Commercial Program Area

Development within the Water-Related Commercial Program area would generally be expected to result in impacts similar to those described for the Project (although at much lesser intensity given the relatively small size of the site). These impacts would have the potential to affect surface water quality as a result of construction-related earth-disturbing activities and construction-related hazardous materials (accidental fuels spills); an increase in the amount of surface runoff to the Sacramento River; and surface water impacts. Please refer to the discussion of these impacts and mitigation measures above.

Additional potential impacts from development within the Water-Related Commercial Program area on fisheries would include habitat modification in, and along the banks of, the Sacramento River; increased sedimentation and turbidity; and disturbance to migrating fish from construction-related activities. These impacts are discussed in greater detail below.

Impact BIO-16: Potential for Habitat Modification in the Sacramento River from Marina and Parkway Construction (Less than Significant with Mitigation Incorporated)

The Project includes the ultimate development of 2.6 acres of water-related commercial uses along the Sacramento River, which may include a marina, a restaurant, a boating equipment shop, and parking areas. Habitat modifications associated with development of water-related commercial uses could result in substantial adverse effects on fish, including special-status species.

Construction activities, infrastructure development, and any armoring associated with water-related development that results in loss of riparian and shaded riverine aquatic (SRA) cover would reduce rearing habitat values, including resting areas, refuge from predators, and food availability. Fish populations, especially salmonid (i.e., Chinook salmon and steelhead) populations, are highly influenced by the amount of available cover, and much of the SRA cover in the Sacramento River has been lost in modern times as a result of urbanization, roadway and bridge construction, and flood control projects (e.g., levee construction).

Reductions in SRA cover also could increase juvenile fish mortality because of loss of escape habitat, reduced food availability, and reduced habitat complexity.

Development of a marina would likely result in construction of new overwater structure in the form of floating docks. Overwater structures can cause long-term impacts on the biological community by altering predator-prey relationships, fish behavior, and habitat function. Fish migratory behavior is altered by the creation of sharp contrasts in underwater light conditions such as shade cast under ambient daylight conditions. Furthermore, shading can reduce the abundance of aquatic plants and benthic macroinvertebrates, an important food source for fish.

The presence of piers and shade from floating docks can create favorable conditions for predatory fish species, such as largemouth bass and striped bass, to stage in order to ambush migrating juvenile fish (e.g., juvenile Chinook salmon and steelhead) and sensitive native species such as delta smelt and splittail.

These impacts would be significant, but implementation of Mitigation Measures BIO-16a, 16b, and 16c would reduce these impacts to a less-than-significant level.

Mitigation Measure BIO-16a: Replace Affected Riparian and Shaded Riverine Aquatic Cover Length, Area, and Habitat Value

Replace the affected length, area, and habitat value of riparian and SRA cover habitat. SRA cover is a Resource Category 2 habitat. USFWS' mitigation goal for Resource Category 2 habitat is no net loss of linear feet, area, and habitat value. Replacement ratios often exceed the required 1:1 replacement ratio, however, to compensate for temporal losses in habitat value. The precise amount and relative value of affected riparian and SRA cover habitat would be determined during project-level analysis of proposed activities in the water-related commercial program area and in consultation with the resource agencies.

Mitigation Measure BIO-16b: Minimize the Amount of, and Shading by, Overwater Structures

Minimize the amount of overwater structures and design docks and other marina structures, where practicable, to maximize the amount of light penetration.

Mitigation Measure BIO-16c: Contribute to Nearshore Cover Habitat in Vicinity of Marina

Plant SRA cover vegetation and install biotechnical features such as brush piles, logs, and rootwads to replace affected habitat from marina construction and to compensate for potential impacts associated with increased predation around floating docks. Where practicable, contribute to nearshore cover within and in the immediate vicinity of the marina to increase the potential for the survival of juvenile fish. The precise amount and relative value of affected riparian and SRA cover habitat would be determined during project-level analysis of proposed activities in the water-related commercial program area.

Impact BIO-17: Potential for Impacts on Fish Migration from Marina and Parkway Construction (Less than Significant with Mitigation Incorporated)

Noise and vibrations associated with general construction activities in the Water-Related Commercial Program area could adversely affect fish. For example, pile-driving activities associated with pier construction could result in migrating adult and juvenile fish being injured or killed from underwater pressure waves, or it could result in changes to their behavior that are detrimental to their survival.

The potential for injury to fish from pile driving depends on the type and intensity of the sounds produced. These are greatly influenced by factors such as the type of hammer used, the type of substrate, and the depth of water. Generally, firmer substrates require more energy to drive pilings, producing more intense sound pressures.

This impact is considered significant because, without mitigation, marina and parkway construction could result in effects on migrating species, including delayed movement and reduced survival. **Implementation of Mitigation Measure BIO-17 would reduce this impact to a less-than-significant level.**

Mitigation Measure BIO-17: Employ Measures to Minimize Sound and Disturbance Effects

The applicant or its contractor will develop and implement measures to minimize disturbance to migrating fish and the effects of sound. These measures may include, but not be limited to, restricting the timing of in-water work to periods when migrating fish are less likely to be present (e.g., July and August), employing a hammer type that is less likely to produce pressure waves that are damaging to fish, or deploying a bubble curtain for all impact pile driving. The precise methods to mitigate sound and disturbance effects would be developed based on the specifics of the construction and in consultation with the resource agencies (e.g., NOAA Fisheries, USFWS, DFG).

Section 3.5
Cultural Resources

Introduction

This section describes the environmental setting for cultural resources, the impacts on cultural resources that would result from the Project, and the mitigation measures that would reduce these impacts.

Cultural resource is the term used to describe several different types of properties: prehistoric and historical archaeological sites, as well as architectural properties, such as buildings, bridges, and infrastructure.

Federal regulations (36 Code of Federal Regulations [CFR] 800) define a *historic property* as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

Historical resource is a CEQA term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

Environmental Setting

This section discusses the cultural setting (prehistoric, ethnographic, and historic) and existing conditions relating to cultural resources in the project study area, as well as federal, state, and local regulations relating to cultural resources that would apply to the proposed Project. As necessary, the environmental setting discussion is divided into discussions of the individual components that make up the proposed Project.

Cultural Setting

Prehistory

It is probable that humans have inhabited the Sacramento Valley for the last 10,000 years. However, evidence for early occupation is likely deeply buried under alluvial sediments deposited during the late Holocene. Although rare, archaeological remains of the early period have been identified in and around the Central Valley (Johnson 1967; Peak & Associates 1981; Treganza and Heizer 1953), but to date none have been located in the West Sacramento area. Early archaeological manifestations are categorized as the Farmington Complex, which is characterized by core tools and large, reworked percussion flakes (Treganza and Heizer 1953). The economy of this early period was likely based on the exploitation of large game.

Later periods are better understood because of more abundant representation in the archaeological record. Fredrickson (1973) identified three general patterns of cultural manifestations for the period between 4500 B.P. and 3000 B.P.: the Windmiller, Berkeley, and Augustine Patterns.

The Windmiller Pattern (4500–3000 B.P.) shows evidence of a mixed economy consisting of the generalized hunting of game, fishing, and use of wild plant foods. Settlement strategies during the Windmiller period reflect seasonal occupation of valleys during the winter and the foothills during the summer (Moratto 1984).

Cultural changes are manifested in the Berkeley Pattern (3500–2500 B.P.). Technological changes in groundstone from handstones and milling slabs to the mortar and pestle indicate a greater dependence on acorns, and the presence of a wide variety of projectile points and atlatls indicate hunting was still an important activity (Fredrickson 1973).

The Berkeley Pattern was superseded by the Augustine Pattern around A.D. 500, and reflects a change in subsistence and land use patterns similar to those of the ethnographically known people of the proto-historic era. This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Elaborate exchange systems, further reliance on acorns, and a wide variety of artifacts (flanged tubular smoking pipes, harpoons, clamshell disc beads, and an especially elaborate baked clay industry, which included figurines and pottery vessels called Cosumnes Brownware) are associated with the Augustine Pattern. Increased village sedentism, population growth, and an incipient monetary economy are also hallmarks of this pattern (Moratto 1984).

Ethnographic Context

The project area is located at the interface of three Native American groups: the Patwin (or Wintun) and, to a lesser extent, the Nisenan and the Plains Miwok. The banks of the Sacramento River and associated riparian and tule marshland habitats were inhabited by the River or Valley Patwin. The Plains Miwok and Nisenan, while occupying primarily territories east of the Sacramento River, utilized land west of the river as well (Johnson 1978; Levy 1978; Wilson & Towne 1978).

The material culture and settlement-subsistence behavior of these groups exhibit similarities, likely because of historical relationships and a shared natural environment. Historical maps and accounts of early travelers to the Sacramento Valley testify that tule marshes, open grasslands, and occasional oak groves (Jackson 1851; Ord 1843; Wyld 1849) characterized the study area. The area was generally wet in the winter and often subject to flooding; the weather was exceedingly dry in summer. Much of the floodplain was presumably sparsely inhabited, and Native Americans typically situated their larger, permanent settlements on high ground along the Sacramento and American Rivers (Bennyhoff 1977; Kroeber 1925, 1932; Levy 1978; Wilson and Towne 1978).

The Native American economy in the project area was based principally on the use of natural resources from the riparian corridors, wetlands, and grasslands adjacent to the Sacramento River. Fish, shellfish, and waterfowl were important sources of protein in the diet of these groups (Johnson 1978; Kroeber 1932). Salmon, sturgeon, perch, chub, sucker, pike, trout, and steelhead were caught with nets, weirs, lines and fishhooks, and harpoons. Mussels were harvested from the gravels along the Sacramento River channel. Geese, ducks, and mudhens were hunted using decoys and various types of nets. The majority of important plant resources in the Patwin diet came from the grasslands of the Sacramento River floodplain. In addition to the staple acorn, a number of seed plants were important secondary food sources. These plants included sunflower, wild oat, alfilaria, clover, and bunchgrass (Johnson 1978).

History

Yolo County is located in the northern part of the Central Valley and was one of the original 27 counties created when California became a state in 1850. Initially, the county's territory was nearly twice as large as it is now and included a large portion of present-day Colusa County, but by 1923, the boundaries were redrawn to their current configuration. Yolo County originally consisted of 11 Mexican land grants. Of these 11, only five, Rancho Rio de los Putos, Rancho Quesesosi, Rancho Rio de Jesus Maria, Rancho Jimeno, and Rancho Canada de *Capay*, were eventually confirmed by the U.S. government after assuming control of the region (Coy 1973; Gudde 1969; Kyle et al. 1990).

The California Gold Rush transformed the county from an isolated farming community into a booming agricultural region as disenchanted miners realized they could make a greater fortune through farming and ranching rather than gold prospecting. From the mid-nineteenth through the mid-twentieth centuries, Yolo County was generally agrarian in focus, the main crops being wheat, barley, and other grains. Commercial enterprises related to agriculture and livestock also sprang up during this period, furthering the development and growth of the region (Davis 1890; Larkey and Walters 1987).

The county's first town, Fremont, was founded in 1849 along the confluence of the Sacramento and Feather Rivers (south of present-day Knights Landing). It became the first county seat in 1850. Margaret McDowell established the town of Washington in 1849—presently part of the City of West Sacramento—along the west bank of the Sacramento River and directly across from the City of Sacramento a short time after Fremont was founded. After Fremont suffered flood damage in 1851, the county government was moved to Washington. Between 1857 and 1861, the county seat moved from Washington to Cacheville (present-day Yolo) and back to Washington. Finally in 1862, flooding motivated voters to choose centrally located Woodland as the permanent county seat (Kyle et al. 1990).

Present-day West Sacramento experienced little growth until the early 1900s when levee construction along the Sacramento River encouraged settlement and development of the area. Early settlers included Jan Lows de Swart (holder of the Rancho Nueva Flandria land grant), who constructed a home in the 1840s along the west bank of the river directly across from Sacramento. By 1846, James McDowell had acquired the property, and 3 years later his widow, Margaret, laid out the town of Washington (later called Broderick and now part of the City of West Sacramento). In 1911, the West Sacramento Land Company laid out the community of Riverbank (later called Bryte) directly east of the present-day Interstate 80 crossing of the Sacramento River. Shortly thereafter, plans were under way for the establishment of the town of West Sacramento (Corbett 1993).

Between 1911 and 1918 hundreds of miles of levees were constructed in order to control flooding in the Sacramento Valley. As early as 1892, farmers of Yolo County came together to construct levees along the Sacramento River from the town of Washington to roughly 9 miles downstream. In March 1911, the Sacramento Land Company (formerly the West Sacramento Land Company) assisted with the establishment of Reclamation District 900 (RD 900) in what is now West Sacramento. The formation of this district created a framework for using public funds through bonds, levies, and taxes to drain the land (Bouey and Herbert 1990; Corbett 1993; Walters 1987).

Under the direction of civil engineers Haviland & Tibbetts, formation of RD 900 began. The district spanned 11,500 acres, from the east–west line of the Southern Pacific Railroad (SPRR) tracks south to the vicinity of Riverview. Construction involved installing drainage canals, levees, and pumphouses. The canals carried drainage to the pumphouses, which, in turn, moved the water over the levees into the Yolo Bypass. As the land was drained of water, the fields of tules were removed, establishing acres of agricultural land (Corbett 1993). RD 900 remains in existence today.

Following World War I, West Sacramento remained an unincorporated area, populated primarily by small farms and a handful of industries. By the 1920s, the main east–west transcontinental highway (U.S. Highway 40, now West Capitol Avenue) traveled through West Sacramento; within a few years several hotels and motels were constructed along its route through town. During World War II factories and other industries began to prosper along the west bank of the Sacramento River. Following the war, like much of the state, the region experienced a housing boom that would last for several decades (Corbett 1993).

In 1987, after numerous previous attempts, the City of West Sacramento was officially incorporated. The new city included the former communities of Broderick and Bryte and surrounding urban and rural areas on the west side of the Sacramento River into Southport (Walters 1987) where the proposed Project is located.

Existing Conditions

Efforts to locate cultural resources within the project area were undertaken in two separate studies conducted by Peak & Associates, Inc. (2004, 2005a), on behalf of the project applicant. These efforts consisted of: conducting a records search at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University, contacting the Native American Heritage Commission (NAHC) and recommended Native American representatives, contacting other interested local groups, and performing field surveys of the site.

Records Search

Peak & Associates, Inc., on behalf of the project applicant, requested a record search for the project area in January 2004 at the Northwest Information Center of the California Historical Resources Information System, located at Sonoma State University in Rohnert Park, California. Records of previously conducted cultural resource surveys and previously recorded cultural resource sites were reviewed for the project area. The records search also included a review of the following inventories: the NRHP, California Historical Landmarks, the California Inventory of Historical Resources, California Points of Historical Interest, and the California Department of Transportation (Caltrans) Historical Bridge Inventory.

Little of the project area had been previously surveyed for cultural resources. Small portions of the project area were surveyed in 1960 by Sacramento State University (Johnson n.d.). No cultural resources were located during this survey, and the survey was never documented in a technical report. Six small cultural resource inventories were later conducted on land now included within the current project area. These include a survey along the railroad right-of-way (Wiant 1976), four surveys along portions of the levee (Bouey and Herbert 1990; Dietz 1999; Allan 2002a, 2002b), and a small area survey for a cell phone tower

(Peak & Associates 2001). No cultural resources were recorded in what is now the project area as a result of these surveys.

One cultural resource adjacent to the project area has been recorded as a result of the above surveys. This resource is a line of 14 pilings in the Sacramento River adjacent to the levee at Oak Hall bend (P-57-000425). These pilings are believed to be the remains of the wharf associated with Lufkin's Landing (Allan 2002c). This resource lies outside of the project area, although materials related to the landing may exist within the project area (Peak & Associates 2004). Examination of the 1916 U.S. Geological Survey (USGS) topographic map revealed two slightly elevated areas within the project area. Because Patwin populations often occupied mounds like these that were elevated from the surrounding floodplain, these areas may be sensitive for the presence of prehistoric cultural resources.

There are two residences located in the project area that are more than 50 years old. The residences were recorded and evaluated by Peak & Associates as part of its 2004 survey.

A supplemental records search was conducted by Peak & Associates (2005a) for the Village Parkway extension and alternative roadway alignments. The records search also included a 0.25-mile radius of the alignments. No cultural resources were identified in the Village Parkway extension and alternative roadway alignments area as a result of the supplemental records search.

Native American Contacts

On January 27, 2004, Peak and Associates contacted the NAHC with a request to provide a list of individuals and/or organizations that may have an interest in the project area. Project letters were prepared and sent to all individuals and/or organizations identified by the NAHC. This letter solicited any comments, concerns, and/or issues pertaining to the vicinity of the proposed Project. No response was received by the time the technical report was finalized.

Peak & Associates also requested a search of the sacred lands database at the NAHC. The results of the database search were negative and provided no information on the presence of known cultural resources in the project area. The negative results of the sacred lands file search do not indicate the absence of cultural resources in the project area, only that sacred areas or traditional cultural properties have not been reported.

Archaeological Resources

On February 28, 29; March 3, 2004; and June 2005, Peak & Associates conducted an intensive archaeological field survey of the project area (Peak & Associates 2004, 2005b). The majority of the project area has been repeatedly leveled and plowed for agricultural purposes. One low mound area in the north-central portion of the project area, which appears as a high spot on the 1916 USGS topographic map, appears to be less disturbed than the rest of the project area. The second low mound depicted on the 1916 map is now occupied by a subdivision, although a small extension of the mound lies on the east end.

No archaeological resources were located during the field survey, despite intensive survey and the clearing and excavation of shallow, trowel-dug holes in the sensitive mound areas.

Peak & Associates (2005b) also conducted a cultural resources survey of the Village Parkway extension alignment. Although the alignment was not directly accessible during the field survey, the alignment was inspected from several access points crossing the alignment. No cultural resources were identified as a result of this field inspection.

Built Environment Resources

The 2004 Peak & Associates survey determined there are two residences and associated buildings constructed more than 50 years ago within the project area. No other potentially significant cultural resources were identified. One residence is located near the river on a parcel designated by the Yolo County assessor’s office as 46-260-031; the second is nearby on parcel 46-260-061. The first is a Craftsman-style house constructed between 1920 and 1925. The building exhibits a fair degree of integrity to its period of construction, having been altered with additions and window replacement over time. The parcel—APN 46-260-031—also includes a wood-frame garage with corrugated metal siding. The second residence is also a Craftsman-style house; however, this building was apparently constructed between 1905 and 1915. It has been altered over time and badly deteriorated due to neglect. The parcel—APN 46-260-061—also contains two wood-frame sheds that are in a similar degraded condition due to neglect.

Neither of the properties appears to meet the criteria for listing in the CRHR because they lack the necessary significant historical association or architectural distinction. Consequently, neither property appears to be a historical resource for the purposes of CEQA.

Paleontological Resources

It is unknown whether any paleontological resources are present at the project site; none have been reported. The sensitivity of the site for the occurrence of significant resources is considered low because the substrates are large-river fluvial deposits that typically have been reworked several times during channel migration. Fossils that have not been subjected to disturbance subsequent to their burial and fossilization are particularly important.

Regulatory Setting

Federal

The National Historic Preservation Act (NHPA) of 1966, as amended, is the primary mandate governing projects under federal jurisdiction that may affect cultural resources. Section 106 of the NHPA requires federal agencies, or those they fund or permit, to consider the effects of their actions on the properties that may be eligible for listing or are listed in the NRHP. The regulations implementing Section 106 are codified in 36 CFR 800 (2001). The Section 106 review process involves the following four steps.

1. Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.
2. Identify historic properties by determining the scope of efforts, identifying cultural resources, and evaluating their eligibility for inclusion in the NRHP.
3. ASSESS adverse effects by applying the criteria of adverse effects to historic properties (resources that are eligible for inclusion in the NRHP).
4. Resolve adverse effects by consulting with the State Historic Preservation Officer (SHPO) and other consulting agencies, including the Advisory Council on Historic Preservation, if necessary, to develop an agreement that addresses the treatment of historic properties.

To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP. The criteria applied to evaluate the significance of cultural resources are defined as follows.

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) that have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4.)

Integrity refers to a property's ability to convey its historical significance. There are seven aspects or qualities of integrity: location, design, setting, materials, workmanship, feeling, and association. The importance and applicability of these qualities depend on the significance of the property and the nature of the character-defining features that convey that significance.

Ordinarily, properties that have achieved significance within the past 50 years are not considered eligible for listing in the NRHP. However, such properties would be considered eligible if a property that achieved significance within the past 50 years is of exceptional importance.

Local

West Sacramento General Plan Goals and Policies

The West Sacramento General Plan Policy Document contains the following goals and policies regarding archaeological and cultural resources (City of West Sacramento Department of Community Development 1990b).

Section V: Recreational and Cultural Resources

Goal F: To preserve and enhance West Sacramento's historical heritage.

1. The City shall set as a high priority the protection and enhancement of West Sacramento's historically and architecturally significant buildings.
2. The City shall establish a historic district in the Old Broderick area and develop standards for preservation and rehabilitation of historic structures and compatible infill development.
3. The City shall cooperate in the expansion and updating of the Yolo County Historical Resources Survey.
4. The City shall work with property owners in seeking registration of historical structures and sites as State Historic Landmarks or listing on the National Register of Historic Sites.
5. The City and Redevelopment Agency shall support the efforts of property owners to preserve and renovate historic and architecturally significant structures. Where such buildings cannot be preserved intact, the City shall seek to preserve the building facades.
6. Structures of historical, cultural, or architectural merit which are proposed for demolition shall be considered for relocation as a means of preservation. Relocation within the same neighborhood or to another compatible neighborhood shall be encouraged.
7. New development near designated historic landmark structures and sites shall be designed to be compatible with the character of the designated historic resource.
8. The City shall explore the possibility of establishing a city cultural center which might include a historical museum and an art gallery.
9. The City shall consider developing and maintaining the Stone Lock as a point of historical interest.

Goal G: To protect West Sacramento's Native American heritage.

1. The City shall refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory, Northwest Information Center, at Sonoma State University.

2. The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting the California Archaeological Inventory, Northwest Information Center, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the State CEQA Guidelines. (Note: provisions previously included in Appendix K are now incorporated into CEQA Guideline 15064.05.)
3. Archaeological sites shall be protected by means of requirements in development permits requiring on-site monitoring by qualified personnel of excavation work in areas identified as archaeologically sensitive. Development work shall be required to cease in any place where artifacts or skeletal remains have been discovered until these have been examined and evaluated by a qualified archaeologist and arrangements have been made to avoid or otherwise protect valuable resources.

Southport Framework Plan

The Southport Framework Plan does not specifically address cultural resources. The Southport Framework Plan EIR (Willdan Associates 1994) requires site-specific cultural resource investigations for specific projects. These studies have been performed and are discussed in this section of the EIR.

Impact Analysis

This section describes the CEQA impact analysis relating to cultural resources for the Project, including the proposed Water Related Commercial uses along the Sacramento River. It describes the methods used to determine the Project's impacts and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany the respective impact discussion.

CEQA requires that public or private projects financed or approved by public agencies be assessed to determine the effects of the projects on historical resources (defined under "Introduction"). CEQA states that if implementation of a project would result in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (California Code of Regulations [CCR] 15064.5, 15126.4). Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined.

The State CEQA Guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review.

1. The resource is listed in or determined eligible for listing in the CRHR.

2. The resource is included in a local register of historical resources, as defined in PRC 5020.1(k), or identified as significant in an historical resource survey meeting the requirements of PRC 5024.1(g), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. The lead agency determines the resource to be significant, as supported by substantial evidence in light of the whole record (14 CCR 15064.5[a]).

Each of these ways of qualifying as an historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (PRC 5020.1[k], 5024.1, 5024.1[g]). A historical resource may be eligible for inclusion in the CRHR if it meets one of the following criteria.

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in our past.
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- It has yielded, or may be likely to yield, information important in prehistory or history (State CEQA Guidelines Section 15064.5[a][d]).

Properties already listed or eligible for listing in the NRHP are also considered eligible for listing in the CRHR and are therefore significant historical resources for the purpose of CEQA (PRC 5024.1[d][1]).

Thresholds of Significance

Criteria for determining the significance of impacts related to cultural resources were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*). An impact related to cultural resources was considered significant if it would:

- cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- disturb any human remains, including those interred outside of formal cemeteries; or
- eliminate important examples of the major periods of California history or prehistory (California Code of Regulations 15065).

Impacts and Mitigation Measures

Impact CR-1: Demolition of Existing Residences and Associated Buildings (No Impact)

As noted previously, two parcels containing residences and associated buildings constructed more than 50 years ago are located in the project area. One parcel (APN 46-260-031) includes a Craftsman style house constructed between 1920 and 1925 and a garage with corrugated metal siding. The second parcel (APN 46-260-061) includes a Craftsman style house constructed between 1905 and 1915 and two wood frame sheds.

Neither of the properties meets the criteria for listing in the CRHR because they lack the necessary significant historical association or architectural distinction. They also do not appear to qualify as landmarks. Consequently, neither property appears to be a historical resource for the purposes of CEQA. **Therefore, the Project would result in no impact to historical resources.**

Impact CR-2: Potential Disturbance to Unidentified Cultural Resources during Facility Construction (Less than Significant with Mitigation Incorporated)

According to the Archaeological Inventory, archeological and cultural sites in the West Sacramento area tend to be located along watercourses, at the edge of former marsh boundaries, and in elevated areas above the floodplain. Currently, three prehistoric archaeological sites are known to exist within the Southport area (Southport Framework Plan DEIR, Section 4.10). Although no known cultural resources were identified during the research or fieldwork completed to date, there is some potential that buried cultural resources could be inadvertently unearthed during ground-disturbing activities associated with project construction. This impact is considered potentially significant. **Implementation of Mitigation Measure CR-2 would reduce this impact to a less-than-significant level.**

Mitigation Measure CR-2: Stop Work if Buried Resources Are Discovered Inadvertently

The project applicant and its construction contractor will take the steps specified below during project construction. If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a archaeologist who meets the Secretary of the Interior’s qualification standards can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City of West Sacramento, the State Historic Preservation Officer, and other appropriate agencies. Appropriate treatment measures may include development of avoidance or protection methods, archaeological excavations to recover important information about the resource, research, or other actions determined during consultation.

Impact CR-3: Direct or Indirect Destruction of a Unique Paleontological Resource or Site or Unique Geologic Feature (Less than Significant with Mitigation Incorporated)

Significant paleontological resources are unlikely to occur in the project area substrate, as described above. Nevertheless, it is possible that significant previously unidentified paleontological resources, such as fossilized bone, plants, impressions, or tracks, may be present that could be damaged or destroyed by grading for project construction. **This impact is potentially significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level.**

Mitigation Measure CR-3: Stop Work in Event of Fossil Discovery

If paleontological resources such as fossilized bone, plants, impressions, or tracks are discovered during excavation operations for site development, work will cease within 100 feet of the find. A qualified paleontologist (master’s degree in paleontology or geology) will be called to the site to evaluate the find and determine the significance of the fossil. If it is determined to be potentially significant, the paleontologist will recover the fossil from the site and submit it to an appropriate museum or other repository for curation.

Impact CR-4: Inadvertent Discovery of Native American Human Remains (Less than Significant with Mitigation Incorporated)

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

No human remains are known to be located in the project area. However, there is always the possibility that unmarked burials may be unearthed during construction. This impact is considered potentially significant. **Implementation of Mitigation Measure CR-4 would reduce this impact to a less-than-significant level.**

Mitigation Measure CR-4: Comply with State Laws Relating to Native American Remains

If human remains of Native American Origin are discovered during project construction, it will be necessary to comply with state laws relating to the disposition of Native American burials, which fall under the jurisdiction of the NAHC (PRC Section 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, the City of West Sacramento will be contacted and there will be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent human remains, until:

- the Yolo County coroner has been informed and has determined no investigation of the cause of death is required, or
- if the remains are of Native American origin, the descendents of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 or the NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 24 hours after being notified by the NAHC.

Section 3.6
Geology, Soils, and Seismicity

Introduction

This section describes the environmental setting for geology, soils, and seismicity; the impacts on geology, soils, and seismicity that would result from the Project and alternatives; and the mitigation measures that would reduce those impacts. The geologic and soil conditions are essentially the same for the project area and the water-related commercial and proposed elementary school site area; therefore, this discussion encompasses the entire Project, including those program elements, and is applicable to all, even though specific actions have been recommended that pertain more to the Project.

Environmental Setting

This section discusses the existing conditions related to geology, soils, and seismicity in the project area. Federal, state, and local regulations related to geology, soils, and seismicity that would apply to the Project are discussed below.

Existing Conditions

The key sources of data and information used in the preparation of this section are listed below.

- Maps and reports by the USGS.
- Maps and reports by the California Geological Survey (CGS).
- Maps and reports by the Natural Resources Conservation Service (NRCS).
- Geotechnical Engineering Report, Southport Property, prepared by Wallace-Kuhl & Associates (2004) (Appendix F).
- Geotechnical Engineering Letter Report, Rodgers/Vendley Property, prepared by Wallace-Kuhl & Associates (2005) (Appendix F).

- Yolo County General Plan.
- City of West Sacramento Department of Community Development General Plan (1990a).

Geology and Topography

Regional Physiographic Setting of the Project Area

The project area is located within the Great Valley geomorphic province. The Great Valley of California, also called the Central Valley of California, is a nearly flat alluvial plain, extending from the Tehachapi Mountains at the south to the Klamath Mountains at the north and from the Sierra Nevada on the east to the Coast Ranges on the west. The valley is about 450 miles long and has an average width of about 50 miles. Elevations of the alluvial plain are generally just a few hundred feet above mean sea level (msl), with extremes ranging from a few feet below msl to about 1,000 feet above msl (Hackel 1966).

Regional and Project Area Geology and Topography

Geologically, the Great Valley geomorphic province is a large, elongate, northwest-trending asymmetric structural trough that has been filled with an extremely thick sequence of sediments, ranging in age from Jurassic to Recent. This asymmetric geosyncline has a long, stable eastern shelf supported by the subsurface continuation of the granitic Sierran slope and a short western flank expressed by the upturned edges of the basin sediments (Hackel 1966).

The project area consists of sand, silt, and gravel of the Quaternary levee and channel deposits (Wagner et al. 1987). The alluvium that makes up the floodplain and natural levees of the project area is mostly moderately coarse textured. Farther downstream where more basin deposits exist, the sediments are more moderately fine textured. The coarse-textured nature of these alluvial deposits does not readily inhibit channel migration and levee undercutting as much as the basin deposits farther downstream. The sediment deposited by the Sacramento River is especially heterogeneous because the minerals originated from a variety of rock sources (Andrews 1972). The project area is flat and topographically featureless, typical of a floodplain environment, except for the presence of levees along waterways.

Levee History and Performance

As stated in the 2004 Wallace-Kuhl & Associates report, U.S. Department of the Interior, Bureau of Reclamation (Reclamation) officials stated that upgrades to the levee and overlying South River Road within the project area consist of a smaller, secondary berm constructed along the west side of the existing levee in 1989. The secondary berm consists of a series of smaller, benched berms with alternating layers of gravel, sand, and geotextile fabric, which serve as a buttress fill that provides stability for the existing levee and as a drainage blanket for which seepage associated with the interior levee can drain through on its way to an existing drainage ditch.

The primary levee in the area is an earth-filled embankment using native soils from the area; it does not contain an internal clay core or slurry wall system. Reclamation officials indicated that although seepage is a common occurrence with the levee system in the project area, they know of no occurrences of boils or piping failures with the levee. Reclamation officials also indicated that erosion has occurred along the primary levee in a few spots within the Davis Road area but that this erosion has been corrected during the Reclamation's ongoing maintenance activities.

Soils

The soil map units as described by the Soil Survey of Yolo County (Andrews 1972) are Lang sandy loam; Lang sandy loam, deep; Lang silt loam, deep; and Sycamore silt loam. All four soil map units are somewhat evenly distributed over the project area. The Lang sandy loam is characterized by sandy loam, loamy fine sand, and fine sand. It has a low depth to the seasonal high water table (3 to 5 feet), moderate permeability in the upper 6 inches of the soil profile and rapid permeability beneath 6 inches, and low shrink-swell potential. The Lang sandy loam, deep, and Lang silt loam are similar in nature to the Lang sandy loam; however, the Lang sandy loam, deep, and Lang silt loam have a layer of clay between 40 and 60 inches. As such, those portions of the soils profile have a high shrink-swell potential. The Sycamore silt loam is characterized by silty clay loam, silt loam, or loam. It has a low depth to the seasonal high water table (3 to 5 feet), low permeability, and moderate shrink-swell potential. Erosion potential for all soil map units is not addressed in the soil survey; however, it can be assumed that all soils have a moderate to high erosion hazard due to the lack of clay content.

The project applicant commissioned a geotechnical report and a subsequent addendum to the report for the project area (Wallace-Kuhl & Associates 2004 and 2005). The results of the 2004 Wallace-Kuhl & Associates report indicate the surface soils across the site consist of a mixture of surface clays and granular soils within the upper 5 feet. On the basis of those observations, special recommendations were provided in the report to minimize the effects of the on-site expansive clay soils encountered. The expansive clays were observed as shallow as 2 feet from existing surface grades in some areas. Refer to the Logs of Boring, Plates No. 3 through 8, in the 2005 Wallace-Kuhl & Associates report for details regarding soil conditions at specific locations within the Rodgers/Vendley property and Logs of Boring and Test Pits, Plates No. 3 through 26, in the 2004 Wallace-Kuhl & Associates report for details regarding soil conditions at specific locations within the Southport property.

The recommendations from both the 2004 and 2005 Wallace-Kuhl & Associates reports are included in the “Impacts and Mitigation Measures” subheading of this section.

Mineral Resources

No commercial mining operations are known to have occurred in West Sacramento. Most of the area is classified as MRZ-1 by the California Division of Mines and Geology, which means information indicates no significant mineral deposits are present. The portion of the West Sacramento area that borders the Sacramento River (and henceforth the project area vicinity) is classified as MRZ-3, which means aggregate deposits of undetermined significance occur there. Lands classified as MRZ-1 or MRZ-3 are not affected by state policies pertaining to the maintenance of access to regionally significant mineral deposits under the California Surface Mining and Reclamation Act of 1975. Figure VIII-8 in the City of West Sacramento General Plan Background Document (City of West Sacramento 1990) shows the mineral land classifications in West Sacramento.

According to the borings conducted by Wallace-Kuhl & Associates (2004), a mixture of sand, silt, and clay lie beneath the surface soils, dominated by silty sand.

Seismicity

Seismic hazards refer to earthquake fault ground rupture and ground shaking (primary hazards) and liquefaction and earthquake-induced slope failure (secondary hazards). The primary seismic hazards in West Sacramento are related to ground shaking, soil liquefaction, and seiches (City of West Sacramento Department of Community Development 1990a).

Surface Rupture and Faulting

The project area is located in a region of California characterized by low seismic activity. The Uniform Building Code (UBC) recognizes no active seismic sources within the project vicinity (International Conference of Building Officials 1997), and no active faults are known to cross the project area. The project area is located within UBC Seismic Hazard Zone 3. The Zone 3 designation indicates that earthquakes in the region have the potential to make standing difficult and cause stucco and some masonry walls to fall. Structures must be designed to meet the regulations and standards associated with Zone 3 hazards.

Three pre-Quaternary faults/fault zones are located in an approximate 20-mile radius of the project area. The Willows fault zone runs northwest to southeast of the project area. The East Valley fault runs to the west of the project area. The

Midland fault zone runs to the southeast of the project area (City of West Sacramento 1990; Jennings 1994). None of these faults/fault zones are within an Alquist-Priolo Special Studies Zone (Hart and Bryant 1997). The active fault nearest to the project area is the Dunnigan Hills fault, 30 miles to the northwest (City of West Sacramento 1990; Jennings 1994). This fault is within an Alquist-Priolo Special Studies Zone (Hart and Bryant 1997). The critical earthquake for West Sacramento would originate at the nearest point of the Midland fault zone or the Dunnigan Hills fault (City of West Sacramento 1990).

Ground-Shaking Hazard

On the basis of a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded at a 10% probability in 50 years (California Geological Survey 2003; Cao et al. 2003), the probabilistic peak horizontal ground acceleration values for the proposed project area are 0.1g to 0.2g (where g equals the acceleration speed of gravity). This indicates that the ground-shaking hazard in the project area is low. Farther to the west, the ground-shaking hazard increases, coinciding with the increase in abundance of associated faults and fault complexes (California Geological Survey 2003; Cao et al. 2003).

Liquefaction and Related Hazards

Poorly consolidated, water-saturated fine sands and silts located within 50 feet of the surface are typically considered the most susceptible to liquefaction. Soils and sediments that are not water-saturated and that consist of coarser or finer materials are generally less susceptible to liquefaction (California Division of Mines and Geology 1997). Depth to groundwater in the vicinity of the project area is low, and the project area is underlaid mostly by somewhat fine sands. Even with the prevalence of silty sand deposits that underlie the project area, the susceptibility of soils and sediments to liquefaction is low because the ground-shaking hazard in the project area is low.

Two potential ground failure types associated with liquefaction are lateral spreading and differential settlement (Association of Bay Area Governments 2001). Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a nearly level surface toward a river channel or other open face. Lateral spreading is not a significant concern within the project area.

Another common hazard in the region is differential settlement, as soil compacts and consolidates to varying degrees after ground shaking ceases. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Settlement can range from 1% to 5%, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984). Differential settlement is not a significant concern within the project area.

Seiches

Seiches are earthquake-generated waves within enclosed or restricted bodies of water. The bodies of water most susceptible to seiches in or near West Sacramento are the Sacramento River, the Yolo and Sacramento Bypasses, and the Deep Water Ship Channel (City of West Sacramento Department of Community Development 1990a). The dangers of seiches during seismic events are limited to those periods during the flood season when the Yolo and Sacramento Bypasses and Sacramento River are full. Overtopping of levees during this period could cause a limited amount of flooding; however, the risk of this happening is greatly reduced by the very limited time in which the Sacramento River and Yolo and Sacramento Bypasses are at these stages.

Other Geologic Conditions

Land Subsidence

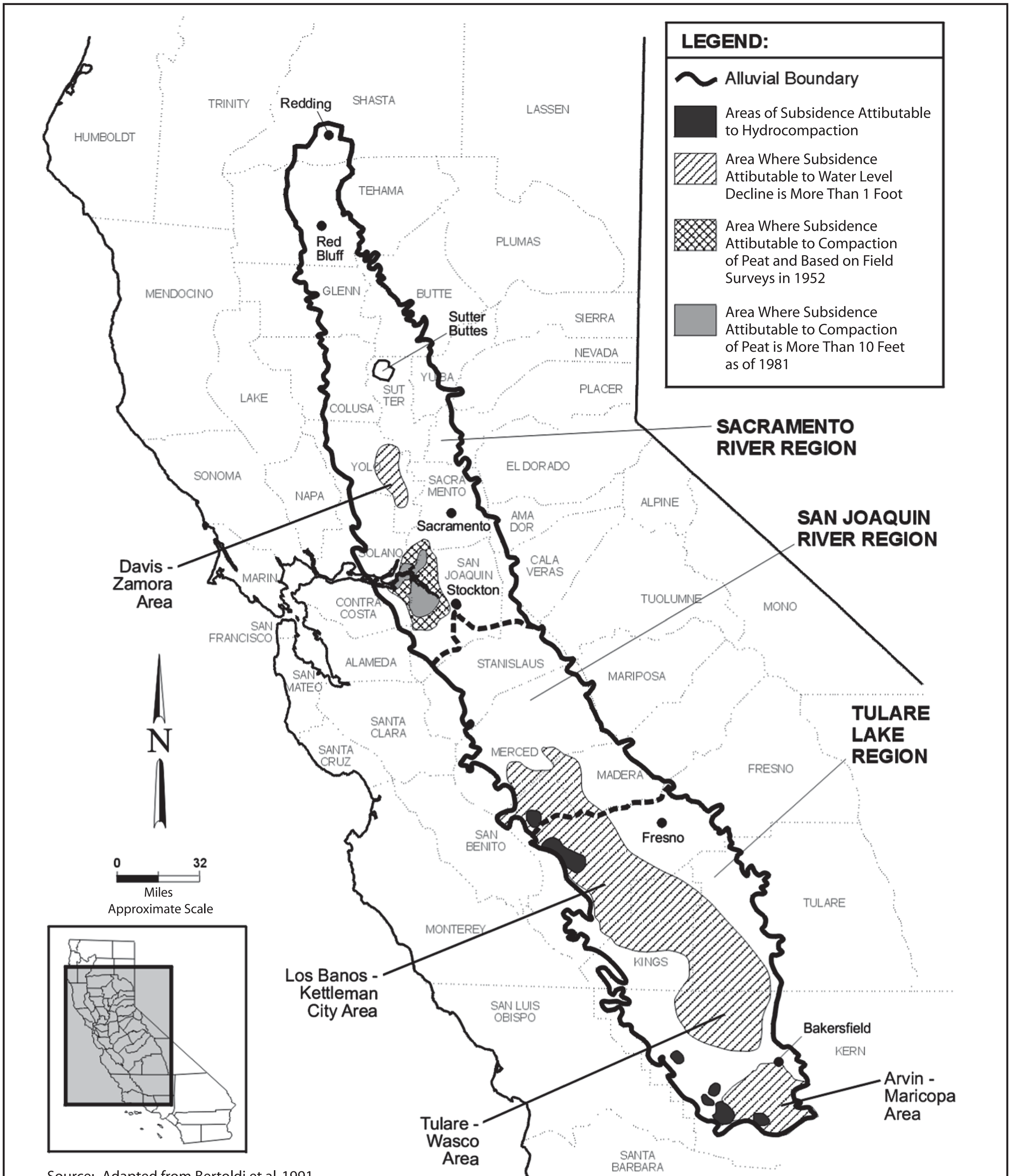
Historically, land subsidence has been a significant problem in the Sacramento-San Joaquin Delta and the southern half of the San Joaquin Valley. Subsidence occurs in three ways: as a result of compaction and oxidation of peat soils, hydrocompaction, and groundwater overdraft. According to Figure 3.6-1, the project area is not located in a portion of Yolo County that has experienced subsidence as a result of groundwater withdrawal. However, its proximity to such an area suggests it is possible for subsidence of this type to occur in the project area.

Volcanic Activity

Volcanic activity is not a concern within the project area because the nearest active volcanic region is located near Lassen Peak, approximately 200 miles to the northeast of the project area.

Landslides

Within the limits of ground disturbance of the project area, there is no risk of naturally occurring large landslides, since it is essentially flat and topographically featureless.



Source: Adapted from Bertoldi et al. 1991.

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Source: U.S.Fish and Wildlife Servcie, Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County 1999.

Jones & Stokes

Figure 3.6-1
Aerial Extent of Land Subsidence in the Central Valley as a Result of Declines in Groundwater Elevations

Regulatory Setting

Federal Regulations

Clean Water Act Section 402/National Pollutant Discharge Elimination System

The Clean Water Act is discussed in Sections 3.4, *Biological Resources*, and 3.8, *Hydrology and Water Quality*. Because federal Clean Water Act (CWA) Section 402 is directly relevant to excavation and grading, additional information is provided here. Amendments to the CWA in 1987 added Section 402p, which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge and Elimination System (NPDES) program. As described in Section VIII of the CWA, the U.S. Environmental Protection Agency (EPA) has delegated authority to the State Water Board for the NPDES program in California, which is implemented by the state's nine RWQCBs. Under the NPDES Phase II Rule, any construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Stormwater Discharges Associated with Construction Activity (General Permit). General Permit applicants are required to prepare a notice of intent and a stormwater pollution prevention plan (SWPPP) and implement and maintain BMPs to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC Section 2621 *et seq.*), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as active, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across faults is strictly regulated if they are sufficiently active and well defined. A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690 to 2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: The state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and geotechnical investigations have been carried out and measures to reduce potential damage incorporated into the development plans.

California Building Standards Code

The State of California’s minimum standards for structural design and construction are given in the California Building Standards Code (CBSC) (24 California Code of Regulations [CCR]). The CBSC is based on the UBC (International Code Council 1997), which is used widely throughout the United States (generally adopted on a state-by-state or district-by-district basis). For the CBSC, the UBC has been modified for California conditions with numerous, more detailed or more stringent regulations. The CBSC requires that “classification of the soil at each building site shall be determined when required by the building official” and that “the classification shall be based on observation and any necessary test of the materials disclosed by borings or excavations.” In addition, the CBSC states that “the soil classification and design-bearing capacity shall be shown on the (building) plans, unless the foundation conforms to specified requirements.” The CBSC provides standards for various aspects of construction, including excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance with California law, certain aspects of the Project would be required to comply with all provisions of the CBSC.

Local Regulations

Geotechnical Investigations

Local jurisdictions typically regulate construction activities through a multistage permitting process that may require a site-specific geotechnical investigation.

The purpose of the investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and previous history of excavation and fill placement; as appropriate, they may also address the requirements of the Alquist-Priolo Act, Seismic Hazards Mapping Act, and local regulations.

The City's relevant regulations can be found in the Municipal Code, Title 16, Section 16.28.050 (City of West Sacramento 2004b). Subdividers must submit a preliminary soil report to the city engineer before the submission of the final subdivision map. This report would be prepared by a civil engineer who is registered by the state, and it would be based on adequate test borings or excavations in the proposed project area. If the preliminary soil report indicates the presence of critically expansive soils or other soil problems that would lead to structural defects if not corrected, a soil investigation would be prepared by a civil engineer who is registered by the state. The soil investigation report would recommend corrective action that is likely to prevent structural damage to each building proposed to be constructed on the expansive soil.

A geotechnical report and a subsequent addendum to the report were completed for the project area (Wallace-Kuhl & Associates 2004 and 2005). All relevant recommendations from these reports have been incorporated into the "Impacts and Mitigation Measures" subheading of this section. However, there are some recommendations that have not been incorporated. These particular recommendations pertain to site clearing and preparation, organic removal, engineered fill placement, trench backfilling, foundation design, sound wall systems, interior floor slab support, exterior flatwork, pavement design, and site drainage.

Grading and Erosion Control Ordinances

Many counties and cities have grading and erosion control ordinances. These ordinances are intended to control erosion and sedimentation caused by construction activities. A grading permit is typically required for construction-related projects in West Sacramento. As part of the permit, the project applicant usually must submit a grading and erosion control plan, project vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include an extensive list of BMPs similar to those contained in a SWPPP.

The City's relevant regulations can be found in the Municipal Code, Title 15 (City of West Sacramento 2004b). Chapter 15.08 establishes standards and procedures for grading and excavation to minimize hazards to life and limb, protect against erosion, maintain the natural environment, and protect the safety, use, and stability of public rights-of-way and drainage channels. It ensures that projects approved under this chapter would be free from harmful effects of runoff, including inundation and erosion, and that neighboring and downstream properties would be protected from drainage problems resulting from new developments. It also ensures proper restoration of vegetation and soil systems disturbed by grading or fill activities authorized under this chapter. It is intended through this chapter to maintain an attractive and healthy landscape and control against dust and erosion and their consequent effects on soil structure and water quality.

City of West Sacramento General Plan

Goals and policies contained in the City of West Sacramento General Plan that are applicable to the proposed Project are as follows:

Health and Safety

Goal A: To prevent loss of life, injury, and property damage due to geologic and seismic hazards.

Policy:

1. The City shall require preparation of geotechnical reports and impose appropriate mitigation measures to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction.
2. Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces.
5. The City shall require post-earthquake building replacement, reconstruction, and rehabilitation to conform to the latest City code requirements.

Goal C: To prevent loss of life, injury, and property damage due to wildland, cropland, and structural fires, explosions and release of hazardous materials.

Policy:

4. All new development shall be constructed according to fire safety and structural stability standards contained in the latest adopted Uniform Fire and Building Codes and related high-rise regulations.

Southport Framework Plan

The Southport Framework Plan identified a need for site-specific geotechnical studies for specific projects, including addressing the issue of expansive soils. The Southport Framework Plan EIR (Willdan Associates 1994) required such studies and compliance with the recommendation of such studies as mitigation that would reduce identified project-level and cumulative impacts related to soils and geologic hazards to less-than-significant impacts. These studies have been performed and are discussed in this section of the EIR.

Impact Analysis

This section describes the impact analysis relating to geology, soils, and seismicity for the Project. It describes the methods and thresholds used to determine the Project's impacts and their level of significance. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methods

Impacts on geology, soils, and seismicity were assessed based on professional judgment. Construction and operation activities could result in direct and indirect impacts on geology, soils, and seismicity caused by ground disturbance or vegetation clearing as part of project construction and/or as a result of project operations.

Analysis focused on the proposed Project's potential to increase the risk of personal injury, loss of life, and damage to property as a result of existing geologic conditions in the project area. This impact analysis assumes that the project applicant would conform to the latest CBSC standards, city standards, and NPDES requirements.

Thresholds of Significance

Criteria for determining the significance of impacts related to geology, soils, and seismicity were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*). An impact related to geology, soils, and seismicity was considered significant if it would:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42,
    - strong seismic ground shaking,
    - seismic-related ground failure, including liquefaction,
    - landslides;
- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse;
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater;

- result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Impacts and Mitigation Measures

Impact GEO-1: Potential Structural Damage and Injury from Fault Rupture (Less than Significant)

The project area is located in a region of California that is characterized by low seismic activity. The project area is not subject to significant seismic hazards associated with active faults. Furthermore, construction of new facilities and structures would be constructed using the current CBSC standards, which establish requirements for the seismic and structural safety of all structures. The site is flat and does not have potential for landslides. Finally, project activities would cause no change in current conditions with respect to surface rupture or faulting hazards. **This impact would be less than significant. No mitigation is required.**

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking (Less than Significant)

A large earthquake on a nearby fault could cause minor ground shaking in the project area, potentially resulting in liquefaction and associated ground failure, such as lateral spreading or differential settlement, in some areas, which could in turn increase the risk of structural loss, injury, or death. However, the ground-shaking hazard in the project area is low. Furthermore, as part of the design process described above, construction of new facilities and structures would be constructed according to the current CBSC standards, which establish requirements for the seismic and structural safety of all structures. Finally, project activities would cause no change in current conditions with respect to ground shaking or associated hazards. **This impact would be less than significant. No mitigation is required.**

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction (Less than Significant)

Depth to groundwater in the vicinity of the project area is low, and the project area is partially underlaid by somewhat poorly consolidated, water-saturated fine sands and silts. Project activities may be located in some areas that may be susceptible to liquefaction. Soils and underlying geologic materials that are susceptible to liquefaction could increase the risk of structural loss, injury, or death. However, because the ground-shaking hazard in the project area is low, the susceptibility of soils and sediments to liquefaction is low. **This impact would be less than significant. No mitigation is required.**

Impact GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities (Less than Significant)

Grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase erosion and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas.

However, a SWPPP would be developed by a qualified engineer or erosion control specialist and implemented before construction. The SWPPP would be kept onsite during construction activity and would be made available upon request to representatives of the RWQCB. The objectives of the SWPPP would be to 1) identify pollutant sources that may affect the quality of stormwater associated with construction activity and 2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. Therefore, the SWPPP would include a description of potential pollutants, management of dredged sediments, and hazardous materials present on-site during construction (including vehicle and equipment fuels). The SWPPP would also include details of how the sediment and erosion control practices, referred to as BMPs, would be implemented. Implementation of the SWPPP would comply with state and federal water quality regulations.

BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other nonpoint-source runoff. Measures range from source control, such as reduced surface disturbance, to treatment of polluted runoff, such as detention or retention basins. BMPs to be implemented as part of the Stormwater Management Program and General Permit may include, but are not limited to, the following measures.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) would be employed to control erosion from disturbed areas.
- Drainage facilities in downstream offsite areas would be protected from sediment using BMPs acceptable to the RWQCB.
- Grass or other vegetative cover would be established on the construction site as soon as possible after disturbance. At a minimum, vegetative application would be completed by September 15 to allow plants to establish. No disturbed surfaces would be left without erosion control measures in place between October 15 and April 15.

Final selection of BMPs would be subject to approval by the RWQCB. The city would verify that an NOI filed with the State Water Board and a SWPPP have been developed before allowing construction to begin. The city would perform inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The city would notify contractors immediately if there is a noncompliance issue and would require compliance.

Furthermore, compliance with Title 15 of the municipal code would minimize any negative effects associated with erosion and sedimentation.

Finally, recommendations from the Wallace-Kuhl & Associates 2004 and 2005 reports pertaining to site clearing and preparation, organic removal, engineered fill placement, trench backfilling, foundation design, sound wall systems, interior floor slab support, exterior flatwork, pavement design, and site drainage would also minimize any negative effects associated with erosion and sedimentation. **This impact would be less than significant. No mitigation is required.**

Impact GEO-5: Potential Structural Damage and Injury from Development on Expansive Soils (Less than Significant with Mitigation Incorporated)

Moderate to high shrink-swell potential (i.e., soil expansiveness) exists in the project area. If construction activities are conducted in areas with expansive and/or weak soils, structural damage could occur. Expansive soils could cause a risk for postconstruction heave and cracking of concrete slabs, as well as lightly loaded foundations and pavements.

The preliminary soil report required in conjunction with filing of a final subdivision map under Title 16 of the municipal code (Wallace-Kuhl & Associates 2004 and 2005 reports) indicates the presence of critically expansive soils that would lead to structural defects if not corrected. The Wallace-Kuhl & Associates 2004 and 2005 reports recommend that the clay soils not be utilized within the upper 2 feet of finish pad grade. Furthermore, these reports recommend special preparation during site grading along with deepened foundations, presaturation of soil subgrades prior to floor slab placement, and reinforcement of floor slabs. These corrective actions are likely to prevent structural damage to each building proposed to be constructed on the expansive soil. The project applicant or its contractor would select one or more of these measures in consultation with a qualified engineer and the city engineer before activities begin. **This impact would be potentially significant, but implementation of Mitigation Measure GEO-5 would reduce this impact to a less-than-significant level.**

Mitigation Measure GEO-5: Implement the Corrective Actions Identified as Part of the Wallace-Kuhl & Associates 2004 and 2005 Reports

The project applicant will implement special engineering techniques, which may include using reinforced steel in foundations, using drainage control devices, and/or overexcavating and backfilling with nonexpansive soil during construction activities to minimize the risk of structural loss, injury, or death. Proposed areas of development could also be supported on posttensioned slab foundations designed to resist and/or span the expansive soil. The project applicant or its contractor will select one or more of these measures in consultation with a qualified engineer and the city engineer before activities begin.

Impact GEO-6: Construction on Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems (No Impact)

The Project does not propose the use of septic tanks or alternative wastewater disposal systems. The Project would be connected to the city’s wastewater system. **There would therefore be no impact related to septic tanks or alternative wastewater disposal systems. No mitigation is required.**

Impact GEO-7: Loss of Availability of a Known Mineral Resource or a Locally Important Mineral Resource Recovery Site (Less than Significant)

As discussed in the “Environmental Setting” subheading of this section, no known significant mineral resources occur on the project site. **This impact would be less than significant. No mitigation is required.**

Section 3.7

Hazards and Hazardous Materials

Introduction

This section describes the environmental setting for hazards and hazardous materials, the impacts related to hazards and/or hazardous materials that would result from the Project, and the mitigation measures that would reduce these impacts. Activities to development the Water Related Commercial area would be expected to result in impacts generally similar to those that are described for the Project in this section.

Environmental Setting

This section discusses the existing conditions related to hazardous materials in the project area. Federal, state, and local regulations related to hazards and hazardous materials that would apply to the Project are discussed below.

Existing Conditions

Information regarding the present condition of the site was largely acquired from the Phase I Environmental Site Assessments prepared for the project site by ENGEO, Inc. between August 2002 and September 2004. These reports were prepared on behalf of the project applicant. The conclusions of these reports are summarized below.

Phase I Environmental Site Assessments

The objectives of the Phase I Environmental Site Assessments were to evaluate existing or potential environmental impacts at or near the project site. The environmental site assessments consisted of, but were not limited to, a visual inspection of the project site and surrounding properties, a review of available regulatory agency records and permits, aerial photographs, and interviews with persons knowledgeable of the subject site.

The project site is currently in use for agricultural production and grazing land. Existing structures include a small number of single-family residences and agriculture-related buildings. Some of these buildings serve as storage areas for agricultural equipment and chemicals, including mechanical lubricants, waste oil, and pesticides. A survey of the site also observed the storage of battery packs and several areas in which petrochemicals had spilled, causing surface soil stains.

Historically, portions of the site have been used for the cultivation of various crops, including safflower, corn, alfalfa, tomatoes, and wheat. The area was assumed to have been treated with pesticides during the period of cultivation, most notably treflan and parathion, both of which have extremely long half-lives and are highly immobile in soil. It is assumed that the surface soils may still be contaminated with these substances.

Given the relative age of the buildings at the site, it is possible that lead-based paints and/or asbestos may have been used in their construction (ENGEO 2003, 2004b).

Regulatory Setting

A hazardous material is defined by the California Department of Toxic Substances Control (DTSC) as a material that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 CCR 25501). Hazardous materials that would be used during construction activities for the Project include diesel fuel and other liquids in construction equipment. Applicable hazardous-material regulations and policies are summarized below.

Federal Regulations

The EPA is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. Two key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in 29, 40, and 49 CFR.

Resources Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) enables EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thereby regulating the generation, transport, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

The Comprehensive Environmental Response, Compensation, and Liability Act and Superfund Amendment and Reauthorization Act Title III

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, Superfund was amended by the Superfund Amendment and Reauthorization Act Title III, also called the Emergency Planning and Community Right-to-Know Act, which states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup even if the material was dumped illegally when the property was under different ownership. These regulations also establish reporting requirements that provide the public with important information on hazardous chemicals in their communities to enhance community awareness of chemical hazards and facilitate development of state and local emergency response plans.

State Regulations

California regulations generally are regarded as equal to or more stringent than federal regulations. The EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to, but more stringent than, the federal RCRA program. The act is implemented by regulations contained in 26 CCR, which describes the following required aspects for the proper management of hazardous waste:

identification and classification; generation and transport; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under this act and 26 CCR, a generator of hazardous waste must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including EPA, California Highway Patrol, RWQCBs, air quality management districts, and county disaster response offices.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents would be subject to monitoring and personal safety equipment requirements established in Title 8 of the California Occupational Safety and Health Administration (Cal-OSHA) regulations. The primary intent of the Title 8 requirements is to protect workers, but compliance with some of these regulations would also reduce potential hazards to nonconstruction workers and project area occupants because required controls related to site monitoring, reporting, and other activities would be in place.

California Education Code

Sections 17210-17224 of the California Education Code (Title 1, Division 1, Article 1, Part 10.5, Section 17210-17224) require that the governing board of a school district not approve a project involving the acquisition of a school site if potential hazards may exist on the site or in areas surrounding the site that could present a risk to students and employees of the school, unless these hazards can be removed or remediated to acceptable levels.

Polychlorinated Biphenyl Regulations and Requirements

In the past, oil containing polychlorinated biphenyl (PCBs) were used in electrical equipment, such as transformers and light ballasts, as a dielectric insulating fluid for heat dissipation. Manufacture of PCBs was banned in 1976; therefore, equipment manufactured after this time should not contain PCBs. EPA requires that insulating oils containing PCBs at concentrations greater than 50 milligrams per liter be disposed of properly by a California-licensed hazardous waste hauler.

At the time of the Phase I Environmental Site Assessments, several mounted transformers were observed on site, but no evidence was found that they contained PCBs. (ENGEO 2003, 2004a–c)

Pesticides

Major federal and state regulations that address control of pesticides are listed below.

- Federal Insecticide, Fungicide, and Rodenticide Act.
- Pesticide Contamination Prevention Act.
- Birth Defects Prevention Act.

Other regulations govern pesticide registration, application, use, permitting, monitoring, storage, transportation, and disposal.

Other Laws, Regulations, and Programs

Various other state regulations have been enacted that affect hazardous waste management, including those listed below.

- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires labeling of substances known or suspected by the state to cause cancer.
- California Government Code Section 65962.5, which requires the Office of Permit Assistance to compile a list of possible contaminated sites in the state.
- State and federal regulations that require hazardous materials sites to be identified and listed in public records. These lists include sites that have been identified through the following regulatory processes:
  - ❑ Comprehensive Environmental Response, Compensation, and Liability Information System.
  - ❑ National Priorities List for Uncontrolled Hazardous Waste Sites.
  - ❑ Resource Conservation and Recovery Act.
  - ❑ California Superfund List of Active Annual Workplan Sites.

- ☐ Lists of state-registered underground and leaking underground storage tanks.

Underground Storage Tanks

Federal regulations related to underground storage tanks (USTs) require that the owners and operators of USTs be registered with the EPA or delegated agencies. Regulations also require installation of leak detection systems, periodic upgrading of these tanks, and specification of tank removal and testing procedures.

State laws related to USTs include permitting, monitoring, closure, and cleanup requirements. The RWQCB implements these regulations by deferring to local agencies (e.g., Yolo County Health Department, Environmental Health Division) for permitting and inspection duties.

The environmental site assessments concluded that no evidence of existing or former USTs was observed at the project site. (ENGEO 2003, 2004a–c.)

Local Regulations

City of West Sacramento General Plan

The general plan for the City of West Sacramento identifies known locations of hazardous materials throughout the city, based on the emergency service response area. The project site lies within the Southport area, where the City has identified the hazardous materials risks as pesticide storage on agricultural lands and a petroleum pipeline that runs through the area (City of West Sacramento Department of Community Development 1990a). Interviews conducted during the course of the environmental site assessments confirmed the pipeline routinely carries gasoline, diesel, and jet fuel through the area, but no leaks have been reported near the project site (ENGEO 2002).

While the project site is governed by the City of West Sacramento General Plan, the City has also adopted the Southport Framework Plan, which deals specifically with the area south of the Deep Water Ship Channel. The Southport Framework Plan is described briefly below.

Southport Framework Plan

The Southport Framework Plan, first adopted by the City of West Sacramento in 1995, designates the Southport area for large-scale residential development. The Plan divides the area into four Villages, each of which provides residents with a central urban core in which to shop, work, and have access to regional transit. This core is surrounded by varying densities of residential development. The project site is located in the Southeast Village as outlined in the Southport

Framework Plan (City of West Sacramento Department of Community Development 1995).

Yolo County

The Yolo County Health Department, Environmental Health Division (EHD) regulates the use, storage, and disposal of hazardous substances by issuing permits, monitoring regulatory compliance, and performing other enforcement activities. The goals and policies for hazardous substance management, including transportation, storage, and disposal, are reflected in the Yolo County Hazardous Waste Management Plan.

Impact Analysis

This section describes the impact analysis relating to hazardous materials for the Project. It describes the methods used to determine the Project's impacts and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methods

Potential impacts related to hazards or hazardous materials that may result from the construction and/or operation of the Project are considered at a project level, and specific mitigation measures to avoid, minimize, or compensate for potentially significant impacts are described immediately following each impact discussion, as necessary.

Thresholds of Significance

Criteria for determining the significance of impacts related to hazardous materials were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*) and City thresholds of significance. An impact related to hazardous materials was considered significant if it would:

- create a potential public health hazard;
- involve the use, production, or disposal of materials that pose a hazard to people, animal, or plant populations in the area affected;
- interfere with emergency response plans or emergency evacuation plans;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

Impacts and Mitigation Measures

Impact HAZ-1: Create a Potential Public Health Hazard during Construction (Less than Significant with Mitigation Incorporated)

This impact discussion assesses impacts resulting from the construction of the proposed Project, which includes grading, site preparation, and construction.

Construction of the proposed Project could create a significant hazard to workers, the public, or the environment through the transport, use, or disposal of hazardous materials. Small quantities of potentially toxic substances (such as diesel fuel and hydraulic fluids) would be used at the project site and transported to and from the site during construction. Accidental releases of small quantities of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. Because of the relatively small volumes of materials on site and the limited duration of construction, the potential for release and exposure is limited. However, in the event of a release, the impact would be considered significant. Therefore, this impact is considered potentially significant. **Implementation of Mitigation Measure HAZ-1 would reduce this impact to less-than-significant levels.**

Mitigation Measure HAZ-1: Measures to Minimize Exposure of People and the Environment to Potentially Hazardous Materials

To minimize the exposure of people and the environment to potentially hazardous materials, the following measures will be included in the construction specifications and project performance specifications, based on the City’s standard requirements that construction specifications include descriptions of the SWPPP, dust control measures, and traffic mobilization.

Standard Construction Specifications

a. If contaminated soil and/or groundwater are encountered during project construction, work will be halted in the area, and the type and extent of the contamination will be identified. A qualified professional, in consultation with the appropriate federal, state, and/or local regulatory agencies will then develop an appropriate method to remediate the contamination. If necessary, a remediation plan in conjunction with continued project construction will be implemented.

b. Hazardous or contaminated materials may only be removed from the project site in accordance with the following provisions:

   1) All work is to be completed in accordance with the following regulations and requirements:

      - Chapter 6.5, Division 20, California Health and Safety Code.

- California Administration Code, Title 22, relating to Handling, Storage and Treatment of Hazardous Materials.
- Title 15 of the City of West Sacramento Municipal Code, Building and Construction.
- The Uniform Building Code, 1997 edition.

2) Coordination will be made with the Yolo County Public Health Department (YCPHD) Environmental Health Division, and the necessary applications will be filed.

3) All hazardous materials will be disposed of at an approved disposal site and will only be hauled by a current California registered hazardous waste hauler using correct manifesting procedures and vehicles displaying a current Certificate of Compliance. The Contractor will identify by name and address the site where toxic substances are to be taken for disposal. No payment for removal and disposal services will be made without a valid certificate from the approved disposal site that the material was delivered.

c. None of the aforementioned provisions will be construed to relieve the Contractor from the Contractor's responsibility for the health and safety of all persons (including employees) and from the protection of property during the performance of the work. This requirement will be applied continuously and not be limited to normal working hours.

Construction-Related Hazardous Materials Involvement

a. The project applicant will ensure, through the enforcement of contractual obligations, that all contractors transport, store, and handle construction related hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the U.S. Department of Transportation, the YCPHD, RWQCB, and the West Sacramento Fire Department. The project applicant will also ensure all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by any regulatory agency, contaminated media will be collected and disposed of at an offsite facility approved to accept such media. In addition, all precautions required by the RWQCB-issued NPDES construction activity storm water permits will be taken to ensure that no hazardous materials enter any storm drains or nearby waterways, which will reduce any potential impacts to less than significant.

Impact HAZ-2: Create a Potential Public Health Hazard during Operation (Less than Significant with Mitigation Incorporated)

This impact discussion assesses impacts resulting from day-to-day operations and maintenance of the proposed Project once completed.

Upon buildout, the proposed Project will include approximately 2,788 residential units of varying densities, a 40-acre regional park, WRC, and neighborhood commercial uses, including mixed-use development. None of the mixed uses includes industrial uses, but the Water Related Commercial area may include a marina, which would require the handling and transport of marine fuels on a regular basis, the accidental release of which could contaminate the river and surrounding parkland. Under normal operating scenarios, there is limited threat of exposure to hazardous materials. However, in the event of an accidental release, the impact on the environment could be significant. This impact is considered potentially significant. **Implementation of Mitigation Measure HAZ-1, described above, would reduce this impact to less-than-significant levels. No additional mitigation is necessary**.

Impact HAZ-3: Involve the Use, Production, or Disposal of Materials during Construction that Pose a Hazard to People, Animal, or Plant Populations in the Area Affected (Less than Significant with Mitigation Incorporated)

This impact discussion assesses impacts resulting from the construction of the proposed Project, which includes grading, site preparation, and construction.

Construction of the proposed Project could create a significant hazard to workers, the public, or the environment (e.g., animal or plant populations) through the use, production, or disposal of hazardous materials. Small quantities of potentially toxic substances (such as diesel fuel and hydraulic fluids) would be used and disposed of at the project site and transported to and from the site during construction. Accidental releases of small quantities of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. This impact is considered significant. **Implementation of Mitigation Measure HAZ-1, described above, would reduce this impact to less-than-significant levels. No additional mitigation is necessary.**

Impact HAZ-4: Involve the Use, Production, or Disposal of Materials during Operation that Pose a Hazard to People, Animal, or Plant Populations in the Area Affected (Less than Significant with Mitigation Incorporated)

This impact discussion assesses impacts resulting from day-to-day operations and maintenance of the proposed Project once completed.

Upon buildout, the proposed Project will include approximately 2,788 residential units of varying densities, a 40-acre regional park, WRC, and neighborhood commercial uses, including mixed-use development. None of the mixed uses includes industrial uses, but the Water Related Commercial area tentatively includes a marina, which would require the handling and transport of marine fuels on a regular basis, the accidental release of which could contaminate the river and surrounding parkland. **This impact is considered significant. Implementation of Mitigation Measure HAZ-1, described above, would reduce this impact to less-than-significant levels. No additional mitigation is necessary.**

Impact HAZ-5: Interfere with Emergency Response Plans or Emergency Evacuation Plans (Less than Significant with Mitigation Incorporated)

Emergency access to and in the vicinity of the project site potentially could be affected by lane closures, detours, and construction-related traffic. This impact is potentially significant. **Implementation of Mitigation Measure HAZ-5 would ensure that potential impacts are less than significant.**

Mitigation Measure HAZ-5: Development and Implementation of a Construction Traffic Control Plan

The construction contractor, in coordination with the City, will prepare a traffic control plan during the final stage of project design. The purpose of the plan is to:

- reduce, to the extent feasible, the number of vehicles (construction and other) on the roadways adjacent to the Project;
- reduce, to the extent feasible, the interaction between construction equipment and other vehicles;
- promote public safety through actions aimed at driver and road safety; and
- ensure safety for bicyclists and pedestrians throughout the study area.

The plan will include the following measures or the equivalent, as approved by the City.

- Provide through access for emergency vehicles at all times.

- Avoid use of local residential streets to the extent feasible.
- Maintain access for driveways and private roads. During nonworking hours, no driveway, house, or parking lot will be denied access to a public roadway.
- Maintain pedestrian and bicycle access and circulation during construction.
- Identify roadway segments or intersections that are at or approaching a level of service (LOS) that exceeds local standards. Provide a plan to enable construction-generated traffic to avoid these locations at peak periods to the greatest extent possible, either by traveling different routes or by traveling at non-peak times.
- Provide adequate parking for construction trucks and equipment in the designated staging areas throughout the construction period.
- Provide adequate parking for construction workers in the designated staging areas.
- Restrict delivery of construction materials to the hours between 9:00 a.m. and 3:00 p.m. to avoid more congested morning and evening hours.
- Include flag persons wearing bright orange or red vests and using a *Slow/Stop* paddle as traffic controls on busy arterials and collectors.
- Coordinate with local transit providers regarding expected traffic disruptions along bus routes. Provide adequate lead time so transit providers can develop temporary service changes and provide notice of changes to the public.
- Post construction warning signs in accordance with local standards or those set forth in the Federal Highway Administration’s (FHWA’s) *Manual on Uniform Traffic Control Devices* (2003) at entry points along the perimeter of the construction area and at any intersection that provides access to the construction area.
- Notify local emergency service providers in advance of any lane closures, so that they may determine alternative evacuation and emergency routes to maintain response times during construction periods.
- Notify contractors in writing regarding appropriate routes to and from construction sites, and regarding weight and speed limits for local roads used to access construction sites.
- Post a sign at the construction site showing the name and telephone number or email address of the City staff member to contact with complaints regarding construction traffic.

The construction traffic control plan will be included in the construction specifications, implemented by the construction contractor during all construction phases.

Impact HAZ-6: Located on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5 (Less than Significant with Mitigation Incorporated)

Several environmental site assessments were conducted of the various properties in the project area in order to determine their potential to contain hazardous materials that could possibly cause harm to future residents or result in environmental damage. According to a records search and site observations, the River Park site does not appear to be listed as a *contaminated* or *potentially contaminated* site in any local, state, or federal database, and there are no National Priorities List (NPL) sites within the project site (ENGEO 2002, 2003, 2004a–d).

The environmental site assessments identified several small areas of surface soil staining attributable to petrochemical spillage at several locations, and quantities of agricultural pesticides were observed to be stored on site. In addition, the environmental site assessments suggested that the pesticides treflan and parathion that were sprayed over the property in the past still have the potential to be present in the soil. The environmental site assessments recommended that soil samples be taken to determine the existence and/or extent of the contamination. The presence of toxic chemicals and contaminated soils may result in a health and safety risk to future residents and the environment.

In addition to the recommendations contained in the environmental site assessments, the DTSC issued a comment in response to the NOP for the Project, stating their strong recommendation that samples be taken of surface soils on the project site to ascertain the presence of persistent toxins (see Appendix A). Although the project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to government code section 65962.5, **implementation of Mitigation Measure HAZ-6 would ensure that potential impacts are less than significant**.

Mitigation Measure HAZ-6: Comply with Environmental Recommendations Contained within Phase I Environmental Site Assessments

Prior to construction activities, including grading, the City will require the applicant to comply with recommendations for testing, remediation, and disposal set forth in the environmental site assessments conducted by ENGEO, Inc (ENGEO 2002, 2003, 2004a–d). This compliance will include, but not be limited to:

- conducting surface soil sampling and testing to determine the presence of pesticides,
- collection and disposal of soil stained by petrochemicals, and
- collection and disposal of various forms of debris found on the site.

Section 3.8
Hydrology and Water Quality

Introduction

This section describes the environmental setting and potential impacts with respect to water resources, including surface and groundwater hydrology, drainage, flooding, water quality, and water supply, and mitigation measures that would reduce any potentially significant impacts.

Environmental Setting

This section discusses the existing conditions in the Project area. Federal, state, and local regulations related to hydrology and water quality that would apply to the Project are discussed in the regulatory setting below.

Surface Water

Hydrology

The major surface water feature in the project area is the Sacramento River, adjacent to the south and east boundaries of the project area. The total length of the Sacramento River is approximately 327 miles. Its drainage area encompasses 27,200 square miles, extending from the Coast Range to the west, the Cascade and Klamath Ranges on the north, and the Sierra Nevada on the east (California Department of Water Resources 2003). The Sacramento River Deep Water Ship Channel is located to the north and west of the Project and runs south to the Delta. In addition, the project site contains several ditches currently used to convey irrigation water supply, irrigation return flows, and stormwater drainage.

Water management operations of the Central Valley Project (CVP) dams, operated by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), primarily are responsible for determining flow levels in the river. Lake Shasta upstream of the project area is the largest storage reservoir in the CVP, with a usable capacity of 4.4 million acre-feet (maf). This river and other flood control facilities located on the upper river and its tributaries attenuate high flows in the mainstem of the Sacramento River. As a result, the smaller tributaries (which are unregulated or have limited storage capacity) contribute a substantial portion of the seasonally high flows. Base flow levels in the Sacramento River are controlled by releases from Shasta Dam and, to a lesser extent, from Oroville Dam on the Feather River. These releases are adjusted to meet downstream requirements for water supply, Delta water quality, fish and wildlife habitat maintenance, flood control, and other beneficial uses in accordance with numerous legal and regulatory requirements.

Water Quality

Water management operations at Shasta Dam and other flow-regulating facilities substantially influence the flow regime of the Sacramento River. Water quality dynamics are also influenced by operation of these flow-regulating facilities, as well as point- and nonpoint-source discharges to the Sacramento River upstream of the project area. The water quality of the Sacramento River near the Project is generally good to excellent, with relatively cool water temperatures, low biochemical oxygen demand (BOD), medium to high dissolved oxygen (DO), and low mineral and nutrient content.

The Sacramento River receives agricultural drainage that fluctuates seasonally; contains elevated levels of pesticide, herbicide, and fertilizer residues; and contains increased levels of sediment. Trace metal and synthetic organic compounds, some of which are potentially toxic, are found in sediments and fish tissues throughout the mainstem of the river. Sources of these pollutants include historical and current practices, such as abandoned mining sites and industrial and municipal point-source discharges; and various non-point-source discharges, such as urban runoff and agricultural drainage return flows.

The federal Clean Water Act (CWA) Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards, requiring the states to identify streams in which water quality is *impaired* (affected by the presence of pollutants or contaminants) and to establish the TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects. The 303(d) list breaks up the Sacramento River into four sections, Keswick Dam to Cottonwood Creek, Cottonwood Creek to Red Bluff, Red Bluff to Knights Landing, and Knights Landing to the Delta, with the Project being located in the final stretch. All sections of the Sacramento River are listed on the 303(d) list for unknown toxicity, and Knights Landing to the Delta is also listed for diazinon and mercury. Mercury is primarily a legacy of gold mining, and diazinon, a pesticide, is primarily from agricultural return flows and urban application, although urban use of diazinon is expected to be on the decline as the nonagricultural unrestricted use of diazinon has been phased out by the EPA.

No data are available regarding the water quality of the irrigation ditches on the project site, although such water bodies typically would be influenced by the surrounding land use, agriculture, which, as identified above, can contribute pesticide, herbicide, and fertilizer residues.

Groundwater

Hydrogeology

The Project is located in the Yolo Subbasin of the Sacramento Valley Groundwater Basin. The Yolo Subbasin is bounded on the east by the Sacramento River, on the west by the Coast Range, on the north by Cache Creek, and on the south by Putah Creek (California Department of Water Resources 2004). A geologic structure dominated by an anticlinal ridge impedes subsurface flow from west to east (California Department of Water Resources 2004). In addition, subsurface groundwater outflow sometimes occurs from the Yolo Subbasin south to the Solano Subbasin. Groundwater levels are affected by periods of drought attributable to increased pumping and less surface water recharge compared to historical conditions.

Throughout the Yolo Subbasin, groundwater depths are between 20 and 420 feet, and storage capacity is estimated at roughly 6.5 maf. In the project area, groundwater is generally shallow (between 0 and 10 feet below ground surface) and strongly influenced by water levels in the nearby Sacramento River.

Groundwater Quality

Groundwater in the Yolo Subbasin is characterized as a sodium magnesium, calcium magnesium, or magnesium bicarbonate type. The groundwater quality is considered good for both agriculture and municipal uses despite its elevated hardness (California Department of Water Resources 2004). Total dissolved solids (TDS) range from 107 ppm to 1,300 ppm and average 574 ppm based on Title 22 data obtained from public supply water samples (California Department of Water Resources 2004).

Flooding

Flood protection on the Sacramento River is generally provided by reservoirs and levees. The major reservoirs on the Sacramento River and its tributaries that provide substantial flood protection are Lake Shasta and Folsom Lake. Onsite drainage from the agricultural lands in the project area flows into local agricultural ditches that empty into the Sacramento River.

To provide 100-year flood protection, the Federal Emergency Management Agency (FEMA) requires levees to have at least 3 feet of freeboard, which is the vertical distance between the water level and the top of the levee. According to Flood Insurance Rate Maps (FIRM) the entire Project is outside the 100-year floodplain as a result of the surrounding levees along the Sacramento River but is considered to be within the 500-year flood inundation area and could be subject to more frequent flooding in the event of levee or upstream dam failure (Flood Insurance Rate Maps 2005). Because the levees surrounding the project area were built in the 1920s, levee failure on the Sacramento River is of particular concern. In addition to surface erosion, levees are vulnerable to two kinds of seepage risks. The first is through-levee seepage. Because many segments of the Sacramento River mainstem levee system were constructed using relatively porous hydraulic mining sediments borrowed from the river channel, some of the levees on the Sacramento River have a propensity to seep when subjected to prolonged high water surface elevations such as occurred during the floods of 1986 and 1997. A second kind of seepage risk is levee under-seepage. Because the mainstem levees are constructed on high berms relatively close to the river channel, the hydraulic energy of the river can exert itself against the sandy alluvial soil layers that lie beneath the levees. During high flows, this energy is sometimes strong enough to push water through these layers in volumes great enough to create a sustained flow to the surface, an uplift force capable of fracturing the soil mantle on the landside of the levee. This fracture is referred to as a boil. Such boils are not uncommon in major flood events.

Water Supply

The City provides water service for the entire area within the city limits north of the Deepwater Ship Channel and the Port of Sacramento, and the developed areas in the Northeast and Northwest Villages of the Southport area. The Project site is not currently served by City water. The capacity of the Bryte Bend Water Treatment Plant (BBWTP) is approximately 60 million gallons per day (mgd).

As described in Appendix G, in the past the City used groundwater as its sole source of supply and still has wells with a pumping capacity of about 5.6 mgd. The wells are not in good operating condition, and the quality of water they produce is poor. Use of groundwater in the city thus involves the need to treat the water to remove iron, manganese, methane, and probably arsenic. Treatment, however, does not reduce the dissolved solids concentration that affects taste. Rehabilitation of these wells, and integration of wellhead treatment units and emergency power supplies to make the wells available during power outages, could be costly compared on a lifecycle cost basis to providing equivalent treated water storage capacity. This resource, therefore, does not provide the city with a highly reliable supply option.

As indicated in the City’s Water Master Plan Update 2005, the City intends to deactivate its existing groundwater sources. On this basis, the 2005 Urban Water Management Plan (UWMP) assumes that groundwater is not available as a source of future water supply. Consistent with the UWMP, for the purposes of this water supply assessment (WSA), it is assumed that groundwater would not be a source of water supply for the city. Groundwater wells are now considered solely an emergency supply.

Water supplies to the city are obtained from three sources:

- The City holds an appropriative right for diversion of surface water from the Sacramento River.
- The City holds a contract with Reclamation for CVP water.

- The majority of the city, including the Project, is within the boundaries of the North Delta Water Agency (NDWA) service area.

The City's surface water supply facilities include the 58-mgd BBWTP.

Appropriative Water Right

The City has an appropriative right for diversion of surface water from the Sacramento River. Permit number 18150, issued by the State Water Board under this right, allows the City to divert up to 18,350 acre-feet per year (afy) of water from the Sacramento River at the BBWTP intake structure. This permit was issued in 1981 and limits the diversion of water to the periods of January 1 through June 30 and September 1 through December 31 of each year, with a maximum rate of diversion for municipal use limited to 62 cubic feet per second (cfs), about 40 mgd. Under this permit the City does not have the right to divert water during the high demand months of July and August.

U.S. Department of the Interior, Bureau of Reclamation

To obtain water during the summer months, the City has entered into a 40-year agreement with Reclamation. This contract authorizes the City to divert from the Sacramento River a specified amount of water supply created by the CVP. The City can divert up to 23,600 afy from the Sacramento River of combined appropriative right water and CVP water. The total diversion amount is equivalent to an average diversion of 21.1 mgd.

North Delta Water Agency

Most of the city lies in the NDWA service area. The NDWA negotiated a contract that ensures that the state, through the State Water Project (SWP), would maintain a dependable water supply of adequate quantity and quality for municipal, industrial, and agricultural purposes to the NDWA.

Regulatory Setting

Federal

Clean Water Act and Associated Environmental Compliance

There are several sections of the CWA that pertain to regulating impacts on waters of the United States. The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) of the CWA and specifically under Section 404 (Discharges of Dredge or Fill Material) of the act. Section 401 (Certification) specifies additional requirements for permit review, particularly at the state level.

Section 303

The State of California adopts water quality standards to protect beneficial uses of state waters as required by Section 303 of the CWA and the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne). Section 303(d) of the CWA established the TMDL process to guide the application of state water quality standards (see discussion of state water quality standards below). To identify candidate water bodies for TMDL analysis, a list of water quality–limited streams was generated. These streams are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. Section 303(d) listing associated with water bodies in the project area has been described in the environmental setting above.

Section 401

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant obtain a water quality certification (or waiver). Water quality certifications are issued by RWQCBs in California. Under the CWA, the state (RWQCB) must issue or waive Section 401 water quality certification for the project to be permitted under Section 404. Water quality certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States and imposes project-specific conditions on development. A Section 401 waiver establishes standard conditions that apply to any project that qualifies for a waiver.

Section 402

The 1972 amendments to the Federal Water Pollution Control Act established the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources (Section 402). The 1987 amendments to the CWA created a new section of the CWA devoted to stormwater permitting (Section 402[p]). EPA has granted the State of California (the State Water Board and RWQCBs) primacy in administering and enforcing the provisions of CWA and NPDES. NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States.

The State Water Board issues both general and individual permits for discharges to surface waters, including for both point-source and nonpoint-source discharges. In response to the 1987 amendments, the EPA developed the Phase I NPDES Storm Water Program for cities with populations larger than 100,000, and Phase II for smaller cities. In California, the State Water Board has drafted the *General Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems* (Small MS4 General Permit). The City of West Sacramento has coverage under the Small MS4 General Permit, which is discussed in more detail below.

Section 404

Dredging and placement of fill materials into the waters of the United States is regulated by Section 404 of CWA, which is administered by the Corps. Under

CWA, the state (i.e., the State Water Board) must issue or waive Section 401 water quality certification for the project to be permitted under Section 404. Water quality certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States.

Rivers and Harbors Act and Associated Environmental Compliance

The Rivers and Harbors Act regulates placement of fill and structures in navigable waterways. The permit program, regulated under Section 10 of the act, is administered by the Corps. In practice, permitting is combined with CWA Section 404 permitting. A Section 404/10 permit would be required for construction of the proposed marina.

State

The Central Valley RWQCB is responsible for preparing a water quality control plan (basin plan) that identifies beneficial uses of the Sacramento River and its tributaries and also for preparing water quality objectives for the protection of beneficial uses. Numerical and narrative criteria are contained in the basin plan for key water quality constituents, including: DO, water temperature, trace metals, turbidity, suspended material, pesticides, salinity, radioactivity, and other related constituents.

Porter-Cologne Water Quality Control Act

Overview

Porter-Cologne, passed in 1969, articulates with the federal CWA (see “Clean Water Act” above). It established the State Water Board and divided the state into nine regions, each overseen by an RWQCB. The State Water Board is the primary state agency responsible for protecting the quality of the state’s surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 402, and 303(d). In general, the State Water Board manages both water rights and statewide regulation of water quality, while the RWQCBs focus exclusively on water quality in their regions. The Sacramento River basin is under the jurisdiction of the Central Valley RWQCB.

Construction Activities

Construction activities are regulated under the NPDES General Permit for Discharges of Storm Water Runoff associated with Construction Activity (General Construction Permit), provided that the total amount of ground disturbance during construction exceeds 1 acre. The appropriate RWQCB) enforces the General Construction Permit. Coverage under a General Construction Permit requires the preparation of a stormwater pollution prevention plan (SWPPP) and notice of intent (NOI). The SWPPP includes pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a best management practices (BMPs) monitoring and maintenance schedule. The NOI includes site-specific information and the certification of compliance with the terms of the General Construction Permit.

Industrial Activities

Various types of industrial activities are covered under the NPDES General Permit for Discharges of Storm Water Runoff associated with Industrial Activity (General Industrial Permit). These activities include manufacturing operations, transportation facilities where vehicles are maintained (maintenance includes fueling and washing), landfills, hazardous waste sites, and other similar operations. The General Permit requires that each facility to file an NOI with the RWQCB prepare and implement a SWPPP and monitor to determine the amount of pollutants leaving the site. The SWPPP does not have to be submitted to the RWQCB but must be available at each facility.

Dewatering Activities

While small amounts of construction-related dewatering are covered under the General Construction Permit, the RWQCB has also adopted a General Dewatering Permit. This permit applies to various categories of dewatering activities and would likely apply to aspects of the proposed Project if construction required dewatering in greater quantities than what is allowed by the General Construction Permit and discharges the effluent to surface waters. The General Dewatering Permit contains waste discharge limitations and prohibitions similar to those in the General Construction Permit. To obtain coverage, the applicant must submit an NOI and a pollution prevention and monitoring program (PPMP). The PPMP must include a description of the discharge location, discharge characteristics, primary pollutants, receiving water, treatment systems, spill prevention plans, and other measures necessary to comply with discharge limits. A representative sampling and analysis program must be prepared as part of the PPMP and implemented by the permittee, along with recordkeeping and quarterly reporting requirements during dewatering activities. For dewatering activities that are not covered by the General Dewatering Permit, an individual NPDES permit and waste discharge requirements (WDRs) must be obtained from the RWQCB. The General Dewatering Permit may be applicable to the City and its contractors where excavation activities may explore the water table. All dewatering activities are required to comply with the West Sacramento Standard Specification 2002 Dewatering Plan in Section 22 (http://www.ci.west-sacramento.ca.us/cityhall/departments/comdev/documents/ss2002/default.cfm). This section is intended to provide guidelines to ensure that the developer/contractor takes all reasonable steps necessary to avoid adverse impacts on existing property caused by dewatering.

Stormwater Discharges

The CWA mandates permits for municipal stormwater discharges. The City of West Sacramento has coverage under a Small MS4 General Permit. This permit requires that controls be implemented to reduce the discharge of pollutants in stormwater discharges to the maximum extent possible, including management practices, control techniques and system, design and engineering methods, and other measures as appropriate. As part of permit compliance, the City has prepared a Stormwater Management Plan, which outlines the requirements for municipal operations, industrial and commercial businesses, construction sites, and planning and land development. These requirements include multiple measures to control pollutants in stormwater discharge. New development under the proposed Project would be required to follow the guidance contained in the Stormwater Management Plan.

Local

West Sacramento General Plan

The City of West Sacramento updated its General Plan in 2000. Goal A of the Natural Resources element states protection of water quality in the Sacramento River, Sacramento Deep Water Ship Channel, Lake Washington, and the area's groundwater basin should consider the following polices.

1. The City shall prohibit the establishment of any new septic systems within areas where City sewer and water services are available with in one air mile and shall require that new septic tank installations elsewhere be limited to one acres or larger parcels.
2. The City shall seek the elimination of existing septic tanks in urbanized areas.
3. The City shall not approve new development that has a significant potential for adversely affecting water quality in the Sacramento River, the Deep Water Ship Cannel, Lake Washington, or the area's groundwater basin.
4. The City shall regularly monitor water quality in City wells for evidence of toxics, saltwater intrusion, and other contaminants.
5. The City shall utilize the CEQA process to identify and avoid or mitigate potential groundwater pollution problems resulting from new commercial and industrial development.
6. The City shall support efforts on a county, regional, or statewide basis to reduce runoff of toxic agricultural chemicals into the Sacramento River.
7. The City shall implement measures to minimize the discharge of sediment into its watercourses.
8. The City shall continue to encourage responsible state agencies to prohibit the discharge of saltwater ballast into the Deep Water Ship Channel.

Southport Framework Plan

The Southport Framework Plan identified a need for site-specific flooding and drainage studies for specific projects, as well as coordinated provision of infrastructure and community facilities. The Southport Framework Plan EIR (Willdan Associates 1994) required such studies and compliance with the recommendation of such studies as mitigation that would reduce identified project-level and cumulative impacts related to drainage and hydrology to less-than-significant impacts. The Southport Framework Plan EIR found that the potential impact related to flooding was less than significant given the recent (at that time) levee improvements. These studies have been performed and are discussed in this section of the EIR, as are current issues related to levees.

Impact Analysis

This section describes the impact analysis relating to hydrology and water quality for the Project. It describes the methods used to determine the Project's impacts and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methods

The evaluation of hydrology and water quality effects is based on professional standards and the conclusions of any technical reports prepared for the Project area. The key effects were identified and evaluated based on the physical characteristics of the Project study area and the magnitude, intensity, and duration of activities. It is assumed that the Project and subsequent related development in the area would conform to City building standards, grading permit requirements, and erosion control requirements.

Impacts on hydrology and water quality that may result from construction of the Project are primarily described at a qualitative project level. Specific mitigation measures to avoid, minimize, rectify, reduce, eliminate, or compensate for potential significant impacts on hydrology or water quality are described for each impact.

For the purposes of this analysis, there would be no significant impact by seiche, tsunami, or mudflow. The site is located far from the Pacific Ocean and other large water bodies and historically has not been affected by tsunamis. In addition, the topography is flat, and mudflows are an unlikely scenario. A seiche in the Sacramento River is theoretically possible. However, the risk of these events is considered low. Therefore, it is not discussed below in the impact section.

Thresholds of Significance

Criteria for determining the significance of impacts related to hydrology and water quality were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq*.). An impact related to hydrology and water quality was considered significant if it would:

- violate any water quality standards, waste discharge requirements, or otherwise substantially degrade water quality;

- substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- not have sufficient water supplies available to serve the project from existing entitlements and resources;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site;
- substantially degrade the existing surface and groundwater quality as a result of erosion and siltation;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year flood hazard area structures that would impede or redirect floodflows;
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or

  As a part of this threshold of significance, an impact was considered to be significant if it would substantially impair the continued operation and maintenance of levees as a result of construction of structures or other site improvements (e.g., roadways) close to existing levees, that may limit the number and/or types of future maintenance activities that may be employed at the site and result in increased hazards associated with levee failure.

- contribute to inundation by seiche, tsunami, or mudflow.

Impacts and Mitigation Measures

Impact HYD-1: Degraded Surface Water Quality from Construction-Related Earth-Disturbing Activities and Construction-Related Hazardous Materials (Less than Significant with Mitigation Incorporated)

Construction-related earth disturbing activities would occur in the development of the proposed Project. These activities could cause soil erosion and sedimentation to local waterways. In particular, realignment and upgrades to the existing agricultural drainages on the project site would provide a direct mechanism for sediment and other contaminants to reach surface waters, and such waterways would be likely to have elevated levels of turbidity during the first few years of channel establishment.

In addition, construction equipment would have potential to leak hazardous materials that may include oil and gasoline. Improper use of fuels, oils, and other construction-related hazardous materials such as pipe sealant may also pose a threat to surface or groundwater quality.

Conformance with the NPDES General Construction Permit and the City’s municipal stormwater permit, and development and implementation of a spill prevention and control program (SPCP) as required by City standards and described below would reduce these impacts, but not to a less-than-significant level. **Implementation of Mitigation Measures HYD-1a and HYD-1b would reduce impacts to a less-than-significant level.**

Comply with NPDES Requirements

To reduce or eliminate construction-related water quality effects, the City of West Sacramento will require the project contractors to comply with the requirements of the City’s Stormwater Management Program. In addition, before onset of any construction activities, where the disturbed area is 1 acre or more in size, the City of West Sacramento will also require the project contractors to obtain coverage under the NPDES General Construction Permit. As a performance standard, the Stormwater Management Program and General Construction Permit require controls of pollutant discharges that use best available technology that is economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants, and any more stringent controls necessary to meet water quality standards.

Best management practices (BMPs) may consist of a wide variety of measures taken to reduce pollutants in stormwater and other nonpoint-source runoff. Measures range from source control, such as reduced surface disturbance, to treatment of polluted runoff, such as detention or retention basins. BMPs to be implemented as part of the Stormwater Management Program and General Construction Permit may include, but are not limited to, the following measures.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.

- Drainage facilities in downstream offsite areas will be protected from sediment using BMPs acceptable to the RWQCB.
- Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance. At minimum, vegetative application will be completed by September 15 to allow plants to establish. No disturbed surfaces will be left without erosion control measures in place between October 15 and April 15.

Final selection of BMPs will be subject to approval by the RWQCB. The City will verify that an NOI has been filed with the State Water Board and a SWPPP has been developed before allowing construction to begin. The City will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.

Implement a Spill Prevention and Control Program

The City of West Sacramento will require that Project contractors develop and implement an SPCP to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities for all contractors. The program will be completed before any construction activities begin. Implementation of this measure would comply with state and federal water quality regulations and reduce the impact to a less-than-significant level.

The City will review and approve the SPCP before onset of construction activities. The City will routinely inspect the construction area to verify that the measures specified in the SPCP are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that:

- violates applicable water quality standards;
- causes a film or sheen on, or discoloration of, the water surface or adjoining shoreline; or
- causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor's superintendent will notify the City, and the City will take action to contact the appropriate safety and clean-up crews to ensure that the SPCP is followed. A written description of reportable releases must be submitted to the Central Valley RWQCB and the DTSC. This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form.

If an appreciable spill has occurred and results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis will be performed to the specifications of DTSC to identify the likely cause of contamination. This analysis will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the City and/or contractors will select and implement measures to control contamination, with a performance standard that surface and/or groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the City.

Mitigation Measure HYD-1a: Dry Season Construction

Where construction activity in a water body is unavoidable (e.g., realignment of the existing agricultural drainages to create the new parkland water feature) and flows in the water body are seasonal, construction should be conducted during the dry season. This proposed mitigation is subject to additional conditions as a result of negotiations of the required permits from the Corps, the DFG, and the Central Valley RWQCB. In addition, following channel realignment, the new channel should be lined with cobbles or other non-erosive materials to minimize the potential for turbidity generated from the channel itself.

Mitigation Measure HYD-1b: Other Provisions for Work in Surface Waters

Should dry season construction prove infeasible, or where year-round flows are present in the agricultural ditches, the contractor will implement measures to protect surface water quality, such as flow diversions, impoundments (e.g., cofferdams), or other methods to avoid the direct exposure of surface water to sediment created as part of construction activity. As a performance standard, the measures will maintain Basin Plan standards for turbidity, listed below.

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
- Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%.
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 1%.

Where the Project has potential to result in elevated turbidity, monitoring will be performed at least twice daily at upstream and downstream locations to determine whether the standards outlined above have been met. In the event that they are not being met, the turbidity-generating activities will cease until turbidity is within the identified limits, and construction methods or turbidity control measures will be modified to ensure that turbidity limits continue to be met.

Impact HYD-2: Contaminants Entering Groundwater from Construction below the Water Table (Less than Significant)

Because of the presence of shallow groundwater in the project area, trenching and excavation associated with the proposed Project may reach a depth that can expose the water table, in which case a direct path to the groundwater basin may become available for contaminants to enter the groundwater system. This is particularly the case for the construction of the open-water features associated with the Regional Park, Oak Preserve Park, and Residential Park. Primary contaminants that could reach groundwater would include oil and grease, and construction-related hazardous materials. In addition, discharge of construction-related dewatering effluent could result in the release of contaminants to surface water

These impacts are considered potentially significant, but implementation of the NPDES General Construction Permit, described above, along with conformance with the provisions for dewatering, described below, would ensure that these impacts will be less than significant. No further mitigation is required.

Provisions for Dewatering

Before discharging any dewatered effluent to surface water, the property owner will be required to conform to the City's Standard Specifications for Dewatering and obtain an NPDES permit and WDRs from the RWQCB. Depending on the volume and characteristics of the discharge, coverage under the RWQCB's General Construction Permit or General Dewatering Permit is permissible. As part of the permit, the permittee will design and implement measures as necessary so that the discharge limits identified in the relevant permit are met. As a performance standard, these measures will be selected to control pollutant discharges using BAT and BCT to reduce pollutants, and any more stringent controls necessary to meet water quality standards.

Impact HYD-3: Degraded Water Quality from Construction and Operation of the Marina and Other River-Based Facilities (Less than Significant with Mitigation Incorporated)

Construction of the proposed marina and other river-based facilities would require construction within the Sacramento River and is likely to require dredging and disposal of dredge spoils. In addition, operation of the marina would require periodic maintenance dredging and also would include the use of boat fueling facilities that could result in the release of petroleum or other hazardous substances to the Sacramento River. While the specific details related to the construction and operation of the marina have not been developed, impacts potentially include short-term changes in water quality as a result of construction and dredging, such as local increases in turbidity and changes in DO. In addition, impacts related to dredge spoil disposal are possible, depending on the volume and chemical characteristics of spoils to be generated and locations for disposal. Other potential impacts include an increase in the amount of surface runoff from impervious surfaces (building roofs and parking areas) and associated impacts on drainage facilities; and groundwater and surface water impacts from marina operation, including point- or nonpoint-source discharge to surface water bodies where water bodies are 303(d) listed. In addition, the marina facilities would be exposed to flooding from the Sacramento River, as well as have potential to contribute to flooding impacts in the Sacramento River and nearby areas as a result of impeding or redirecting flows and/or encroaching upon and thereby impairing the continued operation and maintenance of levees in the project area.

These impacts are considered significant. Mitigation Measures HYD-3a and HYD-3b would reduce these impacts to a less-than-significant level.

Mitigation Measure HYD-3a: Design and Construct Marina Facilities to Avoid Flood Impacts

Marina facilities will be designed and constructed to withstand periodic flooding of the Sacramento River and to avoid increasing base flood elevations along the Sacramento River. As a performance standard, these facilities will be constructed such that they would not be damaged by or increase flooding during 100-year flood conditions; they would not increase exposure to 100-year flooding (such as increased flood surface elevations and/or landside flooding); and they would not otherwise compromise the integrity and/or ability to maintain the flood control system. A qualified civil engineer would need to be contacted to evaluate flood issues associated with development of the waterside of the levee and, if necessary, identify specific mitigation measures, such as increasing the height of structures (pilings and buildings) to ensure compliance with flood control standards for development adjacent to and within the Sacramento River, in addition to implementing any measures for levee protection that may be recommended by a levee assessment seepage geotechnical and geomorphic study conducted for the project area levees.

Mitigation Measure HYD-3b: Complete Specific Impact Analysis and Implement Measures to Maintain Water Quality Associated with Marina-Related Facilities

Specific analysis of the water quality effects of construction and operation of the marina will be conducted, including but not limited to the effects of in-water construction, dredging, dredge spoil disposal, and marina operations such as the on-water use of petroleum products. As part of this analysis, the specific feasible mitigation measures to reduce the impacts of these activities below significance thresholds will be identified, with a performance standard that would meet relevant water quality standards, including the California Toxics Rule, basin plan water quality objectives, aquatic toxicity thresholds, and Title 22 drinking water standards, as well as avoiding cumulative loading of 303(d)-listed impairments.

Impact HYD-4: Surface Runoff Exceeding Capacity of Drainage Facilities as a Result of New Impervious Surfaces (Less than Significant with Mitigation Incorporated)

The Project, when complete, would result in new impervious surfaces, which would result in an incremental reduction in the amount of natural soil surfaces available for infiltration of rainfall and runoff, potentially generating additional runoff during storm events. Additional runoff can contribute to the flood potential of natural stream channels; accelerate soil erosion and stream channel scour; and provide an efficient means of transport for pollutants to enter waterways.

To provide the necessary drainage capacity, the drainage concept plan is based on the use of a parkway stormwater conveyance, which would serve as a detention and stormwater quality–management facility. Stormwater discharges and surface runoff would be channeled toward the parkway, where they would be collected and reused in the water feature. The water channels and open-water areas of the parkway would be designed to serve as detention basins and stormwater quality management facilities.

However, such drainage facilities and/or developments associated with the Project need to be designed to ensure that people and structures are protected from the 100-year floodflow.

This impact is considered significant. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-4: Implement a Drainage Concept Plan

As part of the infrastructure plan, the developer will implement a drainage concept plan. This plan will address the following topics.

- A calculation of pre-development runoff conditions and post-development runoff scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria and account for increased surface runoff.
- An assessment of existing drainage facilities within the project area and an inventory of necessary upgrades, replacements, redesigns, and/or rehabilitation.
- A description of the proposed maintenance program for the onsite drainage system.
- Standards for drainage systems to be installed on a project/parcel-specific basis.
- Proposed design measures to ensure structures are not located within 100-year floodplain areas.

Drainage systems will be designed in accordance with the City's and other applicable flood control design criteria. As a performance standard, measures to be implemented from those reports will provide for no net increase in peak stormwater discharge relative to current conditions and ensure that 100-year flooding and its potential impacts are maintained at or below current levels and that people and structures are not exposed to additional flood risk. The Project will implement measures provided in the drainage concept plan.

As a condition of approving specific development projects, the City will require project applicants to demonstrate their project is consistent with the recommendations and conclusions of the drainage concept plan and will implement the measures identified in the plan. If the plan does not adequately address the drainage impacts of the specific development, the City will require applicants to prepare additional analysis and incorporate measures consistent with the scope and performance standards associated with the plan to ensure that drainage and flooding impacts are avoided. The City will conduct post-construction monitoring to ensure that the necessary measures have been implemented and require compliance if not.

As provided in the drainage concept plan, stormwater infrastructure will be constructed in the River Park area prior to onset of other developments to collect runoff during and following construction and to contain flows that could exceed the existing capacity of the drainage system.

Impact HYD-5: Degraded Water Quality as a Result of Urban Runoff (Less than Significant with Mitigation Incorporated)

As previously discussed, the project facilities are expected to result in an increase in impervious surfaces. As such, the proposed Project could increase stormwater and non-stormwater runoff, transporting contaminants to adjacent receiving waters. Contaminated runoff waters could flow into the agricultural ditches/park water features and ultimately into the Sacramento River and could degrade the water quality of any of these water bodies. Of particular concern would be the potential for eutrophication of the onsite water features, which could result in low DO levels, elevated temperatures, nuisance algal or macrophyte growth, odors, and related loss of beneficial uses. These features could also serve as breeding grounds for mosquitoes or other vectors.

During the dry season, vehicles and other urban activities release contaminants onto the impervious surfaces where they would accumulate until the first storm event. During this initial storm event or *first flush*, the concentrated pollutants will be transported in runoff to stormwater drainage systems. Anticipated runoff contaminants associated with the proposed Project include sediment, pesticides, oil and grease, nutrients, metals, bacteria, and trash.

Finally, open-water features are likely to be in communication with the shallow groundwater in the project area, providing a direct mechanism for contaminants to reach the aquifer.

This impact is considered potentially significant. In addition to implementing the requirements of the City's Stormwater Management Program, implementation of Mitigation Measures HYD-5a and HYD-5b will reduce the impact to a less-than-significant level.

Mitigation Measure HYD-5a: Implement Measures to Maintain Water Quality after Construction

The following procedures are from the California Storm Water Best Management Practice Handbooks. Infiltration systems will be designed into the Project in order to reduce runoff and restore natural flows to groundwater. In addition, these infiltration systems need to be natural systems such as biofilters and vegetative swales. These systems will be installed either under the wood decks or at roof downspouts.

- Retention/detention systems will be installed either under the wood decks or at roof downspouts in order to retain water, which will be released at a later time once pollutants have settled out.
- Biofilters will be implemented in grass or vegetated swales as part of the project design. This will allow sediments and particulates to filter and degrade biologically. Biofilters are most effective when flows are slow with a shallow depth. Slow flow provides an opportunity for the vegetation to filter sediments and particulates.
- Structural source controls, such as covers, impermeable surfaces, secondary containment facilities, runoff diversion berms, and diversions to wastewater treatment plants, will be included in the project design.
- Parking spaces will be designed of pervious materials, such as turf block or unit pavers on sand, crushed aggregate, or concrete under tires only, to reduce runoff.
- In order to reduce erosion and retain water on site, organic amendments will be incorporated into disturbed sites after construction, and the soil will be covered after revegetation.
- Designated trash storage areas will be covered to protect bins from rainfall.

The measures will be selected to attenuate the increase in flows from the project site and improve water quality in site runoff to the maximum extent possible, and will represent the BAT. All measures will be subject to the review and approval of the City.

Mitigation Measure HYD-5b: Develop Management Plan for Onsite Water Features

Develop and implement a plan for management of the onsite water features to ensure that water quality standards and beneficial uses of these water bodies are met. This plan may address, but not be limited to, the following issues:

- manipulation of the hydroperiod to allow for appropriate plant growth;
- other vegetation and sediment management activities, such as periodic vegetation and sediment removal every 5–10 years;
- control of water residence time and periodic flushing of the water features;
- source control of contaminants reaching the water bodies;
- measures to reduce the potential for vectors (e.g., mosquitoes);
- measures to ensure that groundwater does not become contaminated; and
- other measures as necessary.

The measures identified in the management plan will conform to a performance standard that water quality in the onsite water features meets Basin Plan numeric and narrative water quality objectives given the beneficial uses of the water body. Implementation of the management plan will become a requirement of the approval of the Project.

Impact HYD-6: Substantially Depleted Groundwater Supplies or Interference with Groundwater Recharge (Less than Significant)

The proposed Project is not anticipated to use groundwater as a supply. However, the Project will result in a substantial increase in impervious surfaces as a result of buildout and hence will reduce the ability for precipitation to percolate to the aquifer, thereby reducing groundwater recharge. This reduction is not considered a substantial concern for reasons listed below.

- Aquifer recharge in this area is driven primarily by deep percolation from local waterways, such as the Sacramento River and the Deep Water Ship Channel.
- This project area is not identified as a primary groundwater recharge area.
- The presence of shallow groundwater results in the reduced ability for use of groundwater for potable uses.

For these reasons, impacts on groundwater supplies are considered less than significant, and no mitigation is required.

Impact HYD-7: Increased Water Demand (Less than Significant)

As described in the WSA (Appendix G), the Project proposes to amend the current land use designations to support development of 2,788 residential units and other land uses, some of which were not accounted for in the City's General plan and the UWMP. This includes an increase in the density of residential units of approximately 900 units. These amendments in land use designations would lead to an increase in water demand unaccounted for in the UWMP. According to the unit factors as presented in the 2005 Water Master Plan Update, the total demand associated with the River Park Project is 1,620,310 gallons per day (gpd), or 1,815 afy. The increase in demand under the Project as currently proposed is 427,160 gpd or 479 afy (Appendix G).

As described in the WSA, according to the UWMP, in all but the emergency conditions, demands in all years would be met by first applying the City's entitlements to the portion of the city outside the NDWA boundary and then meeting remaining city demands by combining the remaining entitlements with NDWA water. Water delivery restriction projections indicate that the Reclamation contract and appropriative rights are sufficient to supply the Northport area during all water year types. NDWA ensures water supply through its agreement with DWR, and therefore supplies in the Southport area are also ensured.

As stated in the WSA, a comparison of existing and future supply and demand indicates that for the area within the NDWA service area, the total supply matches total demand, as NDWA ensures that adequate water quality and supplies would be available during all years; therefore, the Project would not exceed current water supply capacity requiring the acquisition or expansion of entitlements (Appendix G). In summary, the Project would have adequate water supplies from existing sources and entitlements. **This impact is considered less than significant. No mitigation is required.**

Impact HYD-8: Increased Sediment and Contaminants in Groundwater and Surface Water as a Result of Infrastructure Failure (Less than Significant)

The Project would include the installation of infrastructure such as water supply and wastewater pipelines and storage tanks. The possibility of a pipeline rupturing as a result of exceedances of pipeline or tank capacity, improper design, installation, maintenance, seismic activity, or other catastrophic events could pose a negative impact on water quality resulting from increased erosion and sediment, as well as discharge of any contaminants contained in the water released from the pipeline (e.g., sewage from influent pipelines). The infrastructure system(s) would need to be designed and engineered with sufficient capacity to accommodate anticipated peak flows, minimizing the potential for upset. In addition, infrastructure would be designed to relevant seismic and other standards to avoid potential for upset from seismic activity or other geologic hazards. **Impacts are considered to be less than significant. No mitigation is required.**

Impact HYD-9: Degraded Water Quality from Discharges to Surface Water Where Water Bodies Are 303(d) Listed (Less than Significant)

The Sacramento River watershed from Knights Landing to the Delta is CWA 303(d) listed as impaired for diazinon, mercury, and unknown toxicity. Under this impairment, the Sacramento River has no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration.

These constituents could be gathered from lawn runoff, rooftops, and even indoor household runoff. However, the concentration of these constituents is expected to be relatively low. In addition, all drainage from the Project would be channeled toward the water channels and open-water areas of the parkway that would be designed as detention stormwater quality–management facilities, which would reduce the potential for such contaminants to reach the Sacramento River at concentrations that would contribute to the impairment. **As a result, this impact is considered less than significant. No mitigation is required.**

Impact HYD-10: Impaired Operation and Maintenance of Levees Associated with Development of the Project (Less than Significant with Mitigation Incorporated)

As described under “Environmental Setting,” the project area is protected from flooding by a levee system, and as a result, the project site is not within the FEMA-designated 100-year floodplain. Because these levees protect the project site from flooding, it is vital that they are properly maintained. These levee systems would require regular maintenance (e.g., maintaining appropriate amount of freeboard, adding riprap, construction of slurry walls, etc.) to ensure continued operation for flood protection. In addition, the construction of project-related structures or improvements close to the levees may limit the number and types of future maintenance options that may be employed at the site, resulting in more expensive or invasive maintenance procedures. RD 900 currently manages the levee system in the project vicinity. Because the Project would result in the development of an area protected by levees and relatively close to the levees, **implementation of Mitigation Measures HYD-10a, HYD-10b, and HYD-10c ensure development of the Project would have less-than-significant impacts on the continued operation and maintenance of the levees in the project area.**

Mitigation Measure HYD-10a: Coordinate with Reclamation District 900 Regarding Levee Condition and Maintenance Needs

The City or applicant will coordinate with RD 900 staff to determine the current status of levee condition and obtain recommendations regarding needed maintenance. Based on this, the following mitigation measures will be implemented as necessary.

Mitigation Measure HYD-10b: Conduct Levee Assessment Seepage Geotechnical and Geomorphic Study

If insufficient information exists regarding the status of the levees and any needed maintenance, the applicant shall conduct a levee assessment study to determine the integrity of the levees within and immediately adjacent to the project area and to determine the possibilities of flooding as a result of a levee failure. This study will be prepared in accordance with the *Draft River Corridor Floodway Guidelines* developed by the Sacramento River Corridor Planning Forum. The study will be prepared such that it evaluates the levees with respect to FEMA levee standards (44CFR65.10), including requirements related to freeboard, embankment protection, embankment and foundation stability, settlement, interior drainage, and other criteria. If this study concludes that the levees do not meet FEMA standards, or if there is a need for the implementation of construction measures to offset the possibility of levee failure, the following mitigation measure will be implemented.

Mitigation Measure HYD-10c: Implement Measures for Levee Protection

Based on the results of the previous mitigation measures, levee protection measures for the project area will be designed and implemented to:

- maintain, or as necessary, improve the stability of eroding or unstable stream banks and levee slopes;
- maintain, or as necessary, improve access for levee and bank protection maintenance activities;
- maintain or improve flood conveyance capacity and reliability;
- limit the damage vulnerability of new structures, riparian vegetation, and other improvements (e.g., trails, overlooks, etc.) along the river corridor caused by major floods, and more common high stage river flows;
- design riverfront development to minimize or avoid impacts on the flood control system and flood conveyance facilities;
- ensure flood protection levees surrounding the entire project site meet current FEMA standards for levee certification, and that the local flood control jurisdiction has the ability to fully maintain and repair all flood protection infrastructure (he level of protection for urban areas should be a 100-year or greater flood protection standard, and include hydraulic capacity with appropriate freeboard

as well as levee reliability criteria based on local geotechnical conditions and bank erosion potential); and

- assess cross-flooding potential between leveed subbasins (where needed, upgrade or construct additional cross levees or drains to ensure that potential future levee breaches in one sub-basin do not cascade through and flood an adjacent subbasin, particularly urban basins).

In addition, the findings of the levee seepage geotechnical study may recommend levee reinforcement activities, which may include:

- construction of an impermeable berm (e.g., clay or other synthetic materials), 50 feet to several hundred feet wide and several feet thick;
- construction of a levee seepage cutoff trench, backfilled with a cement/clay slurry, up to 80 feet deep, where seepage has occurred; and
- monitoring of levee condition on an ongoing basis and conducting of further maintenance as needed to ensure levee integrity and adequate flood protection.

As a performance standard, levees will be improved and maintained such that they meet FEMA standards as expressed in 44 CFR 65.10.

Impact HYD-11: Flood Hazards Associated with Dam Failure (Less than Significant)

Potential for flooding impacts associated with the marina have been addressed in Impact HYD-3; onsite flooding has been addressed in Impact HYD-4; and potential for levee failure has been addressed in Impact HYD-10.

The EIR for the City of West Sacramento General Plan addresses flooding as a result of the failure of a dam. Failure of Folsom Dam would lead to inundation of West Sacramento and the greater Sacramento area. However, the General Plan notes that the risk of dam failure affecting the project area is remote and could occur under three general conditions: earthquake; structural instability; and intense rainfall in excess of a dam’s holding capacity. Further, state law requires local jurisdictions to adopt emergency procedures for the evacuation of populated areas in inundation areas identified by dam owners. **Because of the relatively small potential for such failure, and the requirement for emergency evacuation procedures, this impact is considered less than significant, and no mitigation is required.**

Section 3.9
Land Use and Planning

Introduction

This section describes the environmental setting (existing conditions and regulatory setting) related to land use for the proposed Project and the potential impacts that would result from project implementation.

Impacts related to growth inducement are addressed in Chapter 5, *Other CEQA Considerations*.

Environmental Setting

This section discusses the existing conditions related to land use and planning in the project area. State and local regulations related to land use that would apply to the Project are discussed below.

Regional Setting

The project site is located in the city of West Sacramento, in eastern Yolo County. The Sacramento River forms the eastern boundary of the county, separating it from the city of Sacramento, which is directly across the river, and Sacramento County. At the time of its incorporation in 1987, more than half of the land in the city of West Sacramento was either vacant or in agricultural use. Much of the land, especially in the Southport area south of the Deep Water Ship Channel, is still considered rural in nature.

The city is accessed regionally via Interstate 80; State Route 84 (Jefferson Boulevard within city limits); and Interstate 5, which runs north-south through the city of Sacramento east of the Sacramento River (City of West Sacramento Department of Community Development 1990a).

Local Setting

The project site is located in the southern portion of the city in the area known as Southport, just south of the intersection of Davis Road and east of the former Yolo Shortline rail corridor (now owned by the City of West Sacramento). The Sacramento River forms the site's eastern and southern boundaries. According to historical aerial photograph research conducted by ENGEO, Inc., the parcels composing the project site historically have been in agricultural uses, and they remain so today with the exception of a few rural residences scattered throughout the area. (ENGEO 2002, 2003, 2004a–d) While the land immediately surrounding the project site is also rural in nature, residential development has occurred and been planned throughout much of the Southport area, particularly those areas to the north and west of the Project. Nearby residential communities include Bridgeway Lakes (approximately 1 mile due west of the Project site), Rivermont (approximately 0.5 mile to the northwest), and Parlin Ranch (approximately 1 mile north of the Project). (City of West Sacramento Department of Community Development 2004)

Regulatory Setting

State Regulations

Delta Protection Act of 1992

This act establishes primary and secondary zones of protection for the Sacramento–San Joaquin River Delta (Delta). The primary area is governed by standards that limit uses and practices that could pose a threat to the beneficial use of the Delta. The city of West Sacramento is not located in this zone. According to California Department of Water Resources maps, most of the city, including the Project site, is included in the secondary zone (California Department of Water Resources 1995). No standards or limitations on uses are attached to this zone, but the Delta Protection Commission coordinates and monitors development (City of West Sacramento Department of Community Development 1990a).

Local Regulations

City of West Sacramento General Plan

The City of West Sacramento General Plan defines land use and zoning categories for the incorporated areas and conducts an inventory of existing land uses in the city. The general plan's Policy Document lists the following relevant goals and policies (City of West Sacramento Department of Community Development 1990b).

Goal A: To provide for orderly, well-planned, and balanced growth consistent with the limits imposed by the city's infrastructure and the city's ability to assimilate new growth.

Policies:

1. The City shall seek to preserve West Sacramento's traditional neighborhood qualities, while recognizing existing City commitments to new projects and accommodating region-serving development in certain areas of the city and in certain segments of the economy.

7. Land use designations and development in the Southport area shall be guided by the following principles:
   - Limit total population in Southport to 40,000 residents by the year 2010.
   - Concentrate community commercial, high-density residential and public facilities uses in nodes along major and minor arterials.
   - Allow the development of water-dependent recreational and commercial uses along the waterways in Southport.
   - Emphasize a mixture of residential types and densities, while concentrating on homeownership as a general goal.
   - Ensure that ample buffers are established between incompatible land uses.
   - Consider the use of Transfer of Development Rights (TDR) provisions to provide for an equitable distribution of the economic returns from future development for all property owners in the Southport area.
   - Provide for an orderly sequence of development based on the extension of public facilities and services.

Goal B: To designate adequate land in a range of residential densities to meet the housing needs of all income groups expected to reside in West Sacramento.

Policies:

1. The City shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate projected household growth and to maintain normal vacancy rates.
2. The City shall promote the development of affordable housing to meet the needs of low- and moderate-income households.
3. Higher density housing shall be located in areas served by the full range of urban services, preferably along collector, minor arterial, and major arterial streets, and within walking distance of shopping areas.

In acknowledgment of the conditions in the Southport area that differ from the rest of West Sacramento, the City adopted the Southport Framework Plan in 1995, which deals specifically with land uses and development in the area.

Southport Framework Plan

The Southport Framework Plan (City of West Sacramento Department of Community Development 1995) is composed of a Land Use Map, the Design Guidelines, an EIR, and the Implementation Plan. The Land Use Map identifies the planned land use designations for the entire Southport area. The Design Guidelines provide development and architectural standards at both the site and the structure level. The Implementation Plan provides an overview of the approval process, development and infrastructure phasing, natural resource issues, and affordable housing requirements. The Southport Framework Plan divides the Southport area into 4 quadrants (*villages*) in which a variety of housing densities, mixed-use commercial development, schools, parks, and local employment is envisioned. These planned villages are organized around town centers, which were planned to act as mass transit nodes. The mode of transit would be light rail in the northern villages, which were planned at higher densities than the southern villages. The Framework Plan calls for the remainder of the Southport area to be served by a network of bus routes. The villages would also be connected by a series of trails, providing an amenity to pedestrians and cyclists (City of West Sacramento Department of Community Development 1995).

The Project site corresponds roughly to the boundaries of the Southeast Village of the Southport Framework Plan and proposes development of approximately 150 acres fewer than that envisioned in the Southport Framework Plan. Other lands in the Southeast Village may be developed in the future. The Southport Framework Plan calls for this area to contain a core of high and medium-density housing mixed with neighborhood commercial uses, neighborhood parks, and an elementary school. Low-density residential land designations surround this core, along with a community park and a small area of rural and estate-style residential uses. The planned buildout is 1,896 units, as of the 1998 update to the Southport Framework Plan.

City of West Sacramento Zoning Ordinance

Zoning in the project area is consistent with the land use designations set forth in the Southport Framework Plan. Residential zoning consists of the following zoning designations: Rural Residential (RR); Single Family Residential with minimum lot size of 6,000 square feet (R1-B); Rural Estate (RE); Residential One Family or Multi-Family (R-2); and Residential Multi-Family (R-3). Neighborhood Commercial (C-1) zoning is also present, along with Recreation and Parks (RP), Public Open Space (POS), and Public/Quasi-Public (PQP) (City of West Sacramento Department of Community Development 1990c).

Impact Analysis

This section describes the methods used to determine the Project's impacts related to Land Use and lists the thresholds used to conclude whether an impact would be significant.

Approach and Methods

Potential land use impacts are based on the proposed Project's potential to conflict with existing or planned land uses at the site and in the project vicinity during both the construction and operation phases of the proposed Project.

Information regarding current land uses was gathered from a site visit, the City of West Sacramento General Plan Land Use Element, the Southport Framework Plan, and several environmental site assessments conducted by ENGEO, Inc.

Thresholds of Significance

Criteria for determining the significance of impacts related to land use were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*) and the City's thresholds of significance. An impact related to land use was considered significant if it would:

- conflict with the goals or policies of adopted plans of the City of West Sacramento,
- develop land uses that are incompatible with each other or with adjacent uses,
- physically divide an established community, or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

Impacts and Mitigation Measures

Impact LU-1: Conflict with the Goals or Policies of Adopted Plans of the City of West Sacramento (Less than Significant with Mitigation Incorporated)

The current land use plan governing the project site is the Southport Framework Plan—a land use plan, design guidelines, and implementation plan that includes a phasing and financing plan for the construction of public facilities and services to serve Southport. The development pattern established through the Framework Plan is a series of villages that are separated by greenbelts (e.g., agricultural and rural estate buffers between villages). The stated objectives of the Framework Plan are to “encourage a development pattern that is an alternative to suburban sprawl” and to “promote a mass transit system” (City of West Sacramento Department of Community Development 1995). An open space network that provides amenities for pedestrians and cyclists and preserves habitat for sensitive native species was also considered a primary goal.

The Project is consistent with certain elements of the Southport Framework Plan because the project design is organized around the concept of an urban village that can provide its own services, parks, schools, and shopping. The use of greenbelts to separate and delineate villages is maintained, and a large regional park has been planned at the same location as indicated in the original plan. The Project expands on the suggested open space network by adding development of a linear parkway feature that connects the regional park to the other neighborhood parks in the development. The parkway also encompasses an existing grove of mature oak trees that is designated for residential development under the original Southport Framework Plan. The Project relocates the higher-density residential uses east from the center of the site to a location south of the Loop Road, concentrating the residential units at the center of the site near the regional trail and park. Lower-density uses surround this higher-density core and extend to the site’s boundaries, creating a buffer of lower-density uses between the project site and adjacent rural residential properties. Additionally, a landscaped buffer is proposed between the areas zoned Low Density Residential and Rural Residential.

While these design features are consistent with the Southport Framework Plan, the Project would result in a density of 8.3 dwelling units per acre, compared to the Southport Framework Plan’s density of slightly less than 3 units per acre, and would increase the number of units at the site to approximately 2,788 (Figure 2-3), representing an increase of approximately 900 residential units compared to that envisioned by the Framework Plan EIR (shown in Table 2-1). This is considered a substantial increase in the density and number of units planned for under the Framework Plan in the Southeast Village.

The potential impacts of development of the Project, as proposed, on infrastructure, including roadways and public services, are presented in other sections of this EIR. To address the land use planning impacts associated with the Project’s inconsistency at this level with the Framework Plan, thorough re-evaluations of the plan as it applies to the project site and the overall levels of growth associated with the entire Southport area would be required. A comprehensive update of the Southport Framework Plan to address the increased level of development in Southport would help to ensure that the demands of the increased density in Southport would be planned in a comprehensive manner and mitigated appropriately, ensuring that the Project is consistent with the goals of the City. **Implementation of Mitigation Measure LU-1 would reduce the impacts related to land use planning to a less-than-significant level.**

Mitigation Measure LU-1: Update the Southport Framework Plan

To ensure that the potential impacts on infrastructure and public services related to proposals for increases in the density of development in Southport, the City will update the Framework Plan, including re-evaluating the development strategy and the provisions of infrastructure and public services necessary to support increased development in Southport.

The conflicts with the Southport Framework Plan also could be reduced through implementation of Alternative 2, as described in Chapter 4, *Alternatives*. This alternative assumes development of the site in accordance with the provisions and residential density envisioned in the original Southport Framework Plan. Assessment of the impacts of the alternatives is found in Chapter 4.

Impact LU-2: Develop Land Uses That Are Incompatible with Each Other or with Adjacent Uses (Less than Significant)

The Project proposes the development of residential uses at a variety of densities, neighborhood commercial uses, an elementary school site, and an open space system that includes parks and sports fields. The elementary school, most of the neighborhood parks, the regional park, and the WRC area would be maintained in their respective locations as described in the Southport Framework Plan. These uses are commonly sited near each other, especially in pedestrian-oriented mixed-use developments of this type, and are generally considered to be compatible with each other. No industrial or other potentially noxious uses are planned, and the WRC area, which is likely to include a marina, is separated from the residential areas by parkland located at the eastern end of the regional park on the Sacramento River. The park provides a buffer of more than 40 acres of green space between the marina and the nearest residential area.

The Project includes the ultimate development of 2.6 acres of WRC uses along the Sacramento River, which may include a marina, a restaurant, a boating equipment shop, and parking areas. Pedestrians and bicyclists would be able to access the area from a trail from the regional park. This area is identified in the Framework Plan as an area planned for development with WRC uses, and the Project proposes to increase the total area of WRC from 0.1 to 2.6 acres. The physical changes that would occur with development of this area would generally be expected to be similar to those described for the Project and would include construction (e.g., erosion, dust generation, noise) and operational (e.g., traffic, noise, hazards) impacts. Development of this area is not anticipated to result in land use compatibility impacts because an existing marina is located more than 0.25 mile north of the site along the west side of the Sacramento River; because this area would be physically separated from the project site by the levee, South River Road, the 40-acre regional park, and open space buffers along the project frontage on South River Road; and because the existing urban land uses east of the river are considered sufficiently distant from the site. Future development of the site would be regulated through the City's zoning ordinance, and additional, site-specific CEQA analysis would be required when the applicant submits specific water-related proposals in the future.

The layout of the Project has also been planned in an effort to minimize incompatibilities with neighboring uses. The Project would be adjacent to a number of established homes along Davis Road. These home sites are rural in character and are located on large lots zoned for Rural Residential uses. The residential types immediately bordering these sites are proposed to be Rural Residential (1 unit/acre) and Low Density Residential (5 units/acre). These Low Density Residential areas are designed to provide a transition between the higher densities of the Medium Density Residential (10 units/acre) and High Density Residential (22 units/acre) areas in the village center and these existing rural residential homes along Davis Road, consistent with the Framework Plan. The Project design includes clustering potentially incompatible uses (e.g., Commercial and High-Density Residential uses) around a central core. This core area would be surrounded by lower-density residential uses and would be buffered from potentially incompatible uses (e.g., high-density development) in the project area.

The transition from Low Density Residential to Rural Residential and the existing homes along Davis Road would be softened by landscaped buffer areas that are proposed along the common borders between lots within River Park and the existing Rural Residential lots along Davis Road. In areas where the rear yard of a lot in River Park would border one of the existing Rural Residential lots along Davis Road, the landscaped buffer area would vary from 30 to 40 feet wide. In areas where a proposed roadway would be located between the existing Rural Residential lots and the side yards of lots within the development, a 20-foot-wide landscaped buffer would be provided. This 20-foot-wide buffer would be addition to the 36-foot-wide right-of-way (typically consisting of 24 feet of paved road surface, 8 feet of shoulder, and 4 feet of paved sidewalk), and would provide a transition between the Low Density Residential uses in River Park and the Rural Residential properties along Davis Road.

The conceptual design plan for River Park does not include developing landscaped buffers between the Low Density Residential properties in the southwest portion of the site and the existing Rural Residential land uses (i.e., single-family homes) along South River Road. Although these Rural Residential properties are not part of the Project, they are designated in the Framework Plan to be developed as part of the Southeast Village with Low Density Residential uses. Because this area was planned to be developed as a homogenous unit, the Framework Plan did not envision a transition between land uses in this area of the Southeast Village. Development of Low Density Residential uses adjacent to these existing Rural Residential properties could result in temporary land use compatibility conflicts. However, at full buildout of the Southeast Village, as envisioned in the Framework Plan, these properties would be developed at a low density consistent with the land use designations of the Framework Plan and consistent with the land uses planned within River Park. If these lands remain in Rural Residential uses, any land use compatibility issues are anticipated to be less than significant because the existing residences are situated along South River Road and are relatively distant from their rear property lines, which would be adjacent to River Park. The rear yards of the existing residences, coupled with the rear yard setbacks of homes in River Park, **would ensure that potential compatibility conflicts would be less than significant.** A discussion of the Project's compatibility with agricultural lands in the vicinity is described in Section 3.2, *Agricultural Resources*.

Impact LU-3: Physically Divide an Existing Community (No Impact)

The southern portion of the Southport area, with the exception of two urbanizing areas to the north and northwest of the project site, remains relatively rural in nature although it is planned for urban development. The project design includes an open space/trails element, allowing bicyclists and pedestrians access to the other villages proposed by the Southport Framework Plan. The essence of the Project, therefore, is the connection of new communities to established ones, not division. The Project also includes development of a multi-modal circulation plan linking the project site to the other villages in Southport and to the city of West Sacramento and is considered to be a benefit to the community. It is anticipated the Project would not result in the division of an established community. **There would be no impact. No mitigation is necessary.**

Impact LU-4: Conflict with an Applicable Habitat Conservation Plan or Natural Community Preservation Plan (No Impact)

The project site is not covered by the jurisdiction of any state, local, or regional habitat conservation plan or natural community preservation plan and would thus not conflict with the provisions of any such plan. **There would be no impact. No mitigation is necessary.**

It should be noted, however, that the project area does encompass land known to be habitat for the Swainson's hawk. The City of West Sacramento has entered into a Memorandum of Understanding (MOU) with Yolo County in order to mitigate the habitat loss that would result from the construction of the proposed Project. The MOU does not qualify as a habitat conservation plan or natural community preservation plan, but it does have similar aims in that it seeks to protect sensitive species and their habitat. A detailed discussion of the MOU can be found in Section 3.4, *Biological Resources*.

Section 3.10
Noise

Introduction

This section addresses noise impacts associated with the construction and added vehicle traffic associated with the Project in the City of West Sacramento. This study includes a discussion of existing conditions, a summary of local policies and regulations related to noise issues, and an analysis of direct, indirect, and cumulative environmental impacts of the Project. Where feasible, mitigation measures are recommended to reduce the level of significant impacts.

The key sources of data and information used in the preparation of this section are listed below.

- City of West Sacramento Performance Standards, Title 17, Chapter 32 of the City Code (2005a).
- City of West Sacramento General Plan, Health and Safety, Goal E, Page II-77 thru II-79, December 2004. (City of West Sacramento Department of Community Development 1990a)

Noise Terminology

The following is a brief background discussion of noise terminology.

- **Sound.** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound. A sound level measurement in decibels describes the logarithmic ratio of a measured sound pressure level to a reference sound pressure level of 20 micropascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level that approximates the frequency response of the human ear.
- **Sound Level Percentiles (L_n).** The sound level exceeded a certain percentage of time during a specified interval, where the subscript "n" is the

percentile value. For example, L_{90} is the sound level exceeded 90% of the time and L_{10} is the sound level exceeded 10% of the time.

- **Maximum and Minimum Sound Levels (L_{max} and L_{min}).** The maximum or minimum sound level measured during a specified interval.
- **Equivalent Sound Level (L_{eq}).** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The duration of the measurement is commonly indicated in the subscript; for example, a 1-hour L_{eq} sound level would be indicated as dBA L_{eq}, 1h.
- **Day-Night Level (L_{dn}).** The energy average of A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels occurring between 10:00 PM and 7:00 AM
- **Community Noise Equivalent Level (CNEL).** Similar to L_{dn}, CNEL is the energy average of A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels occurring between 10:00 PM and 7:00 AM In addition, a 5-dB penalty is applied to sound levels during the evening hours of 7:00 PM to 10:00 PM

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000–8,000 Hz) range. However, people are able to detect sound level increases of 3 dB for typical noisy environments. Further, a 10-dB increase is generally perceived as a doubling of loudness. Therefore, doubling sound energy (e.g., doubling the volume of traffic on a highway) would generally be perceived as a detectable but not substantial increase in sound level.

Environmental Setting

Surrounding Noise-Sensitive Land Uses

Sensitive land uses are generally defined as locations where people reside or where the presence of noise could adversely affect the use of the land. Typical sensitive receptors include residents, school children, hospital patients, the elderly, etc. Sensitive land uses in the project area that could be affected by the Project include single-family residences located along roadways leading to the project area. Several single-family residences in subdivisions and multifamily residences, including areas of frequent outdoor use, would be affected by increases in traffic generated by the Project.

Existing Noise Environment

The project area includes residential and commercial land uses located within the City of West Sacramento. The existing noise environment in the project area is dominated by distant traffic noise from traffic traveling on US 50 and traffic on primary roadways in the area such as Jefferson Boulevard. Aircraft departures from Sacramento Executive Airport and other aircraft overflights also affect noise levels in the project area.

Noise from railroad activity currently occurs daily on the Northern Sierra Railroad line, near the western boundary of the proposed Project. At least one train per day operates on that line to transport railroad cars between Woodland and areas south of West Sacramento. This line would cease operations within 2 years when it joins the “Rails to Trails” program. Although transportation easements would be preserved, no plans exist for future transportation planning along this corridor (Sacramento Business Journal 2005).

The existing noise environment in the project area has been characterized both with sound level measurements taken in the project area and traffic noise modeling as described below.

Noise Monitoring

In order to characterize the existing noise environment in the project study area, short-term measurements of 15 minutes in duration were conducted adjacent to the proposed Project.

Jones & Stokes selected the noise monitoring sites. Sites were selected to document existing ambient noise levels at representative locations in the project area where noise-sensitive land uses would be located. The noise monitoring sites are described below.

Short-Term Monitoring

Short-term monitoring was conducted on Thursday, November 30, 2005, using a Larson-Davis Model 812 Precision Type 1 sound level meter (serial number 0239). The meter was positioned on a tripod at a microphone height of 5 feet above the ground. Sound levels and audible noise sources were recorded on field data sheets in order to characterize the noise environment at each position. Monitoring was conducted for a 15-minute duration at each location. The noise monitoring focused on areas where residential land uses would be located. The short-term measurement positions are the positions indicated as ST-1 through ST-3 in Figure 3.10-1.

Measurements were conducted at three locations on the perimeter of the River Park site. Distant traffic noise and aircraft overflights were the dominant noise sources observed during the measurement periods. Measured L_{eq} noise levels ranged from 43.8 to 49.5 dBA. Temperature, wind speed, and humidity were recorded manually during the short-term monitoring session using a Kestrel 3000 portable weather station. During the short-term measurement session skies were overcast. Wind speeds were typically in the range of 0 to 2 mph. Temperatures were in the range of 9°–10°C (48°–50°F), with relative humidity typically in the range of 98% to 100%.

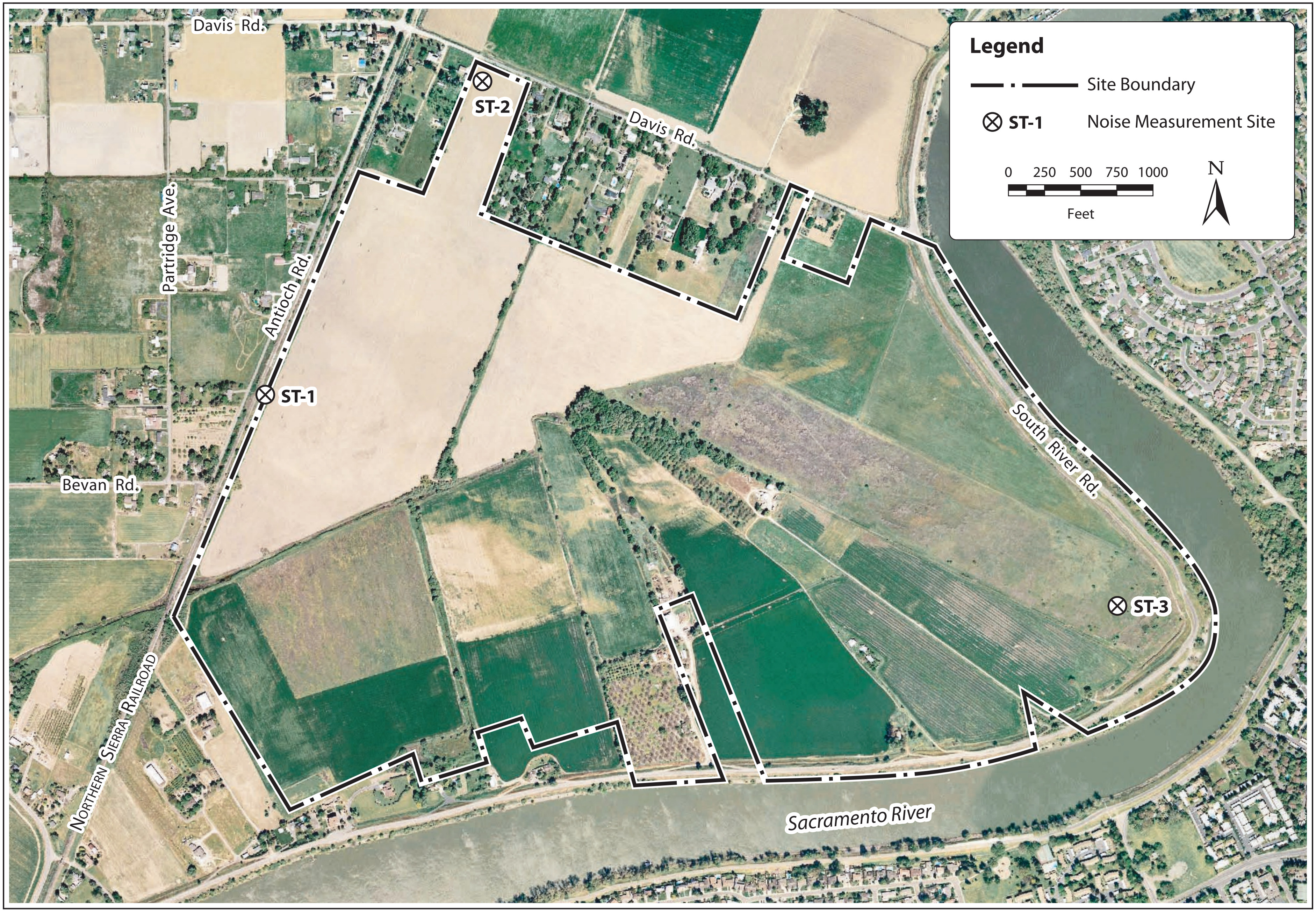
Table 3.10-1 summarizes the short-term monitoring results.

Table 3.10-1. Summary of Short-Term Sound Level Measurements, November 30, 2005

				Measured Sound Level (dBA)				
Receivers	Location	Time	Duration (minutes)	L_{eq}	L_{max}	L_{33}	L_{50}	L_{90}
ST-1	Near Antioch Road	2:58 PM	15	43.8	51.5	43.3	42.3	40.2
ST-2	Davis Road (“RRA”)	3:36 PM	15	48.3	66.3	43.3	42.7	41.1
ST-3	South River Road (“RP”)	4:14 PM	15	49.5	70.3	45.6	44.0	41.5

Existing Conditions

Existing traffic noise levels were calculated using the Federal Highway Administration Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes provided by the project traffic engineers, Fehr & Peers Associates (Fehr & Peers 2006). Table 3.10-2 summarizes the traffic noise modeling results based on existing traffic conditions. As shown in the table, areas adjacent to Jefferson Boulevard currently exceed the City’s performance standard of 60 dB L_{dn} at residential locations.



Jones & Stokes

Figure 3.10-1
Locations of Short-Term Noise Assessment Sites

Table 3.10-2. Summary of Traffic Noise Modeling Results for Existing Conditions

			Existing Land Use Description[a]				Performance Standard, L_{dn}/CNEL	L_{dn} at 100-foot Distance from Roadway Centerline
Roadway	From	To	S	M	C	U		
Jefferson Blvd.	Park Blvd.	15th St.	X		X		60	67
Jefferson Blvd.	15th St.	Stone Blvd.	X		X		60	67
Jefferson Blvd.	Stone Blvd.	Gateway Dr.	X				60	67
Jefferson Blvd.	Gateway Dr.	Lake Washington	X			X	60	66
Jefferson Blvd.	Lake Washington	Linden Rd.		X	X		60	66
Jefferson Blvd.	Linden Rd.	Higgins Rd.	X	X			60	64
Jefferson Blvd.	Higgins Rd.	South Linden Rd.	X				60	64
Jefferson Blvd.	South Linden Rd.	Davis Rd.	X		X		60	63
Jefferson Blvd.	Davis Rd.	Bevan Rd.	X				60	57
Jefferson Blvd.	Bevan Rd.	Southport Pkwy.			X		–	56
Industrial Blvd.	Harbor Blvd.	Southport Pkwy.			X		–	65
Industrial Blvd.	Southport Pkwy.	Jefferson Blvd.				X	N/A	63
Park Blvd.	Jefferson Blvd.	Stone Blvd.	X				60	56
US 50 on-ramp	Jefferson Blvd.	US 50			X		–	67
15th St.	Jefferson Blvd.	Park Blvd.	X		X		60	51
Stone Blvd.	Jefferson Blvd.	Industrial Blvd.	X				60	49
Linden Rd.	Jefferson Blvd.	Stonegate Dr.				X	N/A	53
Linden Rd.	Southgate Dr.	Village Pkwy.	X				60	52
North Linden Rd.	Jefferson Blvd.	Higgins Rd.	X	X			60	59
South Linden Rd.	Jefferson Blvd.	Higgins Rd.	X				60	55
Higgins Rd.	Jefferson Blvd.	North Linden Rd.	X				60	50
Davis Rd.	West of Jefferson Blvd.	–	X				60	50
Davis Rd.	Jefferson Blvd.	Stonegate Dr.	X				60	37[b]
Davis Rd.	Stonegate Dr.	Village Pkwy.	X				60	37 [b]
Bevan Rd.	Jefferson Blvd.	Otis Ave.	X				60	40 [b]
Bevan Rd.	Jefferson Blvd.	Gregory Ave.			X		–	33 [b]

Note: Where solid walls are located between the roadway and adjacent use, sound levels are 3–5 dB less than indicated.

[a] Existing Land Use Description: S – single-family residences; M – multifamily residences; C – commercial buildings; U – undeveloped land.

[b] Predicted traffic noise level is below the existing ambient noise level.

Regulatory Setting

Local Regulations and Standards

Noise standards in the City of West Sacramento are defined in the General Plan Noise Element and noise guidelines contained in Chapter 17.32 from the City's municipal code. The following is a brief discussion of each as they apply to the Project.

City of West Sacramento General Plan Noise Element

The City of West Sacramento has established noise-level performance standards for projects affected by nontransportation sources and transportation sources.

The General Plan Noise Element states that residential hourly exterior noise levels from nontransportation noise sources may not exceed 50 dBA L_{eq} during daytime hours (between 7:00 AM and 10:00 PM) and 45 dBA L_{eq} during nighttime hours (between 10:00 PM and 7:00 AM). The maximum residential exterior noise levels from nontransportation noise sources allowed under the General Plan are 70 dBA L_{eq} during daytime hours and 65 dBA L_{eq} for nighttime hours. For interior residential noise levels, the General Plan limits daytime hourly noise levels from nontransportation noise sources to 45 dBA L_{eq} and nighttime hourly noise levels to 35 dBA L_{eq}. There is no maximum interior noise level given in the General Plan.

For residences exposed to noise from transportation noise sources, the City has established a criterion of 60 dBA L_{dn}/CNEL for residential land uses. These City standards are summarized below in Tables 3.10-3 and 3.10-4.

Table 3.10-3. City of West Sacramento General Plan and Noise Ordinance Noise-Level Performance Standards for New Projects Affected by or Including Nontransportation Sources

		Exterior Noise-Level Standard (dBA) (applicable at property line)		Interior Noise-Level Standard (dBA)	
Land Use	Noise Level Descriptor	Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)	Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
Residential	L_{eq} L_{max}	50 70	45 65	45 –	35 –
Transient lodging	L_{eq}	–	–	45	35
Hospitals, nursing homes	L_{eq}	–	–	45	35
Theatres, auditoriums, music halls	L_{eq}	–	–	35	35
Churches, meeting halls	L_{eq}	–	–	40	40
Office buildings	L_{eq}	–	–	45	45
Schools, libraries, museums	L_{eq}	–	–	45	45

Note: Each of the noise levels specified above should be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise-level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

Source: City of West Sacramento Department of Community Development 1990a.

Table 3.10-4. City of West Sacramento General Plan and Noise Ordinance Noise-Level Performance Standards for Transportation Sources

Land Use	Outdoor Activity Areas[a] L_{dn}/CNEL, dBA	Interior Spaces L_{dn}/CNEL, dBA	Interior Spaces L_{eq}, dBA[b]
Residential	60[c]	45	–
Transient lodging	60[c]	45	–
Hospitals, nursing homes	60[c]	45	–
Theaters, auditoriums, music halls	–	–	35
Churches, meeting halls	60[c]	–	40
Office buildings	–	–	45
Schools, libraries, museums	–	–	45
Playgrounds, neighborhood parks	70	–	45

[a] Where the location of outdoor activity areas is unknown, the exterior noise-level standard should be applied to the property line of the receiving land use.

[b] As determined for a typical worst-case hour during period of use.

[c] Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed, provided that practical exterior noise-level reduction measures have been implemented and that interior noise levels are in compliance with this table. An exterior noise level of 70 dB L_{dn}/CNEL should be allowed in the triangle specific plan area and the Washington specific plan area.

Source: City of West Sacramento Department of Community Development 1990a.

The noise element also states that the following criteria may be used as tests of significance for roadway improvement projects:

a. Where existing or projected future traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of residential uses, increase of over 5 dB L_{dn} due to a roadway improvement project would be considered significant; and

b. Where existing or projected future traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of residential uses, an increase of over 3 dB L_{dn} due to a roadway improvement project would be considered significant; and

c. Where existing or projected future traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of residential uses, an increase of over 1.5 dB L_{dn} increase due to a roadway improvement project would be considered significant.

It is further stated that an analysis of noise impacts associated with a roadway improvement project should evaluate the projected future traffic volumes, speeds, traffic distribution, and truck mix with and without the project. Therefore, the changes in traffic speeds and traffic volumes along those roadways that are attributed solely to the roadway improvement project would be evaluated with respect to the above-mentioned criteria.

Southport Framework Plan

The Southport Framework Plan did not specifically address noise issues. The Southport Framework Plan EIR (Willdan Associates 1994) identified specific impacts related to traffic noise and marina-related activity noise. Mitigation measures identified in the Southport Framework Plan EIR required project-specific noise studies and noise control measures where feasible. The Southport Framework Plan EIR found that these mitigation measures, in combination with compliance with the City and state (in the case of boating) noise regulations, would reduce identified project-level noise impacts to less than significant, although it noted that in specific areas mitigation measures may not be feasible but that cumulative traffic noise impacts on Stone and Industrial Boulevards would be significant and unavoidable.

City of West Sacramento Performance Standards

Chapter 17.32 from the City's zoning ordinance establishes performance standards for different land uses throughout the City. These performance standards are found in Tables II-4 and II-6 in Section 17.32.030 of the City's zoning ordinance and are similar to the City's noise thresholds established in its General Plan Noise Element (Tables 3.10-3 and 3.10-4). In addition, conversation with City staff indicates that construction activities are limited to the hours of 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 5:00 PM on weekends and holidays (Powderly pers. comm.).

Impact Analysis

Approach Methodology

CEQA requires the significance of noise impacts to be determined for proposed projects. The process of assessing the significance of noise impacts associated with a proposed project starts by establishing thresholds at which significant impacts are considered to occur. Next, noise levels associated with project-related activities are predicted and compared to the significance thresholds. A significant impact is considered to occur when a predicted noise level exceeds a threshold.

Noise from traffic on roadways in the project area has been evaluated under the following conditions:

- existing plus Project under build Phases 1 and 2,
- existing plus approved projects plus Project under build Phases 1 and 2, and
- project buildout year with and without the Project.

The FHWA-RD-77-108 noise model was used for calculating future traffic noise levels, using traffic information provided by Fehr & Peers (Fehr & Peers 2006). Noise levels were calculated along roadway segments potentially affected by the Project. Construction noise was evaluated using methods recommended by the U.S. Department of Transportation.

Thresholds of Significance

Appendix G of the State CEQA Guidelines states that a project would normally have a significant effect on the environment if it would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels; or
- be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

The following thresholds of significance have been developed for this Project based on the City of West Sacramento noise standards. Noise resulting from the Project would be considered significant if:

- existing residences would be exposed to noise from construction activities exceeding 45 dBA L_{eq} or 65 dBA L_{max} between the hours of 7:00 PM and 7:00 AM Monday through Friday or between the hours of 5:00 PM and 8:00 AM on weekends and holidays. Noise from construction that occurs outside these hours (i.e., during daytime hours) is not considered significant;
- proposed residential uses would be exposed to exterior noise exceeding 60 dB L_{dn}, or interior noise exceeding 45 dB L_{dn};
- with-project noise levels at existing noise-sensitive land uses are predicted to be more than 5 dB higher than no-project noise levels in locations where the existing noise level is less than 60 dB L_{dn};
- with-project noise levels at existing noise-sensitive land uses are predicted to be more than 3 dB higher than no-project noise levels in locations where the existing noise level is between 60 and 65 dB L_{dn}; or
- with-project noise levels at existing noise-sensitive land uses are predicted to be more than 1.5 dB higher than no-project noise levels in locations where the existing noise level is greater than 65 dB L_{dn}.

Impacts and Mitigation Measures

Impact NZ-1: Exposure of Noise-Sensitive Land Uses to Vibration and Noise during Construction Activities (Less than Significant with Mitigation Incorporated)

Vibration

Construction activities associated with the Project may cause a small amount of groundborne vibration. Vibration from these activities would be short term. The use of high-impact construction activities such as pile driving is not anticipated. Therefore, no adverse vibration effects from construction are expected.

Noise

The assessment of potential construction noise levels was based on methodology developed by the Federal Transit Administration (FTA) (Federal Transit Administration 1995). Table 3.10-5 summarizes noise levels produced by commonly used construction equipment. Individual types of construction equipment are expected to generate noise levels ranging from 74 to 89 dBA at a distance of 50 feet. The construction noise level at a given receiver depends on the type of construction activity, the noise level generated by that activity, and the distance and shielding between the activity and noise-sensitive receivers.

Table 3.10-5. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 feet from Source
Grader	85
Bulldozers	85
Truck	88
Loader	85
Roller	74
Air Compressor	81
Backhoe	80
Pneumatic Tool	85
Paver	89
Concrete Pump	82

Source: Federal Transit Administration 1995.

Potential noise levels resulting from construction of the proposed Project were evaluated by summing the noise levels of the three loudest pieces of equipment that would likely operate at the same time (bulldozer, paver, and heavy truck). The combined noise level is 92 dBA at 50 feet. Table 3.10-6 shows the estimated sound levels from construction activities as a function of distance based on calculated point-source attenuation over “soft” (i.e., acoustically absorptive) ground.

The results in Table 3.10-6 indicate that residences located within about 2,000 feet of an active construction site could be exposed to construction noise in excess of the City's daytime noise standard of 50 dBA and that residences within 3,000 feet of active construction could be exposed to construction noise in excess of the nighttime standard of 45 dBA. Noise from construction activities limited to the hours of 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 5:00 PM on weekends and holidays is not considered to be significant. Because construction noise that occurs outside these hours could exceed 45 dBA at nearby residences, this impact is considered to be significant.

Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure NZ-1a: Employ Noise-Reducing Construction Practices

The project applicant will employ noise-reducing construction practices such that construction noise does not exceed 45 dBA L_{eq} or 65 dBA L_{max} between the hours of 7:00 PM and 7:00 AM Monday through Friday or between the hours of 5:00 PM and 8:00 AM on weekends and holidays.

Measures that can be used to limit noise include:

- limiting construction operations to the hours of 7:00 AM to 7:00 PM Monday through Friday and 8:00 AM to 5:00 PM on weekends and holidays,
- locating equipment as far a practical from noise-sensitive uses,
- requiring that all construction equipment powered by gasoline or diesel engines have sound-control devices that are at least as effective as those originally provided by the manufacturer and that all equipment be operated and maintained to minimize noise generation,
- prohibiting gasoline or diesel engines from having unmuffled exhaust,
- selecting haul routes that affect the fewest people,
- using noise-reducing enclosures around noise-generating equipment, and
- constructing barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (terrain, structures) to block sound transmission.

Mitigation Measure NZ-1b: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program

The construction contractor will notify residences within 500 feet of the construction areas of the construction schedule in writing before construction. The construction contractor will designate a noise disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of the complaint and will ensure that reasonable measures are implemented to correct the problem when feasible. A contact telephone number for the noise disturbance coordinator will be conspicuously posted on construction site fences and included in the written notification of the construction schedule sent to nearby residents.

Table 3.10-6. Predicted Noise Levels from Construction Activities

Entered Data:			
Construction Condition: Site leveling			
Source 1: Grader – Sound level (dBA) at 50 feet =			85
Source 2: Truck – Sound level (dBA) at 50 feet =			88
Source 3: Paver – Sound level (dBA) at 50 feet =			89
Average Height of Sources – Hs (feet) =			10
Average Height of Receiver – Hr (feet) =			5
Ground Type (soft or hard) =			Soft
Calculated Data:			
All Sources Combined – Sound level (dBA) at 50 feet =			92
Effective Height (Hs+Hr)/2 =			7.5
Ground factor (G) =			0.62
Distance Between Source and Receiver (feet)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Sound Level (dBA)
50	0	0	92
100	-6	-2	85
200	-12	-4	77
300	-16	-5	72
400	-18	-6	69
500	-20	-6	66
600	-22	-7	64
700	-23	-7	62
800	-24	-7	61
900	-25	-8	60
1,000	-26	-8	58
1,200	-28	-9	56
1,400	-29	-9	55
1,600	-30	-9	53
1,800	-31	-10	52
2,000	-32	-10	50
2,500	-34	-10	48
3,000	-36	-11	46

Notes: Calculations based on FTA 1995.

This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers, which may reduce sound levels further.

Impact NZ-2: Exposure of Existing Noise-Sensitive Land Uses to Increased Traffic Noise (Significant and Unavoidable)

Tables 3.10-7 through 3.10-10 summarize the predicted traffic noise levels at receiver locations in the project area under the following conditions:

- Table 3.10-7. Traffic Noise Modeling Results—Existing Plus Project Conditions under Build Phases 1 and;
- Table 3.10-8. Traffic Noise Modeling Results—Existing plus Approved Project plus Project Conditions under Phase 1 and 2;
- Table 3.10-9. Traffic Noise Modeling Results—Buildout Year with and without the Project; and
- Table 3.10-10: Traffic Noise Modeling Results—Predicted Future Noise Levels Under Buildout Conditions at Roadway Segments Adjoining the Project.

The traffic noise modeling results in Tables 3.10-7 and 3.10-8 provide information on intermediate project build conditions identified as mitigation measures for identified impacts of the Project prior to buildout-year conditions. Table 3.10-9 provides information on buildout-year conditions and is the basis for impact significance conclusions. Table 3.10-9 includes several comparisons.

The comparison between buildout-year no-project conditions to existing conditions gives an indication of the increase in traffic noise associated with background growth. The comparison between buildout-year with-project conditions and existing conditions gives an indication of the cumulative increase in noise associated with the Project and background growth. The comparison between buildout-year with-project conditions and buildout-year no-project conditions indicates the increase in noise caused directly by the Project.

The results in Table 3.10-10 indicate that significant traffic noise impacts would occur along the segments of Stonegate Drive and Village Parkway that are proposed to extend south of Davis Road. Existing residences are located along these roadway segments. The results also indicated that a significant traffic noise impact would occur along Stonegate Drive between Davis Road and Linden Road. This area is currently undeveloped but is planned for residential development.

Because driveway access to existing residences located along Stonegate Drive and Village Parkway must be maintained, construction of soundwalls along these roadways is not considered feasible. **This impact is therefore considered to be significant and unavoidable.**

It is important to note that although the significance thresholds are exceeded, none of the existing or planned residences described above are predicted to be exposed to noise exceeding the City's residential compatibility threshold for noise of 60 L_{dn}.

Impact NZ-3: Exposure of Future Noise-Sensitive Land Uses within the River Park Project to Traffic Noise (Less than Significant)

The following roadways are adjacent to noise-sensitive land uses proposed as part of the proposed Project:

- Davis Road between Jefferson Boulevard and Stonegate Drive,
- Davis Road from Village Parkway to South River Road,
- Stonegate Drive south of Davis Road, and
- Village Parkway south of Davis Road.

Table 3.10-10 summarizes predicted traffic noise levels along these roadways under future with-project conditions. Traffic noise levels are predicted to be less than 60 L_{dn} in all cases. Accordingly, no proposed noise-sensitive land uses are predicted to be exposed to traffic noise that exceeds 60 L_{dn}. New construction designed to meet current thermal insulation standards would typically provide at least 20 dB of exterior-to-interior noise reduction. Accordingly, interior noise levels are predicted to be below the City's interior noise standard of 45 L_{dn}. **This impact is, therefore, considered to be less than significant. No mitigation required.**

Impact NZ-4: Exposure of Existing and Future Noise-Sensitive Land Uses within the River Park Project and in the Project Vicinity to Marina-Related Noise (Less than Significant)

A future element of the proposed Project is construction and operation of a marina as described in Chapter 2, *Project Description*. The marina, as described at this time, would be a relatively small (25-berth) recreational marina. Such a marina would generally not be a significant noise generator because boat activity at the marina would generally be limited to slow movements while maneuvering in and out of berths. **For this reason, marina-related noise would result in less-than-significant noise impacts. No mitigation required.**

Noise associated with traffic generated by the marina is included in the impact analysis for traffic noise, presented in Impacts NZ-2 and NZ-3.

Table 3.10-7. Traffic Noise Modeling Results—Existing Plus Project Conditions under Build Phases 1 and 2

Roadway	From:	To:	Existing Land Use Description	Existing L_{dn}	Phase 1 L_{dn}	Delta Phase 1 minus Existing	Phase 2A L_{dn}	Delta Phase 2A minus Existing	Phase 2B L_{dn}	Delta Phase 2B minus Existing	Phase 3 L_{dn}	Delta Phase 3 minus Existing
Jefferson Boulevard	Park Boulevard	15th Street	Subd./Comm.	**66**	**67**	+ 1	**67**	+ 1	**66**	0	**67**	+ 1
Jefferson Boulevard	15th Street	Stone Boulevard	Comm./SFR	**66**	**67**	+ 1	**67**	+ 1	**67**	+ 1	**67**	+ 1
Jefferson Boulevard	Stone Boulevard	Gateway Drive	Subd. ~150', wall	**66**	**67**	+ 1	**67**	+ 1	**67**	+ 1	**67**	+ 1
Jefferson Boulevard	Gateway Drive	Lake Washington Boulevard	Subd./Undev.	**66**	**66**	0	**66**	0	**66**	0	**66**	0
Jefferson Boulevard	Lake Washington Boulevard	Linden Road	MFR/SFR/ Comm.	**65**	**66**	+ 1	**66**	+ 1	**66**	+ 1	**66**	+ 1
Jefferson Boulevard	Linden Road	Higgins Road	Few MFR&SFR	**64**	**64**	0	**64**	0	**64**	0	**64**	0
Jefferson Boulevard	Higgins Road	South Linden Road	SFR	**63**	**63**	0	**63**	0	**63**	0	**63**	0
Jefferson Boulevard	South Linden Road	Davis Road	Comm./few SFR	**63**	**63**	0	**63**	0	**63**	0	**63**	0
Jefferson Boulevard	Davis Road	Bevan Road	Sparse SFR	57	58	+ 1	57	0	57	0	58	+ 1
Jefferson Boulevard	Bevan Road	Southport Parkway	Commercial	55	55	0	56	+ 1	55	0	57	+ 2
Industrial Boulevard	Harbor Boulevard	Southport Parkway	Commercial	**64**	**64**	0	**64**	0	**64**	0	**65**	+ 1
Industrial Boulevard	Southport Parkway	Jefferson Boulevard	Undeveloped	**62**	**62**	0	**63**	+ 1	**63**	+ 1	**64**	+ 2
Park Boulevard	Jefferson Boulevard	Stone Boulevard	Subd.	56	56	0	56	0	56	0	56	0
US 50 onramp	Jefferson Boulevard	US 50	Commercial	**67**	**67**	0	**67**	0	**67**	0	**67**	0
15th Street	Jefferson Boulevard	Park Boulevard	Subd./Comm.	51	51	0	51	0	51	0	51	0
Stone Boulevard	Jefferson Boulevard	Industrial Boulevard	Subd.	49	49	0	49	0	49	0	49	0
Linden Road	Jefferson Boulevard	Stonegate Drive	Undeveloped	53	54	+ 1	55	+ 2	54	+ 1	55	+ 2
Linden Road	Stonegate Drive	Village Parkway	Subd.	52	52	0	53	+ 1	52	0	54	+ 2
Linden Road	Village Parkway	South River Road	Few SFR	–	–	–	–	–	–	–	–	–
North Linden Road	Jefferson Boulevard	Higgins Road	MFR/Subd.	58	58	0	58	0	58	0	58	0
South Linden Road	Jefferson Boulevard	Higgins Road	Subd.	55	55	0	55	0	55	0	55	0

Table 3.10-7. Continued

Roadway	From:	To:	Existing Land Use Description	Existing L_{dn}	Phase 1 L_{dn}	Delta Phase 1 minus Existing	Phase 2A L_{dn}	Delta Phase 2A minus Existing	Phase 2B L_{dn}	Delta Phase 2B minus Existing	Phase 3 L_{dn}	Delta Phase 3 minus Existing
Higgins Road	Jefferson Boulevard	North Linden Road	Subd.	50	50	0	50	0	50	0	50	0
Davis Road	West of Jefferson Boulevard	–	Sparse SFR	50	51	+ 1	51	+ 1	51	+ 1	54	+ 4
Davis Road	Jefferson Boulevard	Stonegate Drive	SFR	36	47	+ 11	48	+ 12	47	+ 11	50	+ 14
Davis Road	Village Parkway	Stonegate Drive	SFR	36	47	+ 11	48	+ 12	47	+ 11	50	+ 14
Davis Road	Village Parkway	South River Road	Few SFR	–	–	–	45	–	–	–	45	–
Bevan Road	Jefferson Boulevard	Otis Avenue	Few SFR	40	40	0	40	0	40	0	40	0
Bevan Road	Jefferson Boulevard	Gregory Avenue	Commercial	32	32	0	32	0	32	0	32	0
Lake Washington Boulevard[1]	Jefferson Boulevard	Stonegate Drive	Undeveloped	–	58	–	59	–	58	–	**61**	–
Stonegate Drive[1]	South of Davis Road	–	Few SFR	–	–	–	–	–	–	–	–	–
Stonegate Drive[1]	Linden Road	Lake Washington Boulevard	Undeveloped	–	55	–	55	–	56	–	56	–
Stonegate Drive[1]	Linden Road	Davis Road	Undeveloped	–	55	–	55	–	55	–	56	–
Village Parkway[1]	South of Davis Road	–	Few SFR	–	–	–	–	–	–	–	–	–
Village Parkway[1]	Linden Road	Stonegate Drive	Subd.	–	–	–	53	–	–	–	**61**	–
Village Parkway[1]	Linden Road	Davis Road	Subd./Undev.	–	–	–	55	–	–	–	**62**	–

Notes: All values exceeding 60 L_{dn} shown in bold.

[1] Future planned roadway—this segment not in existing case

Table 3.10-8. Traffic Noise Modeling Results—Existing plus Approved Project plus Project Conditions under Phase 1 and 2

Roadway	From:	To	Existing Land Use Description	Existing L_{dn}	Phase 1 L_{dn}	Delta Phase 1 minus Existing	Phase 2 L_{dn}	Delta Phase 2 minus Existing
Jefferson Boulevard	Park Boulevard	15th Street	Subd./Comm.	**66**	**68**	+ 2	**68**	+ 2
Jefferson Boulevard	15th Street	Stone Boulevard	Comm./SFR	**66**	**68**	+ 2	**68**	+ 2
Jefferson Boulevard	Stone Boulevard	Gateway Drive	Subd. ~150-foot, wall	**66**	**68**	+ 2	**68**	+ 2
Jefferson Boulevard	Gateway Drive	Lake Washington Boulevard	Subd./Undev.	**66**	**67**	+ 1	**67**	+ 1
Jefferson Boulevard	Lake Washington Boulevard	Linden Road	MFR/SFR/Comm.	**65**	**67**	+ 2	**67**	+ 2
Jefferson Boulevard	Linden Road	Higgins Road	few MFR&SFR	**64**	**66**	+ 2	**66**	+ 2
Jefferson Boulevard	Higgins Road	South Linden Road	SFR	**63**	**65**	+ 2	**65**	+ 2
Jefferson Boulevard	South Linden Road	Davis Road	Comm./few SFR	**63**	**65**	+ 2	**65**	+ 2
Jefferson Boulevard	Davis Road	Bevan Road	sparse SFR	57	**61**	+ 4	**62**	+ 5
Jefferson Boulevard	Bevan Road	Southport Parkway	Commercial	55	**62**	+ 7	**62**	+ 7
Industrial Boulevard	Harbor Boulevard	Southport Parkway	Commercial	**64**	**66**	+ 2	**66**	+ 2
Industrial Boulevard	Southport Parkway	Jefferson Boulevard	Undeveloped	**62**	**66**	+ 4	**66**	+ 4
Park Boulevard	Jefferson Boulevard	Stone Boulevard	Subd.	56	56	0	56	0
US HIghway 50 on-ramp	Jefferson Boulevard	US Highway 50	Commercial	**67**	**67**	0	**67**	0
15th Street	Jefferson Boulevard	Park Boulevard	Subd./Comm.	51	51	0	51	0
Stone Boulevard	Jefferson Boulevard	Industrial Boulevard	Subd.	49	50	+ 1	50	+ 1
Linden Road	Jefferson Boulevard	Stonegate Drive	Undeveloped	53	55	+ 2	55	+ 2
Linden Road	Stonegate Drive	Village Parkway	Subd.	52	54	+ 2	54	+ 2
Linden Road	Village Parkway	South River Road	few SFR	–	–	–	–	–
North Linden Road	Jefferson Boulevard	Higgins Road	MFR/Subd.	58	59	+ 1	59	+ 1
South Linden Road	Jefferson Boulevard	Higgins Road	Subd.	55	55	0	55	0

Table 3.10-8. Continued

Roadway	From:	To	Existing Land Use Description	Existing L_{dn}	Phase 1 L_{dn}	Delta Phase 1 minus Existing	Phase 2 L_{dn}	Delta Phase 2 minus Existing
Higgins Road	Jefferson Boulevard	North Linden Road	Subd.	50	51	+ 1	51	+ 1
Davis Road	West of Jefferson Boulevard	–	sparse SFR	50	52	+ 2	52	+ 2
Davis Road	Jefferson Boulevard	Stonegate Drive	SFR	36	48	+ 12	48	+ 12
Davis Road	Village Parkway	Stonegate Drive	SFR	36	51	+ 15	52	+ 16
Davis Road	Village Parkway	South River Road	few SFR	–	–	–	49	–
Bevan Road	Jefferson Boulevard	Otis Avenue	few SFR	40	45	+ 5	45	+ 5
Bevan Road	Jefferson Boulevard	Gregory Avenue	Commercial	32	49	+ 17	49	+ 17
Lake Washington Boulevard[1]	Jefferson Boulevard	Stonegate Drive	Undeveloped	–	**62**	–	**62**	–
Stonegate Drive[1]	South of Davis Road	–	few SFR	–	–	–	–	–
Stonegate Drive[1]	Linden Road	Lake Washington Boulevard	Undeveloped	–	54	–	54	–
Stonegate Drive[1]	Linden Road	Davis Road	Undeveloped	–	52	–	52	–
Village Parkway [1]	South of Davis Road	–	few SFR	–	–	–	–	–
Village Parkway [1]	Linden Road	Stonegate Drive	Subd.	–	–	–	**61**	–
Village Parkway [1]	Linden Road	Davis Road	Subd./Undev.	–	–	–	**62**	–

Notes: All values exceeding 60 L_{dn} shown in **bold**.

[1] Future planned roadway—this segment not in existing case.

Table 3.10-9. Traffic Noise Modeling Results—Buildout Year with and without the Project

Page 1 of 2

Roadway	From:	To:	Existing Land Use Description	Existing L_{dn}	No Project L_{dn}	Delta No Project minus Existing	With Project L_{dn}	Delta With Project minus Existing	Delta With Project minus No Project
Jefferson Boulevard	Park Boulevard	15th Street	Subd./Comm.	**66**	**69**	+ 3	**69**	+ 3	0
Jefferson Boulevard	15th Street	Stone Boulevard	Comm./SFR	**66**	**69**	+ 3	**69**	+ 3	0
Jefferson Boulevard	Stone Boulevard	Gateway Drive	Subd. ~150', wall	**66**	**69**	+ 3	**69**	+ 3	0
Jefferson Boulevard	Gateway Drive	Lake Washington Boulevard	Subd./Undev.	**66**	**68**	+ 2	**68**	+ 2	0
Jefferson Boulevard	Lake Washington Boulevard	Linden Road	MFR/SFR/Comm.	**65**	**68**	+ 3	**68**	+ 3	0
Jefferson Boulevard	Linden Road	Higgins Road	few MFR&SFR	**64**	**68**	+ 4	**68**	+ 4	0
Jefferson Boulevard	Higgins Road	South Linden Road	SFR	**63**	**68**	+ 5	**68**	+ 5	0
Jefferson Boulevard	South Linden Road	Davis Road	Comm./few SFR	**63**	**68**	+ 5	**68**	+ 5	0
Jefferson Boulevard	Davis Road	Bevan Road	Sparse SFR	57	**65**	+ 8	**65**	+ 8	0
Jefferson Boulevard	Bevan Road	Southport Parkway	Commercial	55	**65**	+ 10	**65**	+ 10	0
Industrial Boulevard	Harbor Boulevard	Southport Parkway	Commercial	**64**	**69**	+ 5	**69**	+ 5	0
Industrial Boulevard	Southport Parkway	Jefferson Boulevard	Undeveloped	**62**	**68**	+ 6	**69**	+ 7	+ 1
Park Boulevard	Jefferson Boulevard	Stone Boulevard	Subd.	56	**63**	+ 7	**63**	+ 7	0
US 50 onramp	Jefferson Boulevard	US 50	Commercial	**67**	**68**	+ 1	**68**	+ 1	0
15th Street	Jefferson Boulevard	Park Boulevard	Subd./Comm.	51	56	+ 5	56	+ 5	0
Stone Boulevard	Jefferson Boulevard	Industrial Boulevard	Subd.	49	52	+ 3	52	+ 3	0
Linden Road	Jefferson Boulevard	Stonegate Drive	Undeveloped	53	54	+ 1	55	+ 2	+ 1
Linden Road	Stonegate Drive	Village Parkway	Subd.	52	53	+ 1	54	+ 2	+ 1
Linden Road	Village Parkway	South River Road	few SFR	–	47	–	47	–	0
North Linden Road	Jefferson Boulevard	Higgins Road	MFR/Subd.	58	59	+ 1	59	+ 1	0
South Linden Road	Jefferson Boulevard	Higgins Road	Subd.	55	57	+ 2	57	+ 2	0

Table 3.10-9. Continued

Roadway	From:	To:	Existing Land Use Description	Existing L_{dn}	No Project L_{dn}	Delta No Project minus Existing	With Project L_{dn}	Delta With Project minus Existing	Delta With Project minus No Project
Higgins Road	Jefferson Boulevard	North Linden Road	Subd.	50	53	+ 3	53	+ 3	0
Davis Road	West of Jefferson Boulevard	–	Sparse SFR	50	55	+ 5	56	+ 6	+ 1
Davis Road	Jefferson Boulevard	Stonegate Drive	SFR	36	52	+ 16	53	+ 17	+ 1
Davis Road	Village Parkway	Stonegate Drive	SFR	36	51	+ 15	53	+ 17	+ 2
Davis Road	Village Parkway	South River Road	Few SFR	–	44	–	48	–	+ 4
Bevan Road	Jefferson Boulevard	Otis Avenue	Few SFR	40	54	+ 14	54	+ 14	0
Bevan Road	Jefferson Boulevard	Gregory Avenue	Commercial	32	52	+ 20	53	+ 21	+ 1
Lake Washington Boulevard[1]	Jefferson Boulevard	Stonegate Drive	Undeveloped	–	**62**	–	**63**	–	+ 1
Stonegate Drive[1]	South of Davis Road	–	Few SFR	–	49	–	59	–	+ 10
Stonegate Drive[1]	Linden Road	Lake Washington Boulevard	Undeveloped	–	58	–	**61**	–	+ 3
Stonegate Drive[1]	Linden Road	Davis Road	Undeveloped	–	55	–	**60**	–	+ 5
Village Parkway[1]	South of Davis Road	–	Few SFR	–	52	–	58	–	+ 6
Village Parkway[1]	Linden Road	Stonegate Drive	Subd.	–	59	–	**61**	–	+ 2
Village Parkway[1]	Linden Road	Davis Road	Subd./Undev.	–	58	–	**62**	–	+ 4

Notes: All values exceeding 60 L_{dn} shown in **bold**.

[1] Future planned roadway—this segment not in existing case.

Table 3.10-10. Traffic Noise Modeling Results—Predicted Future Noise Levels Under Buildout Conditions at Roadway Segments Adjoining the Project

			Existing plus Project				Existing plus App plus Project			
Roadway	Existing Land Use Description	Standard dB L_{dn}	Phase 1 dB L_{dn}	Phase 2A dB L_{dn}	Phase 2B dB L_{dn}	Phase 3 dB L_{dn}	Phase 1 dB L_{dn}	Phase 2 dB L_{dn}	No project dB L_{dn}	With project dB L_{dn}
Davis Road from Jefferson Boulevard to Stonegate Drive	SFR	60	47	48	47	50	48	48	52	53
Davis Road from Village Parkway to South River Road	Few SFR	60	--	45	--	45	--	49	44	48
Stonegate Drive from south of Davis Road	Few SFR	60	--	--	--	--	--	--	49	59
Village Parkway from south of Davis Road	Few SFR	60	--	--	--	--	--	--	52	58

Section 3.11
Population and Housing

Introduction

This section describes the environmental setting (existing conditions and applicable state and local laws and regulations) for population and housing related to the project area. This section also discusses the potential impacts on population and housing that would result from the proposed Project, including a potential elementary school and future development of the planned Water Related Commercial area.

Environmental Setting

This section discusses the existing conditions related to population and housing in the project area. Federal, state, and local regulations related to population and housing that would apply to the Project are discussed below.

Existing Conditions

Population

West Sacramento is currently experiencing strong, steady growth. In 1987, the City of West Sacramento incorporated, combining the formerly separate communities of Bryte, Broderick, West Sacramento, and Southport. The 1990 U.S. census reported the new city's population at 28,898 (U.S. Census Bureau 2005a). This figure rose to 31,615 in 2000, and estimates by the California Department of Finance indicate 2004 and 2005 populations of 38,053 and 40,206, respectively (State of California 2005a). This represents an estimated population growth of 27% since the 2000 census and a growth of 5.7% in the 2004–2005 period alone.

The population of Yolo County in 2000 was estimated to be 168,660 persons (U.S. Census Bureau 2005b), and the Department of Finance estimated 2004 and 2005 populations of 184,660 and 187,743 respectively (State of California 2005b). The City of West Sacramento accounted for 18.7% of the population of

Yolo County in 2000. Based on the Department of Finance's estimates, the city's share of the total county population increased to 20.6% in 2004 and 21.4% in 2005.

Housing

As the population of West Sacramento has grown, the city's housing stock has expanded as well. California Department of Finance estimates indicate an increase in housing units from 12,218 in 1999 to 15,455 in 2005. The number of single-family detached dwellings grew from 6,765 in 1999 to 9,630 in 2005, an increase of 42%. In comparison, the total number of housing units in the city grew 26.5% during the same period. The number of persons per household in 2005 for the city of West Sacramento is estimated to be 2.75. Estimates for Yolo County indicated an average of 2.63 persons per household for the same year (State of California 2000, 2005b).

Regulatory Setting

State Regulations

State law requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and identify opportunities for housing development to meet those needs. At the state level, the California Housing and Community Development Department (HCD) is responsible for estimating the relative share of California's projected population growth that would occur in each county. These estimates are based on the State Department of Finance's population projections and historical growth trends. HCD provides population projections to the local Councils of Governments, which then assign a share of the regional housing among each county and each of its cities.

Each city and county is required by statute (California Government Code §65583) to update its general plan housing element on a regular basis (generally on 5-year cycles). Among other things, the housing element must incorporate policies and identify potential sites that would accommodate the city or county's share of the regional housing need. Before adopting an update to its housing element, the city or county must submit a draft of the document to HCD for review. HCD would then inform the local jurisdiction whether its housing element complies with the provisions of California Housing Element Law.

The Sacramento Area Council of Governments (SACOG) is responsible for projecting housing growth in the region and allocating that growth among its constituent counties and cities. According to the SACOG Regional Housing Needs Plan, West Sacramento should have 17,085 housing units by 2007 in order to meet its fair share of regional housing need (Sacramento Area Council of Governments 2001).

Local Goals and Policies

West Sacramento General Plan

The City of West Sacramento General Plan Housing Element (City of West Sacramento Department of Community Development 2003) lists the following relevant goals and policies with regard to population and housing:

Goal A: Adequate Land for a Balanced Range of Housing—To designate adequate land for a balanced range of housing types and densities for all economic segments of the community while emphasizing high-quality development and encouraging homeownership when financially feasible.

Policies:

1. The City shall continue to promote the development of a broad mix of housing types by adopting affordable housing goals and providing incentives to achieve those goals citywide.
2. The City shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate the City's regional housing allocation under the SACOG Regional Housing Needs Plan (RHNP).
3. While promoting the provision of housing for all economic segments of the community, the City shall seek to ensure high quality in all new residential development.
4. The Redevelopment Agency shall use its resources, as appropriate, to acquire and assemble sites for residential development, while minimizing displacement of existing residents.

Goal D: Balance of Employment and Housing—To seek a balance of employment and housing in proximity to one another and opportunities for residents to find affordable housing near, and accessible to, their places of employment.

Policies:

1. Higher density housing shall be located in proximity to, and be accessible to, commercial services, public transit routes, employment centers, and non-automotive routes (pedestrian, bicycle, etc.).
2. The City shall encourage employers within West Sacramento to participate in the City's Economic and Employment Incentive program to promote employment of local residents in local jobs.
3. The City shall promote mixed-use and/or higher density residential/commercial development along West Capitol Avenue, on infill properties in the West Sacramento Redevelopment Project Area, in the Waterfront Zone, around a proposed regional rail station, and in other appropriate commercial zones.

Goal E: Adequate Services for Residential Development—To ensure the provision of adequate services to support existing and future residential development.

Policies:

1. The City shall work with the Washington Unified School District to address the availability of' adequate school facilities to meet the needs of projected households in West Sacramento.
2. The City shall ensure that residential developments pay their proportional share of the cost of public facilities and services needed by those developments.
3. The City shall ensure that public facilities and services (such as water, sewer, and emergency services) shall be available prior to occupancy of residential projects.

Southport Framework Plan

The Southport Framework Plan Conformance Principles call for provision of affordable housing, locating higher density and affordable housing near transit and job centers, and provision of a variety of housing types. This is discussed in more detail in Section 3.9, *Land Use and Planning*. The Southport Framework Plan EIR (Willdan Associates 1994) did not identify any significant impacts related to population, employment, and housing associated with implementation of the Southport Framework Plan.

City of West Sacramento Inclusionary Housing Ordinance

The City of West Sacramento Inclusionary Housing Ordinance is found in the Municipal Code, Title 15, Building and Construction, Chapter 4, Relating to Affordable Housing. The purpose of the ordinance is to promote the provision of housing for all economic segments of the community and is applicable to most residential projects outside the redevelopment project area, including the River Park Development. The ordinance states that no city approvals shall be issued until the city manager confirms one of the following:

- An affordable housing agreement has been executed by the developer and the city and the agreement has been recorded with the Yolo County Recorder, or
- The residential project consists of fewer than 10 units and the developer has elected to pain in-lieu fees, or
- the developer has requested and the city council has determined that it is not feasible to comply with the requirements of this chapter.

Standards for the construction of inclusionary housing are provided in Section 15.40.070 and require that 15% of multifamily rental units be affordable to very low-, low-, and moderate-income families, and that 15% of for-sale units be affordable to low- and moderate-income families. It also provides standards for size, appearance, location, and construction phasing of inclusionary housing.

Impact Analysis

This section describes the methods used to determine the Project's impacts relating to population and housing and lists the thresholds used to conclude whether an impact would be significant.

Approach and Methods

Potential impacts on population and housing are based on the potential for construction and operation of the proposed Project to affect the population and housing resources, as described under the "Environmental Setting" section. Information about the City's current population and current housing need allocation, as presented in the same section, was collected from SACOG, the California Department of Finance, and the City of West Sacramento General Plan and Housing Element.

The projected buildout population of the Project is estimated to be 7,197 persons. This figure was calculated using statistics provided by the City of West Sacramento that assume 3 persons per household for rural and low-density residential units, 2.5 persons per household for medium-density units, and 2.25 persons per household for high-density units. These numbers were multiplied by the number of units of each type included in the project design and then summed to obtain the estimated population at buildout (Tilley pers. comm.).

The Project also includes a commercial center, a WRC area, and a proposed elementary school site, each of which would result in an increase in employment opportunities in the area. The Project employment assumptions developed for the River Park Draft Traffic Impact Study (Fehr & Peers 2005) estimated that the commercial center, WRC, and elementary school site are estimated to generate up to 350 jobs at full buildout.

Thresholds of Significance

Criteria for determining the significance of impacts related to population and housing were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq*.). An impact related to population and housing was considered significant if it would:

- induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure);
- displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere; or
- displace a substantial number of people, necessitating the construction of replacement housing elsewhere.

Impacts and Mitigation Measures

Impact POP-1: Directly Induce Substantial Population Growth by Proposing New Homes and Businesses (Less than Significant)

The proposed Project would modify the planned development of the Southeast Village of the Southport Framework Plan. This area, at the southern end of the city, is currently planned for residential development ranging from low to high densities, neighborhood commercial, WRC, open space, and parkland uses. The proposed Project would amend the current land use designations to support development of approximately 2,788 residential units (including low-, medium-, and high-density offerings), a 40-acre regional park, and 54 acres of smaller parks and community open-space areas. The proposed development would represent an increase of approximately 900 residential units over that envisioned in the Framework Plan.

SACOG has projected that the population of the city of West Sacramento would reach 67,361 persons by 2020 (Sacramento Area Council of Governments 2004). Compared to the California Department of Finance's estimates for 2005, the SACOG estimate represents a net growth of 27,155. The Southport Framework Plan (as amended 1998), which the Project seeks to modify, calls for 1,896 new housing units in the project area, or a population increase of 5,281. This would account for approximately 19% of projected growth for the city. At full buildout, the Project is expected to contribute 7,197 persons, which would account for approximately 26% of projected growth over this period, with the Project's inclusion of approximately 900 additional units making up the additional 7%. While this represents an increase in population growth, and a substantial increase in the population as envisioned in the Southport Framework Plan, the addition of the Project's residents would not substantially increase the population of West Sacramento beyond that projected by SACOG. The additional units would help the City fulfill its obligation to provide its fair share of housing stock for the region.

The Project would induce population growth through the addition of new homes and jobs, but this growth is not expected to substantially exceed the growth currently projected for the region. **This impact is less than significant, and no mitigation is necessary.**

Impact POP-2: Indirectly Induce Substantial Population Growth (Less than Significant)

The Project has the potential to induce growth by the provision of new jobs that could result from development of the proposed commercial center, WRC area, and elementary school. It is assumed that the housing demand generated by these new jobs would be met either by existing units in other areas of West Sacramento, by the proposed housing units that are part of the Project, or by housing units located elsewhere in the Sacramento metropolitan region. Given the mobility of workers within the greater Sacramento area, it would be impossible to accurately estimate the housing demand these jobs would generate in other parts of the region. Therefore, this EIR does not speculate about the locations or numbers of houses in those locations.

SACOG estimates that approximately 11,450 new households would be added to West Sacramento's housing stock by 2020 (Sacramento Area Council of Governments 2004). The demand for new housing generated by the employment created by the proposed Project would be easily accommodated by this level of projected growth. Therefore, this demand would have a less-than-significant impact on population growth. No mitigation is required.

The proposed Project would also result in a temporary increase in job creation during the development phases of the Project (e.g., construction jobs) but, as discussed above, would result in permanent creation of approximately 350 jobs at full buildout. The Project would increase the number of available jobs and may have an indirect impact on housing demand elsewhere. However, this impact is considered less than significant in the context of the number of new housing units projected in the City and the Sacramento region. **Because the Project would not indirectly induce substantial population growth in the region, potential impacts are considered to be less than significant. No mitigation is required.**

Impact POP-3: Displace a Substantial Number of Existing Housing Units, Necessitating Construction of Replacement Housing Elsewhere (Less than Significant)

The Southport area of the city of West Sacramento is relatively undeveloped compared to the northern portion of the city. The properties on which the Project would be constructed contain 2 housing units (ENGEO, 2002, 2003, 2004a–d)(see Section 3.5, *Cultural Resources*, for more information). Both of these structures would need to be relocated or demolished before Project construction. Compared to the 2,788 housing units proposed for construction by the Project, the demolition of 2 housing units is not considered to be a substantial displacement of existing units, as the city as a whole would still experience a net gain of 2,786 units.

The construction of new housing units on site would compensate for the loss of existing units in the area. **This impact is less than significant, and no mitigation is necessary.**

Impact POP-4: Displace a Substantial Number of People, Necessitating Construction of Replacement Housing Elsewhere (Less than Significant)

As mentioned above, the subject properties contain 2 housing units. Based on the California Department of Finance's estimates of the number of persons per household for West Sacramento, this translates to approximately 5.5 persons subject to displacement by the proposed Project, assuming that both of the units are currently occupied. Given the current growth of the region and the City, it is anticipated that these displaced individuals would be accommodated by the proposed housing units constructed as part of the Project or by housing units located elsewhere in the Sacramento metropolitan region. **This impact is less than significant. No mitigation is necessary.**

Section 3.12

Recreation

Introduction

This chapter describes the environmental setting for recreation resources and the impacts on recreational facilities that would result from the Project.

Environmental Setting

This section discusses the existing conditions related to recreation resources in the project area. Local regulations related to recreation resources that would apply to the Project are discussed below.

Existing Conditions

Seventeen parks are operated by the Department of Parks and Community Services, of which two, Bryte Park and the Alyce Norman Playfields, are leased from the Washington Unified School District. Currently more than 145 acres of developed parks are available for local residents, and recreation programs and events are designed for all ages and interests (City of West Sacramento 2005b). The City groups parks into the following categories: mini-parks, neighborhood parks, playfields, and community parks. The classification system also includes linear parks and regional parks, but no regional parks exist in the city, and no linear parks are currently in service in the Southport area. The closest park to the project site is Redwood Park, approximately 1.5 miles to the north. Redwood Park is classified as a mini-park, providing only passive recreation on a roughly half-acre site.

Other recreational facilities in the area include three marinas, the nearest of which is roughly a mile north of the project area.

Regulatory Setting

Local Regulations

City of West Sacramento General Plan

The City of West Sacramento's General Plan Policy Document (City of West Sacramento Department of Community Development 1990b) establishes the following relevant goals and policies:

Goal A: To establish and maintain a public park system and recreation facilities suited to the needs of West Sacramento residents and visitors.

Policies:

1. The City shall prepare and adopt a *Parks Master Plan*, which includes the following components:
   - Locational standards
   - Preferred sites
   - Improvement standards
   - Equipment standards
   - Identification of existing parkland deficiencies
   - Development priorities
   - Financing mechanisms
   - Acquisition and development of new park sites
   - Plans for community and regional parks
   - Development of community activity centers
2. The City shall establish a standard of five acres of parkland, three acres of community parks and two acres of neighborhood parks, per 1,000 people, or its equivalent in the context of a park dedication ordinance to be established and periodically updated by the City.
3. New development shall be required to assist in meeting the City's park acreage standard as established in an adopted parkland dedication ordinance. To this end, the City shall require of all new development the dedication of land, dedication of improvements, payment of in-lieu fees, or any combination of these determined acceptable by the City, to the maximum extent authorized by law.
4. Neighborhood parks shall be integrated into, and become focal points of, new residential neighborhoods. Non-automobile access shall be facilitated.
5. The City shall promote the development of one or more large-scale park complexes in West Sacramento. The City shall pursue state and regional funding for such a park complex.

Goal D: To provide and encourage, to the fullest extent possible, public access to the Sacramento River and Deep Water Ship Channel for recreation purposes.

Policies:

1. The City shall ensure continuous public access to the Sacramento River for its full length within West Sacramento.
2. Linear access to the Sacramento River and Deep Water Ship Channel shall be linked to the city's overall system of parks, recreational pathways, and open space. To this end, the City shall require the dedication of public access easements through new developments along the Sacramento River and Deep Water Ship Channel.
3. The City shall encourage the development of public and private marinas in appropriate locations on the Sacramento River and along the Deep Water Ship Channel. Siting and development of marinas shall avoid, as much as possible, areas of significant existing riparian vegetation.

City of West Sacramento Parks Master Plan

The West Sacramento Parks Master Plan, prepared in 2003, outlines the City’s goals and policies with regard to the provision of parks and related recreational facilities for West Sacramento residents and provides an inventory of current facilities (SmithGroup 2003). As of April 2006, the City of West Sacramento had approximately 145 acres of developed parkland (City of West Sacramento 2005b). This represents a 28-acre shortfall from the standard of 5 acres per 1,000 residents established in the General Plan. Based on this ratio, it is estimated that by 2025 population growth in West Sacramento would require the City to have a total of 375 acres of parkland available in order to meet this standard.

The West Sacramento Parks Master Plan targets several areas as particularly well-suited for park development, and the riverfront portion of the project site is indicated as a prime location for the construction of a community park to serve the Southport area (SmithGroup 2003).

Southport Framework Plan

The Southport Framework Plan Conformance Principles call for funding and constructing recreation and park facilities as a part of project development. The Southport Framework Plan EIR (Willdan Associates 1994) found that, with the implementation of the Conformance Principles, there would be no significant impacts related to recreation and parks associated with implementation of the Southport Framework Plan.

Impact Analysis

This section describes the methods used to determine the Project's impacts relating to recreation and lists the thresholds used to conclude whether an impact would be significant.

Approach and Methods

Potential impacts on recreational facilities that may result from the construction and/or operation of the Project are considered at a project level.

Thresholds of Significance

Criteria for determining the significance of impacts on recreation resources were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq*.). An impact related to recreation resources was considered significant if it would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Impacts and Mitigation Measures

Impact REC-1: Increase the Use of Existing Neighborhood Recreational Facilities Such That Physical Deterioration Would Occur or Be Accelerated (Less than Significant)

The proposed Project includes the construction of approximately 2,788 residential units, which would create a substantial increase in population in an area that is currently rural in nature. According to the U.S. Census Bureau (2005a) the average number of persons per household in the City of West Sacramento is 2.75. The City assumes the household size is 3 persons in low-density residential units, 2.5 persons in medium-density residential, and 2.25 persons in high-density residential. The Project is therefore estimated to result in a population increase of approximately 7,197 people. Implementation of the Project could increase the use of the parks in the area, which could increase or accelerate the physical deterioration of these facilities.

The project design includes development of approximately 101.2 acres of parks and open space: 49.5 acres of parklands (including development of a regional park and three neighborhood parks), 22.0 acres of open space along the Sacramento River, and a 29.7-acre parkway feature (Figure 2-4). The primary feature of the open space plan is an open water/emergent marsh habitat created by enlarging and redesigning an agricultural irrigation ditch at the site. This wetland feature would serve as the centerpiece of the planned parkway. Native and naturalized plantings along the parkway would be encouraged. In addition, the enhanced parkway would be used to continue to convey irrigation flows, collect storm and surface water drainage from River Park, and act as a detention basin for stormwater runoff. The parkway would extend from the former Yolo Shortline Railroad corridor at the western boundary of the site easterly to the regional park proposed at the Project's southeastern boundary. The parkway would provide bicycle, equestrian, and pedestrian opportunities and facilities. These amenities would provide recreational opportunities for the residents of the Project and would minimize increased use of existing parks in the city by Project residents.

The recreational facilities incorporated into the Project design exceed the standard of 5 acres per 1000 persons set by the City for new developments. Among the facilities is a regional park designed to serve both the residents of River Park and the surrounding community in the Southport area with amenities that may include an amphitheater, sports fields, community playground, and waterfront commercial area. The remaining park acreage is dedicated for use as residential parks and an oak preserve that would be connected to each other and the regional park through an urban parkway that allows residents easy access to recreation areas.

The construction of the proposed system of neighborhood parks, including the regional park, linear parks, residential parks, and linking trail system, **would reduce Project-related impacts on area parks and recreational facilities to less-than-significant levels, and no mitigation is necessary.**

Impact REC-2: Include Recreational Facilities that Might Have an Adverse Physical Effect on the Environment (Less than Significant with Mitigation Incorporated)

The Project involves the construction of a combination of recreational facilities at the site, which during construction could have an adverse effect on the environment. **Implementation of the mitigation measures described in Section 3.3, *Air Quality*; Section 3.8, *Hydrology and Water Quality;* and Section 3.10, *Noise*, would reduce the potential construction-related impacts to less-than-significant levels.**

Construction and operation of a marina involves the regular transport, handling, and storage of a number of hazardous materials, most notably marine fuels, which could pose a hazard to the environment if improperly stored or accidentally released. **Implementation of Mitigation Measure HAZ-1 would reduce this impact to less-than-significant levels.**

Construction and operation of the park facilities, including the marina, could potentially have other effects, including effects related to noise and light and glare. These issues are addressed in the other topical sections of this EIR, as the park and marina facilities are part of the proposed Project.

Section 3.13
Traffic and Transportation

Introduction

This section describes the environmental setting (existing conditions and regulatory setting) for transportation relating to the proposed Project, impacts on transportation that would result from the proposed Project, and mitigation measures that would reduce these impacts.

The Transportation Study—River Park Project study (Fehr & Peers 2006) assumed development of all of the program-and project-level elements of the Project, including the Water Related Commercial area and the proposed elementary school; therefore this discussion encompasses the entire Project, including and is applicable to all these program elements.

The key source of data and information used in the preparation of this chapter was Fehr & Peers' Transportation Study—River Park Project (2006) prepared for this EIR. Chapter 4, *Alternatives Analysis*, discusses the transportation impacts of the alternatives to the proposed Project. Impacts related to growth inducement are addressed in Chapter 5, *Other CEQA Considerations*.

Environmental Setting

This section discusses the existing conditions relating to transportation in the study area; existing conditions including approved projects; and federal, state, and local regulations relating to transportation that would apply to the proposed Project.

Existing Conditions

This section describes the transportation characteristics of the project study area, including the surrounding roadway network and transit, pedestrian, and bicycle facilities in the vicinity of the project site.

Existing Transportation System

The City of West Sacramento is located in Yolo County between Interstate 80 (I-80), Interstate 5 (I-5), and US 50. The study area includes intersections along Jefferson Boulevard, Harbor Boulevard, and South River Road (Fehr & Peers 2006).

Study Area Roadways and Intersections

Roadways

Key roadways within the project vicinity are shown in Figure 3.13-1 and are described below.

US 50 is a major freeway extending from I-80 in West Sacramento through the City of Sacramento and reconnecting to I-80 in the northeast area of Sacramento. US 50 is also referred to as Business 80 or the Capital City Freeway within the West Sacramento vicinity. In the study area, US 50 is a six- to eight-lane freeway with an interchange at Harbor Boulevard, Jefferson Boulevard, and a partial interchange at South River Road. It has an average daily traffic (ADT) volume of about 105,000 vehicles east of Jefferson Boulevard[1] (Fehr & Peers 2006).

State Route (SR) 275 provides a connection between US 50 and Downtown Sacramento at the Tower Bridge. Jefferson Boulevard, West Capitol Avenue, and South River Road provide access to Tower Bridge Gateway. Two mix-flow lanes are provided in each direction. Tower Bridge Gateway has an ADT volume of about 7,000 vehicles east of Fifth Street (Fehr & Peers 2006).

Jefferson Boulevard is a major arterial and truck route that extends from Sacramento Avenue to south of the city limits. Jefferson Boulevard was recently widened to four lanes from US 50 to just south of S. Linden Road. The remaining portion of the roadway within the study area is two lanes (Fehr & Peers 2006).

South River Road is an arterial that extends from Tower Bridge Gateway south to just north of the barge canal. South of the barge canal South River Road continues as a two-lane roadway from Jefferson Boulevard along the Sacramento River levee south of the proposed Project (Fehr & Peers 2006).

Davis Road is a two lane residential roadway that extends east from Jefferson Boulevard to South River Road. Davis Road is a rural roadway and does not have paved shoulders or sidewalks. Davis Road would serve as the main access to the proposed Project under existing and near-term conditions (Fehr & Peers 2006).

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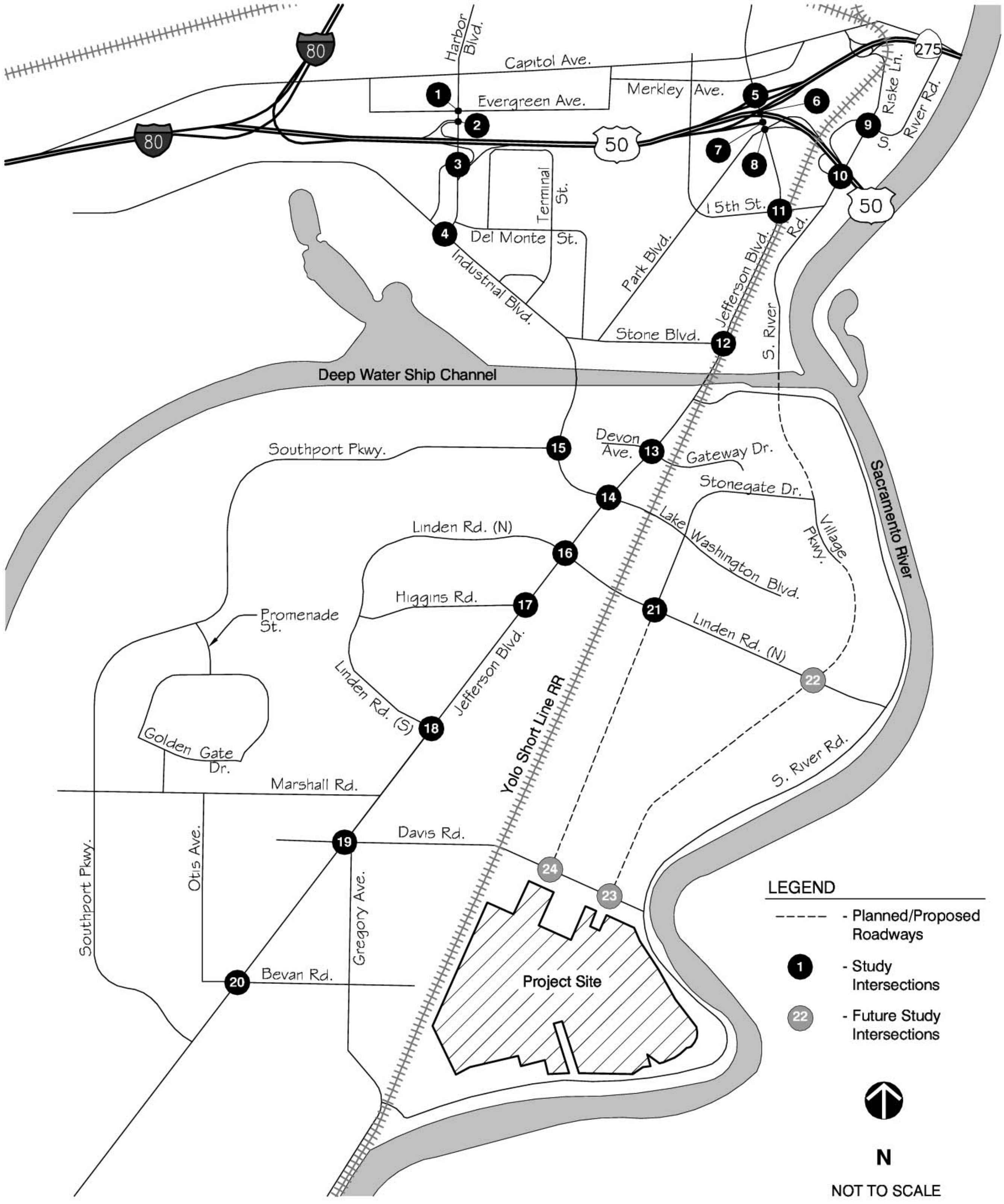
[1] Year 2003 counts as presented on Caltrans website (http://www.dot.ca.gov/hq/traffops/saferesr/trafdata).



Source: Fehr & Peers 2006

Jones & Stokes

Figure 3.13-1
Study Area Roadways and Intersections

Intersections

Twenty-one roadway intersections were analyzed. The intersection locations were selected in consultation with the City of West Sacramento as those most likely to be affected by the proposed Project. The locations of these study intersections are shown on Figure 3.13-1; the intersections are listed below (Fehr & Peers 2006).

Harbor Boulevard/Evergreen Avenue

Harbor Boulevard/US 50 westbound Ramps

Harbor Boulevard/US 50 eastbound Ramps

Harbor Boulevard/Industrial Boulevard

Jefferson Boulevard/US 50 and Tower Bridge Gateway Ramps

Jefferson Boulevard/Tower Bridge Gateway eastbound on-ramp

Jefferson Boulevard/US 50 eastbound off-ramp

Jefferson Boulevard/Park Boulevard/US 50 Ramps

South River Road/Riske Lane/US 50 westbound off-ramp

South River Road/US 50 eastbound on-ramp

Jefferson Boulevard/15th Street

Jefferson Boulevard/Stone Boulevard

Jefferson Boulevard/Devon Avenue/Gateway Drive

Jefferson Boulevard/Lake Washington Boulevard

Lake Washington Boulevard/Southport Parkway

Jefferson Boulevard/N. Linden Road

Jefferson Boulevard/Higgins Road

Jefferson Boulevard/S. Linden Road

Jefferson Boulevard/Davis Road

Jefferson Boulevard/Bevan Road

Stonegate Drive/N. Linden Road

Bicycle and Pedestrian Facilities

Within the project vicinity, limited bicycle and pedestrian facilities are provided. Jefferson Boulevard has on-street bicycle lanes and sidewalks north of S. Linden Road. Davis Road does not have bicycle facilities or sidewalks.

Future planned facilities within the project vicinity include bicycle lanes on Jefferson Boulevard and recreational trails (i.e., Class I bicycle paths) along the Sacramento River just east of the proposed Project and within the Yolo Short

Line Railroad right-of-way just west of the proposed Project (Fehr & Peers 2006).

Transit Facilities

The Yolo County Transportation District operates 32 buses and 10 Paratransit vehicles in Yolo County. Yolobus transit service operates within the City of West Sacramento and provides access to the surrounding communities including Davis, West Sacramento, Winters, Woodland, Downtown Sacramento, Sacramento International Airport, Cache Creek Casino, Esparto, Madison and Knights Landing. It also provides connections to other public transportation systems including Unitrans, Citylink Amtrak in Davis, and Regional Transit and Light Rail in Sacramento (Fehr & Peers 2006).

Yolobus route 39 operates on Jefferson Boulevard, Linden Road, Marshall Road, Oakland Bay, and Golden Gate Way. The closest transit stop to the proposed Project is at Jefferson Boulevard and Marshall Road. Additional transit stops are located to the north along Jefferson Boulevard. The service operates from about 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. on weekdays (Fehr & Peers 2006).

Existing Transportation Operations

Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Tables 3.13-1 through 3.13-3 relate the operational characteristics associated with each LOS category for signalized and unsignalized intersections (Fehr & Peers 2006).

The analysis methods presented in the Transportation Research Board's Circular 212 (January 1980) and Highway Capacity Manual (2000 HCM) were utilized for LOS calculations for signalized and unsignalized intersections as described below. Freeway facilities were also analyzed using the methodology presented in the 2000 HCM (Fehr & Peers 2006).

Signalized intersections

As required by the City of West Sacramento, the Circular 212 planning method was used to determine the LOS at signalized intersections within the City. This method is based on the volume-to-capacity (V/C) ratio, which relates the total traffic volume for critical opposing movements to the theoretical capacity for those movements. Table 3.13-1 summarizes the relationship between V/C ratio and LOS for signalized intersections (Fehr & Peers 2006).

Table 3.13-1. Signalized Intersection Level of Service Criteria

Level of Service	Description	V/C Ratio
A	Stable flow—Very slight or no delay. Conditions are such that no approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.	0.00–0.60
B	Stable flow—Slight delay. An occasional approach phase is fully utilized.	0.61–0.70
C	Stable flow—Acceptable delay. A few drivers arriving at the end of a queue may have to wait through one signal cycle.	0.71–0.80
D	Approaching unstable flow—Tolerable delay. Delay may be substantial during short periods, but excessive back ups do not occur.	0.81–0.90
E	Unstable flow—Intolerable delay. Delay may be great—up to several signal cycles. Long queues form upstream of intersection.	0.91–1.00
F	Forced flow—Excessive delay. Volumes vary widely, depending on downstream queue conditions.	> 1.00

Source: Circular 212, Transportation Research Board 1980 in Fehr & Peers 2006.

The TRAFFIX for Windows software program was used to determine the intersection operations. This program uses the maximum critical volumes applied in Transportation Research Board's Circular 212 (January 1980) as default values. Many jurisdictions that use the Circular 212 method, such as the City of West Sacramento, apply higher critical volumes. Table 3.13-2 presents adjusted critical volumes that are used by the City of West Sacramento and were used in this study. A peak hour factor of 1.00 was assumed for each analysis scenario (Fehr & Peers 2006).

Table 3.13-2. Maximum Intersection Critical Volumes

Number of Signal Phases	Transportation Research Board Intersection Capacity	West Sacramento Intersection Capacity
2	1,500	1,650
3	1,425	1,550
≥ 4	1,375	1,500

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

The signalized intersections located at freeway interchanges serving on- and off-ramps (i.e., California Department of Transportation [Caltrans] facilities) were analyzed using the SYNCHRO/SimTraffic software package. Delay and LOS results from the SYNCHRO/SimTraffic software program reflect the influence of upstream and downstream queuing on intersection operations, which is beneficial when analyzing closely spaced intersections. SYNCHRO/SimTraffic uses the methodology presented in the 2000 HCM. This methodology determines the LOS at signalized intersections by comparing the average control delay per vehicle at the intersection to the thresholds shown in Table 3.13-3. The average control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up time in the queue (Fehr & Peers 2006).

Table 3.13-3. Level of Service Definitions for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	≤ 10.0
B	10.1–20.0
C	20.1–35.0
D	35.1–55.0
E	55.1–80.0
F	> 80.0

Source: Highway Capacity Manual, Transportation Research Board 2000 in Fehr & Peers 2006.

Unsignalized Intersections

For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2000 HCM method was utilized. With this method, operations are defined by average control delay per vehicle (measured in seconds) for each stop-controlled movement. For side-street stop-controlled intersections, delay for the worst movement is reported. Table 3.13-4 summarizes the relationship between delay and LOS for unsignalized intersections. A peak hour factor of 1.00 was also applied to unsignalized intersections for each analysis scenario (Fehr & Peers 2006).

Table 3.13-4. Unsignalized Intersection Criteria

Level of Service	Description	Average Control Per Vehicle (Seconds)
A	Little or no delay	≤ 10.0
B	Short traffic delays	> 10.0–15.0
C	Average traffic delays	> 15.0–25.0
D	Long traffic delays	> 25.0–35.0
E	Very long traffic delays	> 35.0–50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: Highway Capacity Manual, Transportation Research Board 2000 in Fehr & Peers 2006.

Freeway Mainline and Ramp Merge/Diverge

A freeway mainline merge/diverge analysis was conducted for freeway facilities within the study area using the 2000 Highway Capacity Software (HCS) package. The software is consistent with the methodologies contained in Chapters 24 and 25 of the 2000 HCM. This methodology correlates the LOS to the expected density of vehicles in passenger cars per mile per lane. Table 3.13-5 summarizes the relationship between density and LOS for freeway mainline and ramp junctions (Fehr & Peers 2006).

Table 3.13-5. Freeway Mainline and Ramp Merge/Diverge Level of Service Definitions

Level of Service	Density[1]	
	Mainline	Ramp Junction
A	< 11	< 10
B	> 11–18	> 10–20
C	> 18–26	> 20–28
D	> 26–35	> 28–35
E	> 35–45	> 35
F	> 45	Demand exceeds capacity

[1] Measured in vehicles per mile per lane.

Source: Highway Capacity Manual, Transportation Research Board 2000 in Fehr & Peers 2006.

Traffic Counts

Turning movement counts were conducted at the study intersections in Summer and Fall 2005 during the morning (7:00 to 9:00 a.m.) peak period and evening (4:00 to 6:00 p.m.) peak period. Most of the traffic counts were collected after the completion of the Jefferson Boulevard widening project. For each intersection count period, the hour with the highest traffic volume was identified as the peak hour. Existing peak hour turning movement volumes, lane configurations, and traffic control are shown on Figure 3.13-2.

Intersection Operations

The Circular 212 planning and 2000 HCM methods were applied to determine peak hour traffic operations at the study intersections under existing conditions.

Level of Service

Existing intersection operations were evaluated for the weekday AM and PM peak hours. Table 3.13-6 summarizes the intersection analysis results. As shown, the study intersections operate at LOS D or better during the AM and PM Peak hours except for the following:

- Harbor Boulevard/US 50 westbound Ramps operates at LOS F during the AM peak hour.
- Jefferson Boulevard/US 50 westbound on-ramp/SR 275 westbound off-ramp has a worst-case movement (i.e., the westbound left-turn movement from SR 275 to Jefferson Boulevard) of LOS E during the AM and PM peak hours.

Table 3.13-6. Existing Conditions AM and PM Peak Hour Intersection Level of Service

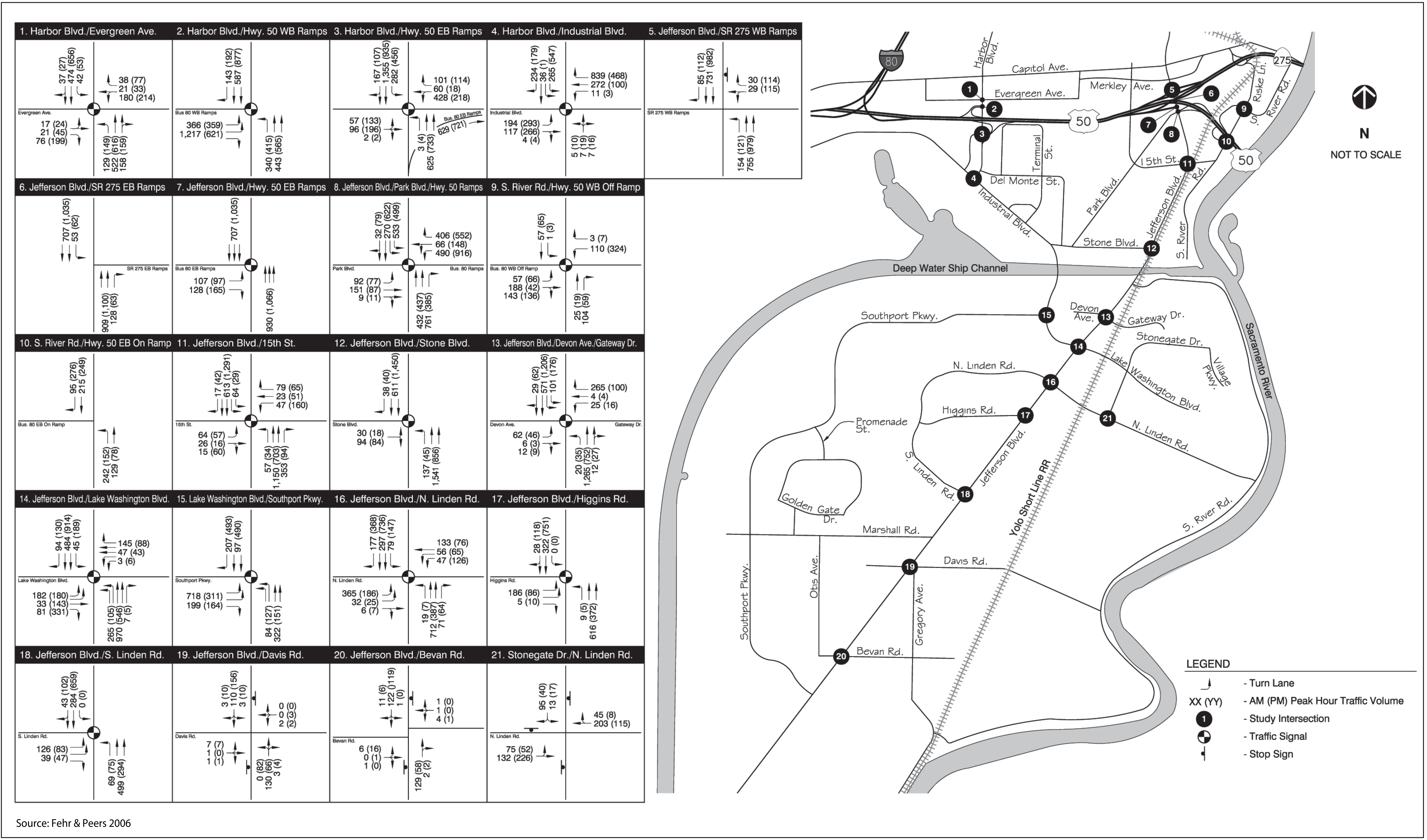
		AM Peak Hour		PM Peak Hour	
Study Intersections	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Boulevard/Evergreen Avenue	Signal	47	D	39	**D**
2. Harbor Boulevard/ US 50 westbound Ramps	Signal	**>80**	**F**	45	D
3. Harbor Boulevard/US 50 eastbound Ramps	Signal	42	D	24	B
4. Harbor Boulevard/Industrial Boulevard	Signal	0.70	B	0.49	A
5. Jefferson Boulevard/US 50 and Tower Bridge Gateway Ramps	Side-Street Stop	**40**	**E**	**>50**	**E**
6. Jefferson Boulevard/Tower Bridge Gateway eastbound on-ramp	Side-Street Stop	10	B	12	B
7. Jefferson Boulevard/US 50 eastbound off-ramp	Signal	<10	A	< 10	A
8. Jefferson Boulevard/Park Boulevard/US 50 Ramps	Signal	34	C	46	D
9. South River Road/Riske Lane/US 50 westbound off-ramp	Signal	16	B	14	B
10. South River Road/US 50 eastbound on-ramp	Side-Street Stop	<10	A	< 10	A
11. Jefferson Boulevard/15th Street	Signal	0.50	A	0.61	B
12. Jefferson Boulevard/Stone Boulevard	Signal	0.58	A	0.56	A
13. Jefferson Boulevard/Devon Avenue/Gateway Drive	Signal	0.68	B	0.54	A
14. Jefferson Boulevard/Lake Washington Boulevard	Signal	0.52	A	0.47	A
15. Lake Washington Boulevard/Southport Parkway	Signal	0.42	A	0.47	A
16. Jefferson Boulevard/N. Linden Road	Signal	0.51	A	0.37	A
17. Jefferson Boulevard/Higgins Road	Signal	02.7	A	0.31	A
18. Jefferson Boulevard/S. Linden Road	Signal	0.24	A	0.35	A
19. Jefferson Boulevard/Davis Road	Side-Street Stop	10.1	B	12.0	B
20. Jefferson Boulevard/Bevan Road	Side-Street Stop	10.1	B	9.7	A
21. Stonegate Drive/N. Linden Road	All-Way Stop	8.8	A	8.7	A

Notes: **Bold** = Unacceptable LOS Side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) to the *Highway Capacity Manual—Special Report 209*, Transportation Research Board 2000. The worst case movement delays are presented.

Signalized intersection LOS is based on V/C ratio according to *Circular 212, Interim Materials on Highway Capacity*, Transportation Research Board 1980).

V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.



Source: Fehr & Peers 2006

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Jones & Stokes

Figure 3.13-2

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

Traffic Signal Warrant Analysis

A peak hour volume traffic signal warrant analysis was conducted for the unsignalized study intersections using the criteria described in the Federal Highway Administration's Manual of Uniform Traffic Control Devices (MUTCD). The MUTCD contains eight warrants. The peak hour volume warrant analysis was conducted due to the available data. The unsignalized study intersections do not meet the criteria to install a traffic signal based on the peak hour signal warrant under existing conditions (Fehr & Peers 2006).

The analysis of unsignalized intersections is intended to examine the need to install new traffic signals. The existing traffic conditions are compared against a sub-set of the standard traffic signal warrants recommended in the MUTCD and associated Caltrans guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. In addition, factors such as congestion, approach conditions, and driver confusion should be considered since the installation of signals can lead to certain types of collisions. The City of West Sacramento should undertake regular monitoring of actual traffic conditions and accident data and should conduct a timely reevaluation of the full set of warrants in order to prioritize and program intersections for signalization (Fehr & Peers 2006).

Freeway Operations

Freeway mainline and ramp operations are summarized in Table 3.13-7. As shown, the westbound South River Road off-ramp diverge at the Jefferson Boulevard/South River Road off-ramp split operates at LOS F during the PM peak hour under Existing conditions. Three of the four weaving sections on US 50 operate at LOS E or F as highlighted in the table below.

Table 3.13-7. Freeway Facility Level of Service—Existing Conditions

	Existing Conditions					
	AM Peak Hour			PM Peak Hour		
Facility	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
Off-ramp (diverge): eastbound SR 275 at off-ramp to Jefferson Boulevard	240	<10	A	260	<10	A
Off-ramp (Diverge): westbound South River Rd. off-ramp at Jefferson/South River Rd. split	1350	24.4	C	1860	**>35**	**F**
Mainline section: US 50 eastbound from I-80 to Harbor Boulevard	5,600	24.6	C	4,000	17.5	B
Weaving section: US 50 eastbound from Harbor Boulevard to Jefferson Boulevard	6,810	28.3	D	5,890	23.5	B
Weaving section: US 50 eastbound from South River Road to I-5	7,910	**>45**	**F**	6,090	**38.9**	**E**
Weaving section: US 50 westbound from I-5 to South River Road	7,210	**>45**	**F**	8,750	**>45**	**F**
Weaving section: US 50 westbound from Jefferson Boulevard to Harbor Boulevard	5,850	33.2	D	7,590	**>45**	**F**
Mainline section: US 50 westbound from Harbor Boulevard to I-80	3,880	17.0	B	5,620	24.7	C

Note: **Bold** = Unacceptable operation per significance thresholds defined in this report.

[1] Density reported as passenger cars per mile per lane (pc/mi/ln) in the peak hour.

[2] Level of service.

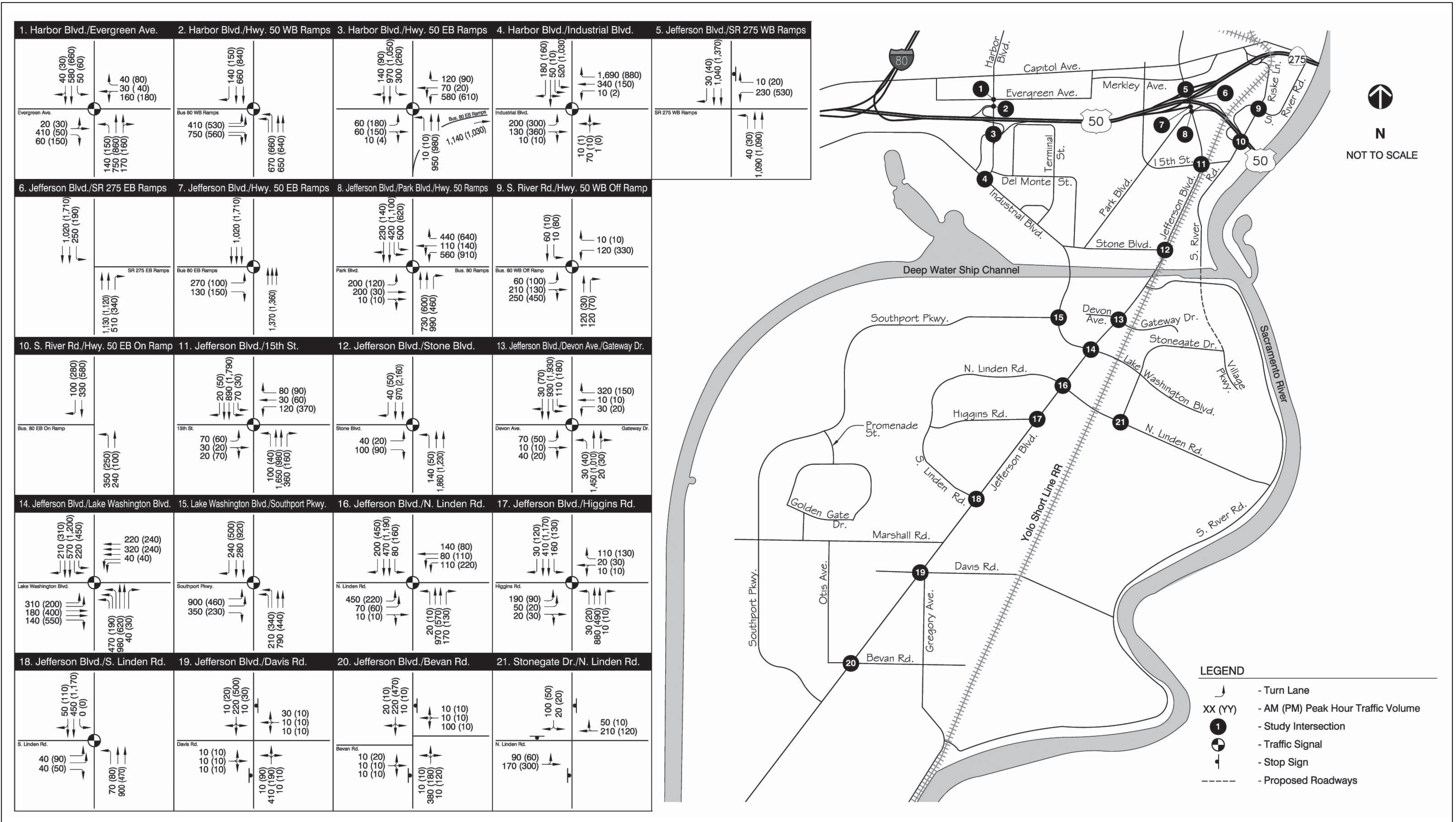
Source: Fehr & Peers 2005 in Fehr & Peers 2006

Existing Plus Approved Projects Conditions

This section discusses traffic operations forecast with the implementation of projects that have been approved within the City of West Sacramento but not yet constructed.

Approved Transportation Improvements

The following intersection improvements were assumed in place for the Existing Plus Approved Projects conditions traffic operations analysis. Figure 3.13-3 also displays the intersection lane configurations for Existing Plus Approved Projects conditions at the study intersections. These improvements have been identified in previous City reports as being constructed within the next several years (Fehr & Peers 2006).



Source: Fehr & Peers 2006

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Figure 3.13-3

Peak Hour Traffic Volumes and Lane Configurations--Existing Plus Approved Projects Conditions

- Harbor Boulevard/US 50 westbound Ramps: Dual northbound left-turn lanes on Harbor Boulevard and dual left-turn lanes and dual right-turn lanes on the US 50 westbound off-ramp.
- Harbor Boulevard/US 50 eastbound Ramps: A separate left-turn lane on eastbound Halyard Drive and a left-turn lane and a shared left-turn/through lane on the US 50 eastbound off-ramp.
- Harbor Boulevard/Industrial Boulevard: Triple left-turn lanes on southbound Industrial Boulevard (outside left-turn lane is a shared left-turn/through lane).
- Jefferson Boulevard/Lake Washington Boulevard: Dual southbound left-turn lanes and three northbound left-turn lanes on Jefferson Boulevard; and two eastbound through lanes and three westbound through lanes on Lake Washington Boulevard.
- Jefferson Boulevard/Higgins Road: An east leg of the intersection would be constructed to provide access to the future High School.

City staff has indicated the South River Road Bridge and approaches will be constructed by 2008. The Tower Bridge Gateway project will also be constructed.

Approved Development Projects

Development that has been approved but not yet constructed or built-out was incorporated into the City of West Sacramento's "Base Plus Approved" Travel Demand Model. Key projects within the study area that are reflected in this model are listed below. A complete list of projects can be found in 2004 Traffic Demand Model Update, Final Report, DKS Associates, May 2005 (Fehr & Peers 2006).

- Bridgeway Island (1,323 single-family dwelling units)
- Bridgeway Lakes 1 and 2 (1,152 single-family dwelling units)
- Linden South and West (181 single-family dwelling units)
- Lindenwood (176 single-family)
- Newport Estates (461 single-family dwelling units)
- Southport Gateway (357 single-family dwelling units)

Traffic Forecasts

Traffic volumes were developed for each study intersection during the AM and PM peak hours with the City of West Sacramento "Base Plus Approved" Travel Demand Model. Raw model volumes were adjusted to account for inaccuracies in the base year model by adding the growth in traffic forecasts to existing traffic counts. Figure 3.13-3 displays AM and PM peak hour traffic volumes for each study intersection under Existing Plus Approved Projects conditions (Fehr & Peers 2006).

Intersection Operations

Level of Service

The AM and PM peak hour traffic operations were analyzed at each study intersection. Table 3.13-8 presents the LOS results for Existing Plus Approved Projects conditions. The results reflect the coordination and optimization of signal timings along Jefferson Boulevard and Harbor Boulevard at the US 50 ramp terminal intersections. As shown, the following study intersections on City streets (i.e., not at freeway interchanges) do not meet the City's service level thresholds under Existing Plus Approved Projects conditions (Fehr & Peers 2006).

- Jefferson Boulevard/15th Street operates at LOS E during the PM peak hour under Existing Plus Approved Projects conditions.
- Jefferson Boulevard/Devon Avenue/Gateway Drive operates at LOS D during the PM peak hour under Existing Plus Approved Projects conditions.

The following study intersections at freeway interchanges (i.e., ramp terminal intersections) do not meet the City's service level thresholds under Existing Plus Approved Projects conditions (Fehr & Peers 2006).

- Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp has a worst-case movement (i.e., the westbound left-turn movement from Tower Bridge Gateway to Jefferson Boulevard) of LOS F during the AM and PM peak hours under Existing Plus Approved Projects conditions.
- Jefferson Boulevard/Park Boulevard/US 50 Ramps operates at LOS E during the AM peak hour under Existing Plus Approved Projects conditions.

Table 3.13-8. Existing Plus Approved Projects Conditions—AM and PM Peak Hour Intersection Level of Service

		AM Peak Hour		PM Peak Hour	
Study Intersections	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Boulevard/Evergreen Avenue	Signal	29	C	38	D
2. Harbor Boulevard/US 50 westbound Ramps	Signal	22	B	23	B
3. Harbor Boulevard/US 50 eastbound Ramps	Signal	27	C	32	C
4. Harbor Boulevard/Industrial Boulevard	Signal	0.52	A	0.77	C
5. Jefferson Boulevard/US 50 and Tower Bridge Gateway Ramps	Side-Street Stop	**>50**	**F**	**>50**	**F**
6. Jefferson Boulevard/Tower Bridge Gateway eastbound on-ramp	Side-Street Stop	15	B	14	B
7. Jefferson Boulevard/US 50 eastbound off-ramp	Signal	10	B	< 10	A
8. Jefferson Boulevard/Park Boulevard/US 50 Ramps	Signal	**59**	**E**	37	D
9. South River Road/Riske Lane/US 50 westbound off-ramp	Signal	18	B	27	C
10. South River Road/US 50 eastbound on-ramp	Side-Street Stop	10	B	12	B
11. Jefferson Boulevard/15th Street	Signal	0.69	C	**0.93**	**E**
12. Jefferson Boulevard/Stone Boulevard	Signal	0.69	C	0.80	D
13. Jefferson Boulevard/Devon Avenue/Gateway Drive	Signal	**0.79**	**C**	**0.83**	**D**
14. Jefferson Boulevard/Lake Washington Boulevard	Signal	0.67	B	0.70	C
15. Lake Washington Boulevard/Southport Parkway	Signal	0.57	A	0.61	B
16. Jefferson Boulevard/N. Linden Road	Signal	0.64	B	0.56	A
17. Jefferson Boulevard/Higgins Road	Signal	0.53	A	0.51	A
18. Jefferson Boulevard/S. Linden Road	Signal	0.38	A	0.52	A
19. Jefferson Boulevard/Davis Road	Side-Street Stop	13.9	B	19.5	C
20. Jefferson Boulevard/Bevan Road	Side-Street Stop	19.0	C	16.6	C
21. Stonegate Drive/N. Linden Road	All-Way Stop	9.3	B	9.5	B

Notes: Side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) to the *Highway* Capacity Manual – Special Report 209 (Transportation Research Board 2000). The worst case movement delays are presented.

Signalized intersection LOS is based on V/C ratio according to Circular 212 Interim Materials on Highway Capacity (Transportation Research Board 1980).

Bold = Unacceptable LOS per significance thresholds defined in this report.

V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Traffic Signal Warrant Analysis

A peak hour volume traffic signal warrant analysis was conducted for the unsignalized study intersections under Existing Plus Approved Projects conditions. The Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp intersection meets the criteria to install a traffic signal based on the peak hour traffic signal warrant. This intersection is planned to be signalized as part of the Jefferson Boulevard interchange project (Fehr & Peers 2006).

Freeway Operations

Freeway mainline and ramp operations are summarized in Table 3.13-9. The westbound South River Road off-ramp diverge at the Jefferson Boulevard/South River Road off-ramp split operates at LOS F during the PM peak hour under Existing Plus Approved Projects conditions. Three of the four weaving sections on US 50 operate at LOS E or F during the AM and PM peak hours under Existing Plus Approved Projects conditions as highlighted in the table below (Fehr & Peers 2006).

Table 3.13-9. Ramp and Freeway Facility Level of Service—Existing Plus Approved Projects Conditions

	Existing Plus Approved Conditions					
	AM Peak Hour			PM Peak Hour		
Facility	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
Off-ramp (diverge): eastbound SR 275 at off-ramp to Jefferson Boulevard	540	<10	A	450	<10	A
Off-ramp (diverge): westbound South River Rd. off-ramp at Jefferson/South River Rd. split	1,570	30.9	D	2400	**>35**	**F**
Mainline section: US 50 eastbound from I-80 to Harbor Boulevard	5,760	25.3	C	4,320	18.9	C
Weaving section: US 50 eastbound from Harbor Boulevard to Jefferson Boulevard	7,430	30.7	D	6,270	27.0	C
Weaving section: US 50 eastbound from South River Road to I-5	8,650	**>45**	**F**	6,470	**44.5**	**E**
Weaving section: US 50 westbound from I-5 to South River Road	7,760	**>45**	**F**	8,170	**>45**	**F**
Weaving section: US 50 westbound from Jefferson Boulevard to Harbor Boulevard	6,020	**38.1**	**E**	8,120	**>45**	**F**
Mainline section: US 50 westbound from Harbor Boulevard to I-80	4,160	18.2	C	5,900	26.0	D

Notes: **Bold** = Unacceptable operation per significance thresholds defined in this report.

[1] Density reported as passenger cars per mile per lane (pc/mi/ln) in the peak hour.

[2] Level of service.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Regulatory Setting

City of West Sacramento General Plan

The City's General Plan identifies the following policy on transportation and circulation related to intersections:

- *The City shall endeavor to maintain Level of Service "C" on all streets within the City, except at intersections and on roadway segments within one-quarter mile of a freeway interchange or bridge crossing of the Deep Water Ship Channel, barge canal, or Sacramento River, where a Level of Service "D" shall be deemed acceptable.*

The City has also established guidelines for preparation of traffic analyses (City of West Sacramento 2005c). The guidelines define methods, assumptions, and thresholds for evaluating a project's potential to create a significant transportation-related environmental impact or a detriment to traffic safety. These guidelines are used for evaluating traffic and circulation related impacts of the proposed Project (Fehr & Peers 2006).

City of West Sacramento Bicycle and Pedestrian Path Master Plan

The City of West Sacramento *Bicycle and Pedestrian Path Master Plan* (1995 Addendum) provides objectives and policies related to developing a system of public bicycle and pedestrian paths within the City. The following policies are applicable to this Project.

- Develop and maintain a safe, continuous, and convenient system of bicycle and pedestrian paths that connects residential areas to major destinations within the City, including the central business district, shopping areas, employment areas, and public facilities.
- Coordinate with Yolo Transit to integrate bicycle and pedestrian facilities with bus service.
- Adopt Caltrans standards, as required by state law, for bike paths (Class I), bike lanes (Class II), and bike routes (Class III).
- Provide bike paths and sidewalks, separated from each other and vehicle traffic, at all new arterial and collector streets (Fehr & Peers 2006).

Southport Framework Plan

The Southport Framework Plan includes a Circulation Plan identifying Jefferson Boulevard and a major new loop road connecting the Villages as the major transportation facilities. The Southport Framework Plan also envisioned transit nodes in the village centers. The proposed Project implements elements of the

Southport Framework Plan Circulation Plan by proposing construction of a portion of the loop road. Roadway design and landscaping policies of the Southport Framework Plan also apply to the proposed Project.

Impact Analysis

This section describes the impact analysis relating to transportation for the proposed Project. First, it describes the methods used to determine the proposed Project's impacts and lists thresholds used to conclude whether an impact would be significant. Second, it discusses construction impacts (temporary, short-term). Third, it discusses operational (permanent, long-term) impacts associated with the proposed Project. Mitigation measures to avoid, minimize, rectify, reduce, eliminate, or compensate for significant impacts immediately follow each impact discussion, as necessary.

Approach and Methodology

The following scenarios are analyzed in the traffic study: existing traffic conditions plus the Project; existing traffic conditions plus approved projects plus the Project; and cumulative conditions with traffic generated from the Project. The discussion of cumulative impacts is addressed in Chapter 5, *Other CEQA Considerations*.

In order to mitigate the impacts of development of the Project, phasing of the Project to coordinate with the construction of new roadway infrastructure was examined. This section describes the impacts of different phasing alternatives that include varying combinations of development levels for the Project and new roadway infrastructure for each scenario analyzed.

Existing Plus Project Conditions

This section discusses traffic operations under existing conditions with the development of the proposed Project.

The following land uses were assumed to develop on the Project site for trip generation purposes (Fehr & Peers 2006).

- 2,788 total residential units
  - 22 rural residential units
  - 728 single family residential units
  - 1,446 medium density residential units
  - 592 high density residential units
- 65,000 square-foot neighborhood commercial center

- 4,000 square-foot restaurant
- 600 student elementary school
- 25 berth Marina
- 5,000 square-foot boat/tackle shop
- 49.5 acres of parks and open space.

Access to the project site would be provided primarily on Davis Road and South River Road under near-term conditions. The planned extensions of Stonegate Drive and Village Parkway to the south would provide access to the project site in the future. A western extension of Village Parkway through the project site would provide access to Bevan Road or a future road south of Bevan Road. The preferred alignment for this western extension would be coordinated with future development in the Southwest Village (Fehr & Peers 2006).

Trip Generation

The trip generation of the proposed Project was estimated based on trip rates published by the Institute of Transportation Engineers in Trip Generation, 7th Edition. The trip generation was estimated on a daily basis and during the AM and PM peak hours. Table 8 in the Transportation Study summarizes the trip generation of the proposed Project. The Project would generate approximately 28,000 daily trips, 1,880 AM peak hour trips, and 2,380 PM peak hour trips (Fehr & Peers 2006).

Trip Distribution

The distribution of project trips was based on existing travel patterns, the location of complimentary land uses, and output from the City of West Sacramento Travel Demand Forecasting Model. Figure 3.13-4 displays the distribution of project trips under existing conditions. As shown, the majority of vehicles traveling to the project site would travel on Jefferson Boulevard and Davis Road towards US 50 at the Jefferson Boulevard interchange (33%) and Harbor Boulevard interchange (14%), and on South River Road to US 50 and Downtown Sacramento (26%). Based on the proposed project land uses, approximately 6% of vehicle trips are expected to remain internal to the project site. Since the western extension of Village Parkway through the project site to Jefferson Boulevard (at Bevan Road or to the south) is dependent on future development in the Southwest Village, vehicle trips were assigned to Davis Road to travel south of Jefferson Boulevard (Fehr & Peers 2006).

Intersection Operations

The vehicle-trips generated by the proposed Project were added to existing traffic volumes based on the trip distribution assumptions discussed above to develop

Existing Plus Project traffic volumes for the AM and PM peak hours at each study intersection. Existing Plus Project peak hour turning movement volumes, lane configurations, and traffic control are shown on Figure 3.13-5 (Fehr & Peers 2006).

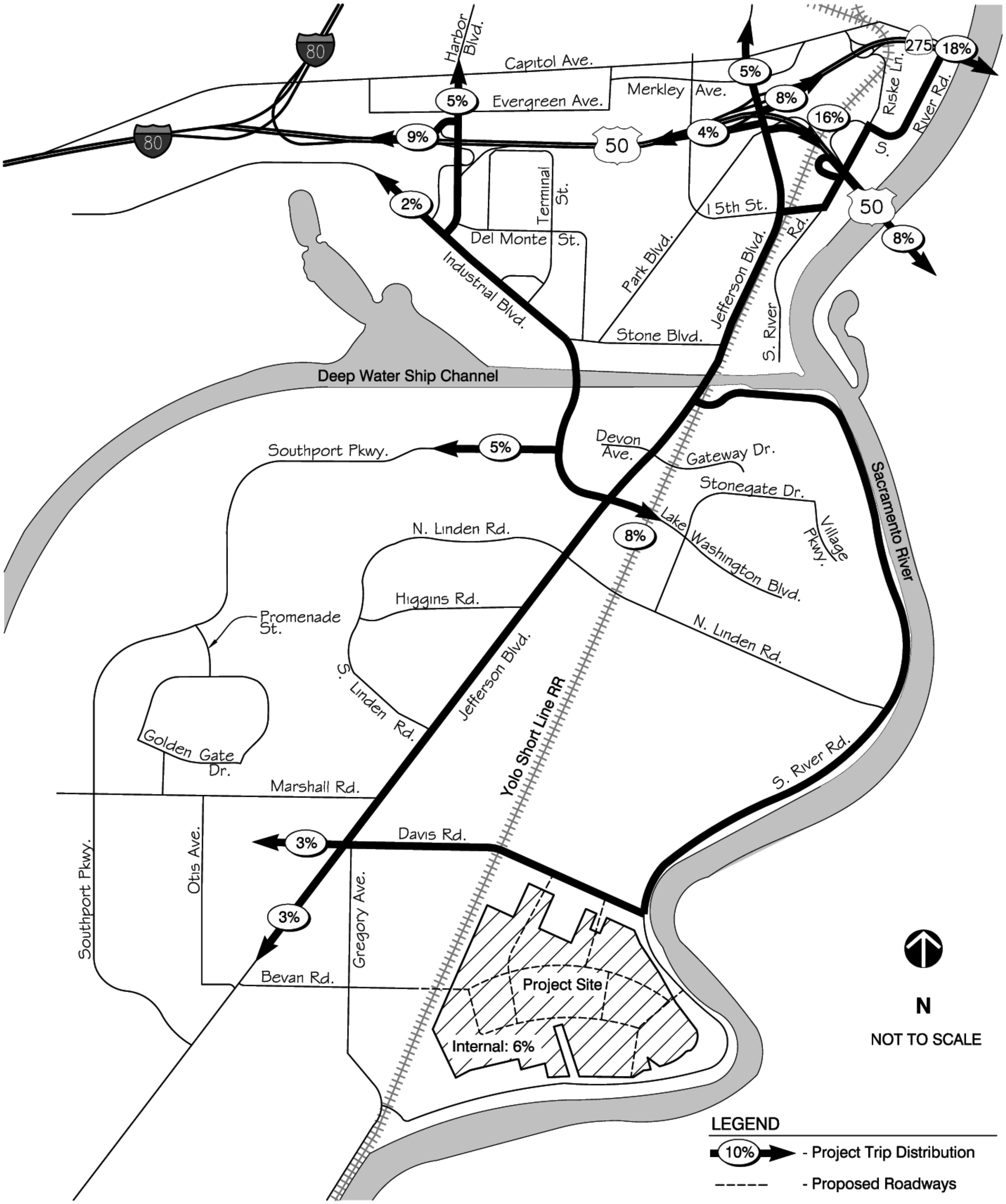
Level of Service

The AM and PM peak hour traffic operations were analyzed at each study intersection under Existing Plus Project conditions. Table 3.13-10 and 3.13-11 display the LOS results of the proposed Project under existing conditions during the AM and PM peak hours, respectively. As shown, the following study intersections on City streets (i.e., not at freeway interchanges) operate at LOS D or worse under Existing Plus Project conditions (Fehr & Peers 2006).

- Harbor Boulevard/Industrial Boulevard operates at LOS D during the AM peak hour under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/15th Street operates at LOS E during the PM peak hour under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/Devon Avenue/Gateway Drive operates at LOS E during the AM peak hour and LOS D during the PM peak hour under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/Lake Washington Boulevard operates at LOS D during the PM peak hour under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/N. Linden Road operates at LOS D during the AM peak hour under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/Davis Road has a worst-case movement that operates at LOS F during the AM and PM peak hours under existing conditions with the development of the proposed Project.

The following study intersections at or near freeway interchanges operate at LOS E or worse under Existing Plus Project conditions (Fehr & Peers 2006).

- Harbor Boulevard/US 50 westbound ramps operates at LOS F during the AM peak hour and LOS E during the PM peak hour under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp has a worst-case movement (i.e., the westbound left-turn movement from Tower Bridge Gateway to Jefferson Boulevard) of LOS F during the AM and PM peak hours under existing conditions with the development of the proposed Project.
- Jefferson Boulevard/Park Boulevard/US 50 ramps operates at LOS E during the AM and PM peak hours under existing conditions with the development of the proposed Project.



Source: Fehr & Peers 2006

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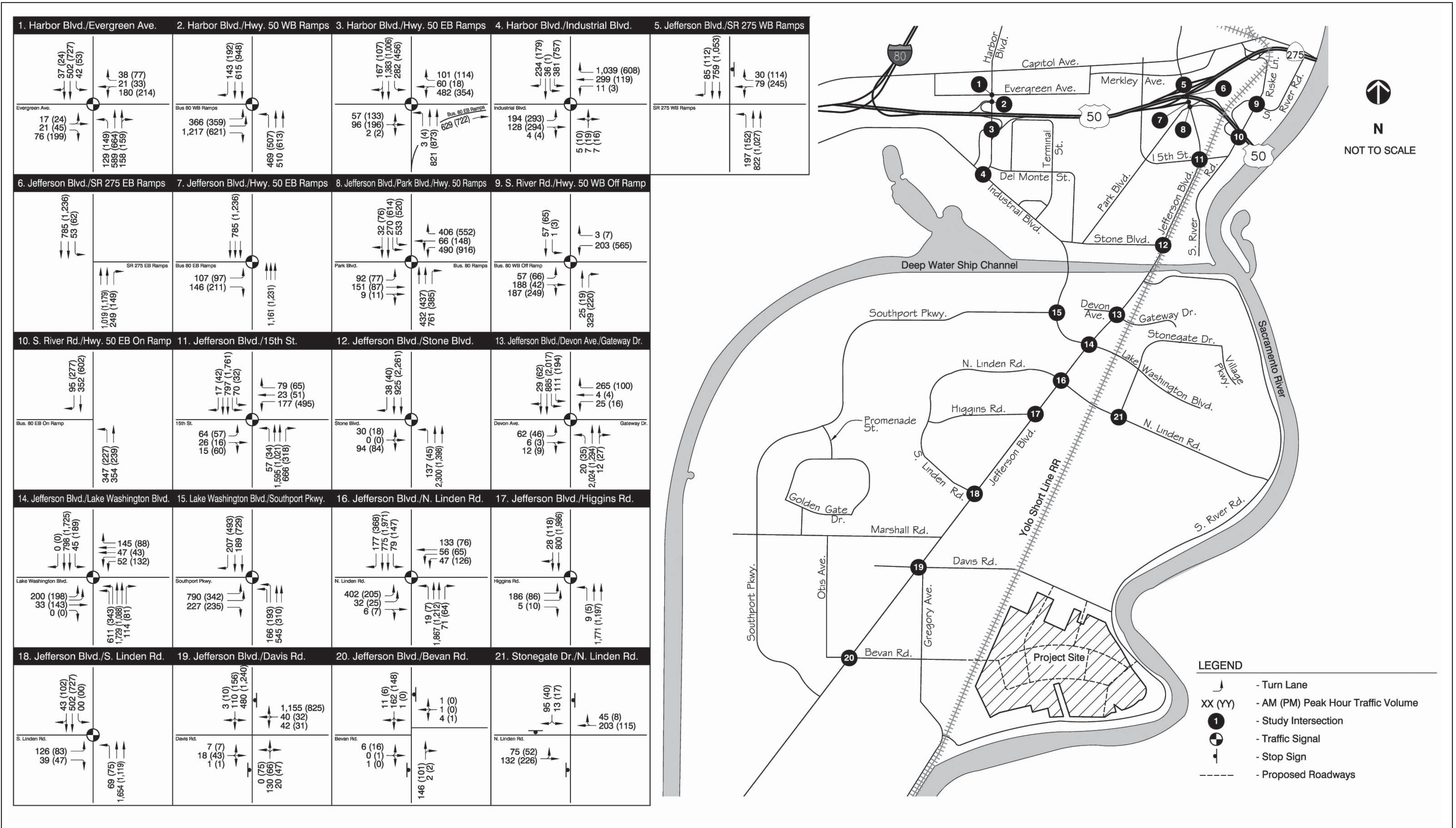
Figure 3.13-4
Trip Distributions--Existing Plus Project Conditions



Source: Fehr & Peers 2006

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Figure 3.13-5

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions

Table 3.13-10. Existing Plus Project Conditions—AM Peak Hour Intersection Level of Service

		Existing AM Peak Hour		Existing + Project AM Peak Hour	
Study Intersections	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Blvd./Evergreen Ave.	Signal	47	D	48	D
2. Harbor Blvd./US 50 westbound ramps	Signal	**>80**	**F**	**>80**	**F**
3. Harbor Blvd./US 50 eastbound ramps	Signal	42	D	51	D
4. Harbor Blvd./Industrial Blvd.	Signal	0.70	B	**0.83**	**D**
5. Jefferson Blvd./US 50 and Tower Bridge Gateway ramps	Side-Street Stop	**40**	**E**	**>50**	**F**
6. Jefferson Blvd./Tower Bridge Gateway eastbound on-ramp	Side-Street Stop	10	B	11	B
7. Jefferson Blvd./US 50 eastbound off-ramp	Signal	<10	A	<10	A
8. Jefferson Blvd./Park Blvd./US 50 ramps	Signal	**34**	**C**	**63**	**E**
9. South River Rd./Riske Ln./US 50 westbound off-ramp	Signal	16	B	17	B
10. South River Rd./US 50 eastbound on-ramp	Side-Street Stop	<10	A	10	B
11. Jefferson Blvd./15th St.	Signal	0.50	A	0.70	B
12. Jefferson Blvd./Stone Blvd.	Signal	0.58	A	0.82	D
13. Jefferson Blvd./Devon Ave./Gateway Drive	Signal	0.68	B	**0.93**	**E**
14. Jefferson Blvd./Lake Washington Blvd.	Signal	0.52	A	0.77	C
15. Lake Washington Blvd./Southport Pkwy.	Signal	0.42	A	0.44	A
16. Jefferson Blvd./N. Linden Rd.	Signal	0.51	A	**0.90**	**D**
17. Jefferson Blvd./Higgins Rd.	Signal	0.27	A	0.64	B
18. Jefferson Blvd./S. Linden Rd.	Signal	0.24	A	0.62	B
19. Jefferson Blvd./Davis Rd.	Side-Street Stop	10.1	B	**>50**	**F**
20. Jefferson Blvd./Bevan Rd.	Side-Street Stop	10.1	B	10.5	B
21. Stonegate Dr./N. Linden Rd.	All-Way Stop	8.8	A	8.8	A

Notes: Side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) to the *Highway Capacity Manual—Special Report 209* (Transportation Research Board 2000). The worst case movement delays are presented.

Bold = Unacceptable LOS per significance thresholds defined in this report.

Signalized intersection LOS is based on V/C ratio according to *Circular 212 Interim Materials on Highway Capacity* (Transportation Research Board 1980).

V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Table 3.13-11. Existing Plus Project Conditions—PM Peak Hour Intersection Level of Service

Study Intersections	Traffic Control	Existing PM Peak Hour V/C Ratio or Delay	Existing PM Peak Hour LOS	Existing + Project PM Peak Hour V/C Ratio or Delay	Existing + Project PM Peak Hour LOS
1. Harbor Blvd./Evergreen Ave.	Signal	39	D	40	D
2. Harbor Blvd./US 50 westbound ramps	Signal	45	D	**56**	**E**
3. Harbor Blvd./US 50 eastbound ramps	Signal	24	B	39	D
4. Harbor Blvd./Industrial Blvd.	Signal	0.49	A	0.58	A
5. Jefferson Blvd./US 50 and Tower Bridge Gateway ramps	Side-Street Stop	**>50**	**E**	**>50**	**F**
6. Jefferson Blvd./Tower Bridge Gateway eastbound on-ramp	Side-Street Stop	12	B	12	B
7. Jefferson Blvd./US 50 eastbound off-ramp	Signal	<10	A	<10	A
8 Jefferson Blvd./Park Blvd./US 50 ramps	Signal	46	D	**73**	**E**
9. South River Rd./Riske Ln./US 50 westbound off-ramp	Signal	14	B	20	B
10. South River Rd./US 50 eastbound on-ramp	Side-Street Stop	<10	A	12	B
11. Jefferson Blvd./15th St.	Signal	0.61	B	**0.99**	**E**
12. Jefferson Blvd./Stone Blvd.	Signal	0.56	A	0.82	D
13. Jefferson Blvd./Devon Ave./Gateway Drive	Signal	0.54	A	**0.81**	**D**
14. Jefferson Blvd./Lake Washington Blvd.	Signal	0.47	A	**0.83**	**D**
15. Lake Washington Blvd./Southport Pkwy.	Signal	0.47	A	0.53	A
16. Jefferson Blvd./N. Linden Rd.	Signal	0.37	A	0.78	C
17. Jefferson Blvd./Higgins Rd.	Signal	0.31	A	0.71	C
18. Jefferson Blvd./S. Linden Rd.	Signal	0.35	A	0.75	C
19. Jefferson Blvd./Davis Rd.	Side-Street Stop	12.0	B	**>50**	**F**
20. Jefferson Blvd./Bevan Rd.	Side-Street Stop	9.7	A	10.3	B
21. Stonegate Dr./N. Linden Rd.	All-Way Stop	8.7	A	8.7	A

Notes: Side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) to the *Highway* Capacity Manual – Special Report 209 (Transportation Research Board 2000). The worst case movement delays are presented.

Bold = Unacceptable LOS per significance thresholds defined in this report.

Signalized intersection LOS is based on V/C ratio according to Circular 212 Interim Materials on Highway Capacity (Transportation Research Board 1980).

V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Traffic Signal Warrant Analysis

A peak hour volume traffic signal warrant analysis was conducted for the unsignalized study intersections under Existing Plus Project conditions. With the development of the proposed Project, the Jefferson Boulevard/Davis Road intersection meets the criteria to install a traffic signal based on the peak hour traffic signal warrant (Fehr & Peers 2006).

Freeway Operations

Freeway ramp operations are summarized in Table 3.13-12. The westbound South River Road off-ramp diverge at the Jefferson Boulevard/South River Road off-ramp split operates at LOS F during the AM and PM peak hours under Existing Plus Approved Projects conditions. Three of the four weaving sections on US 50 operate at LOS E or F during the AM and PM peak hours as highlighted in the table below.

Table 3.13-12. Ramp and Freeway Facility Level of Service—Existing Plus-Projects Conditions

		Existing Conditions					
		No Project			Plus Project		
Facility	Peak Hour	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
Off-ramp (Diverge): eastbound SR 275 at off-ramp to Jefferson Boulevard	AM	240	<10	A	250	<10	A
	PM	260	<10	A	310	<10	A
Off-ramp (Diverge): westbound South River Rd. off-ramp at Jefferson/South River Rd. split	AM	1350	24.4	C	1,390	25.3	C
	PM	1860	**>35**	**F**	1,970	**>35**	**F**
Mainline Section: US 50 eastbound from I-80 to Harbor Boulevard	AM	5,600	24.6	C	5,680	24.9	C
	PM	4,000	17.5	B	4,230	18.6	C
Weaving Section: US 50 eastbound from Harbor Boulevard to Jefferson Boulevard	AM	6,810	28.3	C	6,830	28.3	D
	PM	5,890	23.5	C	5,980	24.6	C
Weaving Section: US 50 eastbound from South River Road to I-5	AM	7,910	**>45**	**F**	8,350	**>45**	**F**
	PM	6,090	**38.9**	**E**	6,430	**43.7**	**E**
Weaving Section: US 50 westbound from I-5 to South River Road	AM	7,210	**>45**	**F**	7,340	**>45**	**F**
	PM	8,750	**>45**	**F**	9,160	**>45**	**F**
Weaving Section: US 50 westbound from Jefferson Boulevard to Harbor Boulevard	AM	5,850	33.2	D	5,930	33.9	D
	PM	7,590	**>45**	**F**	7,740	**>45**	**F**
Mainline Section: US 50 Westbound from Harbor Boulevard to I-80	AM	3,880	17.0	B	4,060	17.8	B
	PM	5,620	24.7	C	5,830	25.6	C

Notes: **Bold** = Unacceptable operation

[1] Density reported as passenger cars per mile per lane (pc/mi/ln) in the peak hour.

[2] Level of service.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Existing Plus Approved Projects Plus Project Conditions

Traffic Forecasts

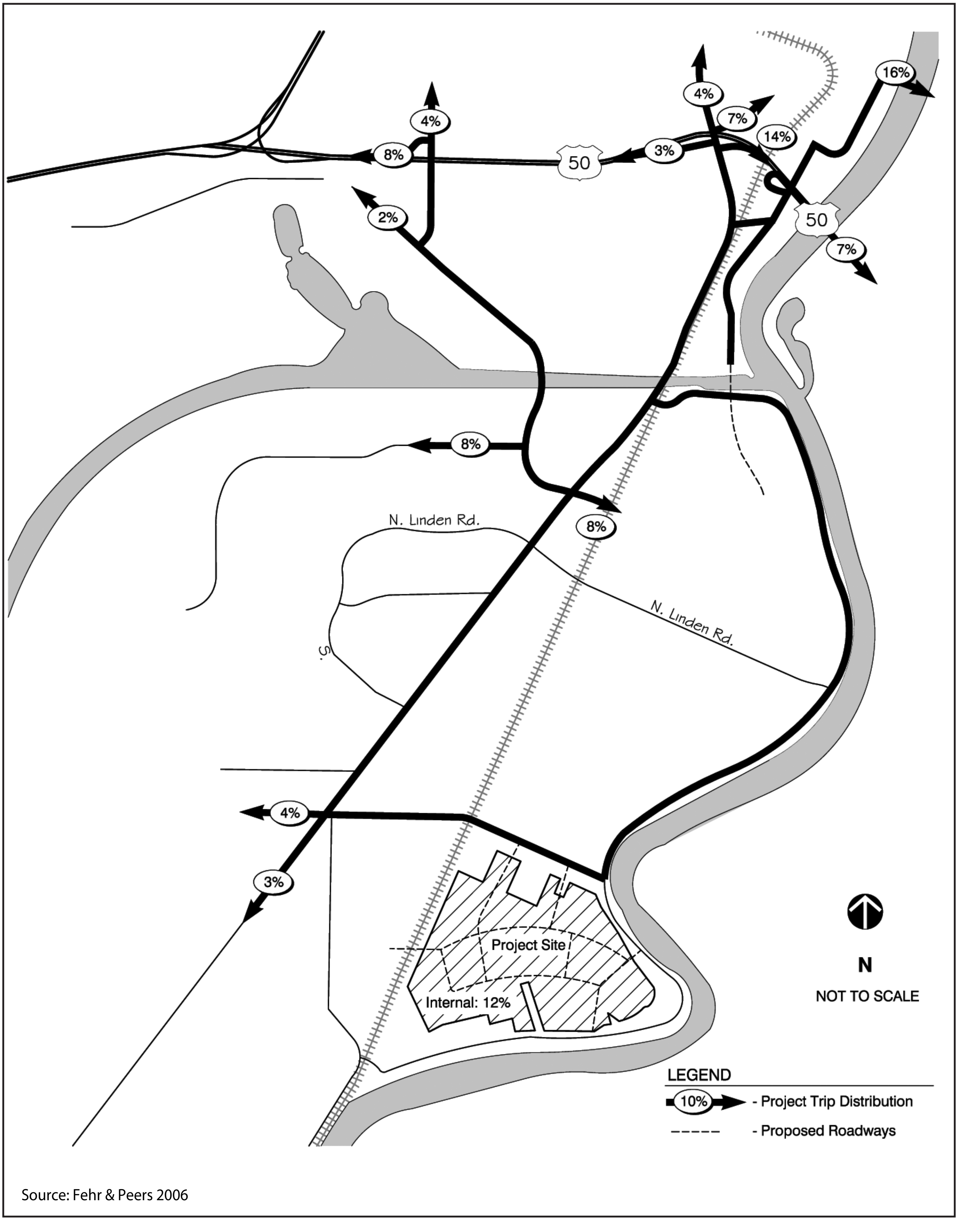
Traffic volumes with the development of the proposed Project were developed by manually assigning project trips through the study intersections. The trip generation of the proposed Project presented in Table 8 in the Transportation Study was also used for the Existing Plus Approved Projects scenario. The distribution of project trips was adjusted to reflect development within the study area and the expected changes in travel patterns associated with the new development. For example, more vehicles-trips would remain within the Southport area due to additional development. Figure 3.13-6 displays the trip distribution under Existing Plus Approved Projects plus Project conditions. Figure 3.13-7 displays the AM and PM peak hour turning movement volumes at each study intersection under Existing Plus Approved Projects plus Project conditions (Fehr & Peers 2006).

Intersection Operations

Level of Service

The AM and PM peak hour traffic operations were analyzed at each study intersection. Table 3.13-13 and 3.13-14 present the LOS results for Existing Plus Approved Plus Project conditions during the AM and PM peak hours, respectively. As shown, the following study intersections on City streets (i.e., not at freeway interchanges) do not meet the City's service level thresholds under Existing Plus Approved Projects Plus Project conditions.

- Jefferson Boulevard/15th Street operates at LOS D during the AM peak hour and LOS F during the PM peak hour under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/Stone Boulevard operates at LOS F during the PM peak hour under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/Devon Avenue/Gateway Drive operates at LOS E during the AM peak hour and LOS F during the PM peak hour under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/Lake Washington Boulevard operates at LOS D during the AM peak hour and LOS E during the PM peak hour under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/N. Linden Road operates at LOS E during the AM peak hour and LOS D during the PM peak hour under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/Higgins Road operates at LOS D during the AM and PM peak hours under Existing Plus Approved Plus Project conditions.

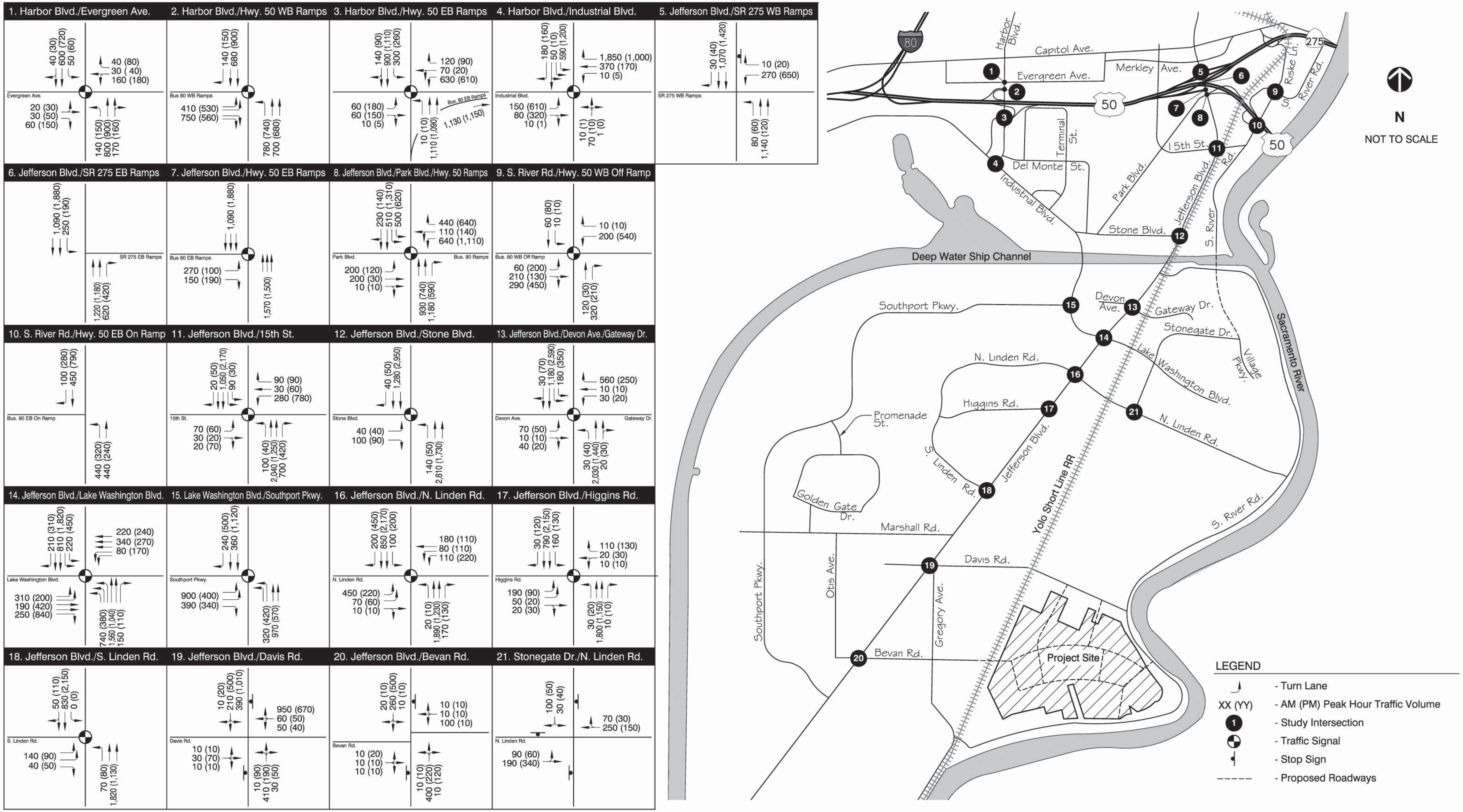


Source: Fehr & Peers 2006

05304.05 (rev. 5/06)

Jones & Stokes

Figure 3.13-6
Trip Distributions--
Existing Plus Approved Projects Plus Project Conditions



Source: Fehr & Peers 2006

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Jones & Stokes

Figure 3.13-7
Peak Hour Traffic Volumes and Lane Configurations
--Existing Plus Approved Projects Plus Project Conditions

- Jefferson Boulevard/S. Linden Road operates at LOS D during the PM peak hour under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/Davis Road has a worst-case movement of LOS F during the AM and PM peak hours under Existing Plus Approved Plus Project conditions.

The following study intersections at freeway interchanges (i.e., ramp terminal intersections) do not meet the City's service level thresholds under Existing Plus Approved Projects plus Project conditions.

- Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp has a worst-case movement (i.e., the westbound left-turn movement from Tower Bridge Gateway to Jefferson Boulevard) of LOS F during the AM and PM peak hours under Existing Plus Approved Plus Project conditions.
- Jefferson Boulevard/Park Boulevard/US 50 Ramps operates at LOS F during the AM peak hour under Existing Plus Approved Plus Project conditions.

Table 3.13-13. Existing Plus Approved Projects Plus Project Conditions—AM Peak Hour Intersection Level of Service

		Existing + Approved		Existing + Approved + Project	
Study Intersections	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Blvd./Evergreen Ave.	Signal	29	C	29	C
2. Harbor Blvd./US 50 westbound ramps	Signal	22	B	27	C
3. Harbor Blvd./US 50 eastbound ramps	Signal	27	C	30	C
4. Harbor Blvd./Industrial Blvd.	Signal	0.52	A	0.55	A
5. Jefferson Blvd./US 50 and Tower Bridge Gateway ramps	Side-Street Stop	**>50**	**F**	**>50**	**F**
6. Jefferson Blvd./Tower Bridge Gateway eastbound on-ramp	Side-Street Stop	15	B	17	C
7. Jefferson Blvd./US 50 eastbound off-ramp	Signal	10	B	11	B
8. Jefferson Blvd./Park Blvd./US 50 ramps	Signal	**59**	**E**	**>80**	**F**
9. South River Rd./Riske Ln./US 50 westbound off-ramp	Signal	18	B	22	B
10. South River Rd./US 50 eastbound on-ramp	Side-Street Stop	10	B	11	B
11. Jefferson Blvd./15th St.	Signal	0.69	B	**0.88**	**D**
12. Jefferson Blvd./Stone Blvd.	Signal	0.69	B	**0.88**	**D**
13. Jefferson Blvd./Devon Ave./Gateway Drive	Signal	**0.79**	**C**	**0.98**	**E**
14. Jefferson Blvd./Lake Washington Blvd.	Signal	0.67	B	**0.86**	**D**
15. Lake Washington Blvd./Southport Pkwy.	Signal	0.57	A	0.63	B
16. Jefferson Blvd./N. Linden Rd.	Signal	0.64	B	**0.98**	**E**
17. Jefferson Blvd./Higgins Rd.	Signal	0.53	A	**0.82**	**D**
18. Jefferson Blvd./S. Linden Rd.	Signal	0.38	A	0.68	B
19. Jefferson Blvd./Davis Rd.	Side-Street Stop	13.9	B	**>50**	**F**
20. Jefferson Blvd./Bevan Rd.	Side-Street Stop	19.0	C	20.9	C
21. Stonegate Dr./N. Linden Rd.	All-Way Stop	9.3	B	10.1	B

Notes: Side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) to the Highway Capacity Manual—Special Report 209 (Transportation Research Board 2000). The worst case movement delays are presented.

Signalized intersection LOS is based on V/C ratio according to Circular 212 Interim Materials on Highway Capacity (Transportation Research Board 1980).

Bold = Unacceptable LOS per significance thresholds defined in this report

V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Table 3.13-14. Existing Plus Approved Projects Plus Project Conditions—PM Peak Hour Intersection Level of Service

		Existing + Approved		Existing + Approved + Project	
Study Intersections	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Blvd./Evergreen Ave.	Signal	38	D	42	D
2. Harbor Blvd./ US 50 westbound ramps	Signal	23	B	24	B
3. Harbor Blvd./US 50 eastbound ramps	Signal	32	C	35	D
4. Harbor Blvd./Industrial Blvd.	Signal	0.77	C	0.82	D
5. Jefferson Blvd./US 50 and Tower Bridge Gateway ramps	Side-Street Stop	**>50**	**F**	**>50**	**F**
6. Jefferson Blvd./Tower Bridge Gateway eastbound on-ramp	Side-Street Stop	14	B	14	B
7. Jefferson Blvd./US 50 eastbound off-ramp	Signal	<10	A	10	B
8. Jefferson Blvd./Park Blvd./US 50 ramps	Signal	37	D	51	D
9. South River Rd./Riske Ln./US 50 westbound off-ramp	Signal	27	C	36	D
10. South River Rd./US 50 eastbound on-ramp	Side-Street Stop	12	B	16	C
11. Jefferson Blvd./15th St.	Signal	**0.93**	**E**	**>1.0**	**F**
12. Jefferson Blvd./Stone Blvd.	Signal	**0.80**	**D**	**>1.0**	**F**
13. Jefferson Blvd./Devon Ave./Gateway Drive	Signal	**0.83**	**D**	**>1.0**	**F**
14. Jefferson Blvd./Lake Washington Blvd.	Signal	**0.70**	**C**	**0.98**	**E**
15. Lake Washington Blvd./Southport Pkwy.	Signal	0.61	B	0.73	C
16. Jefferson Blvd./N. Linden Rd.	Signal	0.56	A	**0.89**	**D**
17. Jefferson Blvd./Higgins Rd.	Signal	0.51	A	**0.82**	**D**
18. Jefferson Blvd./S. Linden Rd.	Signal	0.52	A	**0.84**	**D**
19. Jefferson Blvd./Davis Rd.	Side-Street Stop	19.5	C	>**50**	**F**
20. Jefferson Blvd./Bevan Rd.	Side-Street Stop	16.6	C	18.0	C
21. Stonegate Dr./N. Linden Rd.	All-Way Stop	9.5	B	11.3	B

Notes: **Bold** = Unacceptable LOS per significance thresholds defined in this report.

Side-street stop-controlled intersection LOS is based on average delay per vehicle (in seconds) to the *Highway Capacity Manual—Special Report 209* (Transportation Research Board, 2000). The worst case movement delays are presented.

Signalized intersection LOS is based on V/C ratio according to *Circular 212 Interim Materials on Highway Capacity* (Transportation Research Board 1980).

V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle.

Source: Fehr & Peers 2005 in Fehr & Peers 2006.

Traffic Signal Warrant Analysis

A peak hour volume traffic signal warrant analysis was conducted for the unsignalized study intersections under Existing Plus Approved Projects plus Project conditions. The Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp and Jefferson Boulevard/Davis Road intersections meet the criteria to install a traffic signal based on the peak hour traffic signal warrant (Fehr & Peers 2006).

Freeway Operations

Freeway ramp operations are summarized in Table 3.13-15. The westbound South River Road off-ramp diverge at the Jefferson Boulevard/South River Road off-ramp split operates at LOS E during the AM peak hour and LOS F during the PM peak hour under Existing Plus Approved Plus Project conditions. Three of the four weaving sections on US 50 operate at LOS E or F under Existing Plus Approved Plus Project conditions as highlighted in the table below (Fehr & Peers 2006).

Table 3.13-15. Ramp and Freeway Facility Level of Service—Existing Plus Approved Projects Conditions

		Existing Plus Approved Projects					
		No Project			Plus Project		
Facility	Peak Hour	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
Off-ramp (Diverge): eastbound SR 275 at off-ramp to Jefferson Boulevard	AM	540	<10	A	580	<10	A
	PM	450	<10	A	410	<10	A
Off-ramp (Diverge): westbound South River Rd. off-ramp at Jefferson/South River Rd. split	AM	1570	30.9	D	1780	**33.2**	**E**
	PM	2400	**>35**	**F**	2730	**>35**	**F**
Mainline Section: US 50 eastbound from I-80 to Harbor Boulevard	AM	5,760	25.3	C	5,780	25.4	C
	PM	4,320	18.9	C	4,370	19.2	C
Weaving Section: US 50 eastbound from Harbor Boulevard to Jefferson Boulevard	AM	7,430	30.7	D	7,430	31.0	D
	PM	6,270	27.0	C	6,270	27.4	D
Weaving Section: US 50 eastbound from South River Road to I-5	AM	8,650	**>45**	**F**	8,890	**>45**	**F**
	PM	6,470	**44.5**	**E**	6,550	**44.5**	**E**
Weaving Section: US 50 westbound from I-5 to South River Road	AM	7,760	**>45**	**F**	7,760	**>45**	**F**
	PM	8,170	**>45**	**F**	8,170	**>45**	**F**
Weaving Section: US 50 westbound from Jefferson Boulevard to Harbor Boulevard	AM	6,020	32.1	D	6,060	32.5	D
	PM	8,120	**>45**	**F**	8,170	**>45**	**F**
Mainline Section: US 50 Westbound from Harbor Boulevard to I-80	AM	4,160	18.2	C	4,200	18.4	C
	PM	5,900	26.0	D	5,870	26.0	D

Notes: **Bold** = Unacceptable operation per significance thresholds defined in this report.

[1] Density reported as passenger cars per mile per lane (pc/mi/ln) in the peak hour.

[2] Level of service.

Source: Fehr & Peers 2005 in Fehr and Peers 2006.

Significance Thresholds

For this analysis, an impact pertaining to transportation was considered significant if it would result in any of the following criteria, which are based on professional practice, State CEQA Guidelines Appendix G, General Plan policies, and the criteria developed for Fehr & Peers' transportation impact analysis.

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).
- Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the City and/or Caltrans for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The following is the City of West Sacramento's policy on transportation and circulation related to intersections:

> The City shall endeavor to maintain Level of Service "C" on all streets within the City, except at intersections and on roadway segments within one-quarter mile of a freeway interchange or bridge crossing of the Deep Water Ship Channel, barge canal, or Sacramento River, where a Level of Service "D" shall be deemed acceptable.

The following study intersections are at or within one-quarter mile of a freeway interchange or bridge crossing; therefore, LOS D or better should be maintained at these intersections:

- Harbor Boulevard/Evergreen Avenue
- Harbor Boulevard/US 50 westbound Ramps
- Harbor Boulevard/US 50 eastbound Ramps
- Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp
- Jefferson Boulevard/Tower Bridge Gateway eastbound on-ramp
- Jefferson Boulevard/ US 50 eastbound off-ramp
- Jefferson Boulevard/Park Boulevard/US 50 Ramps

- South River Road/Riske Lane/US 50 westbound off-ramp
- South River Road/US 50 eastbound on-ramp
- Jefferson Boulevard/Stone Boulevard
- Lake Washington Boulevard/Southport Parkway

LOS C or better should be maintained at the remaining study intersections.

Based on this policy statement and the City of West Sacramento Traffic Impact Analysis Guidelines (2005), the following thresholds of significance were used to determine if the Project causes a significant impact.

- A signalized intersection deteriorates from an acceptable LOS to an unacceptable LOS.
- A signalized intersection V/C ratio increases by more than 0.05 for a signalized intersection operating at an unacceptable LOS without the Project.
- An unsignalized intersection deteriorates from an acceptable LOS to an unacceptable LOS and the Project causes the intersection to meet traffic signal warrants.
- At an unsignalized intersection which meets signal warrants without the Project, the delay is increased by more than 5 seconds for an approach operating at an unacceptable LOS without the Project.
- An existing bikeway or pedestrian facility is adversely affected such that access and/or usage of the facility is discouraged or conflicts are created.
- Aspects defined in the City's Bicycle and Pedestrian Path Master Plan are impacted or affected.

Consistent with the impact guidelines, acceptable freeway ramp operating levels are those defined by Caltrans in the route concept report. Caltrans has identified LOS E as the minimum acceptable LOS for freeway ramps along Business 80 in the vicinity of West Sacramento.

Impacts and Mitigation Measures

Based on the application of the significance criteria, the following impacts were identified. The following discusses the project impacts and mitigation measures. Tables 24, 25, and 26 in the Transportation Study summarize the project impacts and LOS results with identified mitigation measures.

Existing Plus Project Conditions

Impact TRF-1: Degradation of LOS at Harbor Boulevard/US 50 Westbound Ramps Intersection (Significant and Unavoidable)

The addition of project traffic would cause the Harbor Boulevard/US 50 westbound Ramps intersection to operate at an unacceptable LOS F during the AM peak hour and LOS E during the PM peak hour under Existing Plus Project conditions.

The intersection would operate at LOS F (more than 5 seconds of delay added) during the AM peak hour and would degrade from LOS D to LOS E (more than 5 seconds of delay added) during the PM peak hour. The intersection operates at deficient level due to the heavy northbound left-turn/through, southbound through, and eastbound left-turn movements.

Mitigation of unacceptable conditions at this intersection can be achieved through implementation of the planned reconstruction of the Harbor Boulevard/US 50 interchange. Improvements to the Harbor Boulevard/US 50 interchange are a future planned project by the City of West Sacramento. **The proposed Project would not construct the recommended improvement; therefore, this is a short-term significant and unavoidable impact.**

Impact TRF-2: Degradation of LOS at Harbor Boulevard/Industrial Boulevard Intersection (Less than Significant with Mitigation Incorporated)

With the addition of the Project, the Harbor Boulevard/Industrial Boulevard intersection would operate at an unacceptable LOS D during the AM peak hour under Existing Plus Project conditions.

The intersection would degrade from LOS B to LOS D during the AM peak hour. The intersection would operate at a deficient level due to the heavy westbound right-turn and southbound left-turn movements. With implementation of Mitigation Measure TRF-2, the Harbor Boulevard/Industrial Boulevard intersection would operate at LOS A (0.43) during the AM peak hour under Existing Plus Project conditions, **reducing impacts to less-than-significant levels.**

Mitigation TRF-2: Provide Free Right-Turn Lane on Westbound Approach and Triple Left-Turn Lanes at Harbor Boulevard/Industrial Boulevard Intersection

Add a free right-turn lane on the westbound approach and triple left-turn lanes (outside lane is a shared left-turn through lane) at the intersection. These improvements are planned by the City of West Sacramento and assumed in place under Existing Plus Approved Projects conditions.

Impact TRF-3: Degradation of LOS at Jefferson Boulevard/Tower Bridge Gateway Westbound Off-Ramp/US 50 Westbound On-Ramp (Significant and Unavoidable)

The addition of project traffic would cause the Jefferson Boulevard/Tower Bridge Gateway westbound off-ramp/US 50 westbound on-ramp intersection to operate at an unacceptable LOS F during both the AM and PM peak hours under Existing Plus Project conditions.

The worst-case movement at this intersection would operate at LOS F (more than 5 seconds of delay added) during both the AM and PM peak hours. The intersection operates at deficient level due to the heavy northbound and southbound through movements.

Mitigation of unacceptable conditions at this intersection can be achieved through implementation of the planned reconstruction of the Jefferson Boulevard/US 50 interchange. Improvements to the Jefferson Boulevard/US 50 interchange are a future planned project by the City of West Sacramento. **The proposed Project would not construct the recommended improvement; therefore, this is a short-term significant and unavoidable impact.**

Impact TRF-4: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection (Significant and Unavoidable)

The addition of project traffic would cause the Jefferson Boulevard/Park Boulevard/US 50 Ramps intersection to operate at an unacceptable LOS E during the AM peak hour under Existing Plus Project conditions.

The intersection would degrade from LOS C to LOS E during the AM peak hour and operate at LOS E (more than 5 seconds of delay added) during the PM peak hour. The intersection operates at deficient level due to the heavy northbound right-turn/through, southbound through, and westbound left-turn movements.

Mitigation of unacceptable conditions at this intersection can be achieved through implementation of the planned reconstruction of the Jefferson Boulevard/US 50 interchange. Improvements to the Jefferson Boulevard/US 50 interchange are a future planned project by the City of West Sacramento. **The proposed Project would not construct the recommended improvement; therefore, this is a short-term significant and unavoidable impact.**

Impact TRF-5: Degradation of LOS at Jefferson Boulevard/15th Street Intersection during the PM Peak Hour (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/15th Street intersection to operate at an unacceptable LOS E during the PM peak hour under Existing Plus Project conditions.

The intersection would degrade from LOS B to LOS E during the PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measure TRF-5, the Jefferson Boulevard/15th Street intersection would operate at LOS C (0.74) during the PM peak hour under Existing Plus Project conditions, **reducing impacts to less-than-significant levels.**

Mitigation TRF-5: Construct South River Road Bridge and Village Parkway Extension to Davis Road

Implement the planned construction of the South River Road Bridge and Village Parkway extension to Davis Road (see Phasing Discussion and Table 3.13-16, and 3.13-17). This improvement will allow vehicles traveling to/from eastbound I-80 and Downtown Sacramento to use Village Parkway and South River Road instead of Jefferson Boulevard.

Impact TRF-6: Degradation of LOS at Jefferson Boulevard/Devon Avenue/Gateway Drive Intersection during the AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection to operate at an unacceptable LOS E during the AM peak hour and LOS D during the PM peak hour under Existing Plus Project conditions.

The intersection would degrade from LOS B to LOS E during the AM peak hour and from LOS A to LOS D during the PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measure TRF-5 (above), the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection would operate at LOS C (0.77) during the AM peak hour and at LOS B (0.64) during the PM peak hour under Existing Plus Project conditions. **Implementation of Mitigation Measure TRF-5 would reduce impacts to less-than-significant levels.**

Impact TRF-7: Degradation of Jefferson Boulevard/Lake Washington Boulevard Intersection during the PM Peak Hour (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Lake Washington Boulevard intersection to operate at an unacceptable LOS D during the PM peak hour under Existing Plus Project conditions.

The intersection would degrade from LOS A to LOS D during the PM peak hour. The intersection operates at deficient level due to the heavy northbound through and left-turn and southbound through movements. With implementation of Mitigation Measure TRF-5 (above), the Jefferson Boulevard/Lake Washington Boulevard intersection would operate at LOS B (0.61) during the PM peak hour under Existing Plus Project conditions. **Implementation of Mitigation Measure TRF-5 would reduce impacts to less-than-significant levels.**

Impact TRF-8: Degradation of LOS at Jefferson Boulevard/N. Linden Road Intersection during AM Peak Hour (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/N. Linden Road intersection to operate at an unacceptable LOS D during the AM peak hour under Existing Plus Project conditions.

The intersection would degrade from LOS A to LOS D during the AM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measure TRF-5 (above), the Jefferson Boulevard/N. Linden Road intersection would operate at LOS C (0.74) during the AM peak hour under Existing Plus Project conditions. **Implementation of Mitigation Measure TRF-5 would reduce impacts to less-than-significant levels.**

Impact TRF-9: Degradation of LOS at Jefferson Boulevard/Davis Road Intersection during AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Davis Road intersection to operate at an unacceptable LOS F during both the AM and PM peak hours under Existing Plus Project conditions.

The intersection would degrade from LOS B to LOS F during both the AM and PM peak hours. The intersection operates at deficient level due to the heavy westbound right-turn movement. With implementation of Mitigation Measure TRF-5 (above), the Jefferson Boulevard/Davis Road intersection would operate at LOS A (0.30) during the AM peak hour and LOS B (0.60) during the PM peak hour under Existing Plus Project conditions. **Implementation of Mitigation Measure TRF-5 would reduce impacts to less-than-significant levels.**

Impact TRF-10: Degradation of LOS at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split during PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the westbound off-ramp diverge to South River Road from the Jefferson Boulevard/South River Road split to operate at an unacceptable LOS F during the PM peak hour under Existing Plus Project conditions.

The ramp diverge would degrade from LOS D to LOS F (more than 35 passenger cars per mile per lane) during the PM peak hour. The ramp would operate at a deficient level due to the heavy traffic flows on both the Jefferson Boulevard and South River Road off-ramps.

Mitigation of unacceptable conditions at this location can be achieved by separating the Jefferson Boulevard off-ramp from the South River Road off-ramp. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement, thus this impact is significant and unavoidable.**

Impact TRF-11: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the weaving section of eastbound US 50 between South River Road and I-5 to operate at an unacceptable LOS F during the AM peak hour and LOS E during the PM peak hour under Existing Plus Project conditions.

The weaving section would operate at LOS F (more than 45 passenger cars per mile per lane) during the AM and LOS E during the PM peak hour with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement, thus this impact is significant and unavoidable.**

Impact TRF-12: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the weaving section of westbound US 50 between I-5 and South River Road to operate at an unacceptable LOS F during the AM and PM peak hours under Existing Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) during the AM and PM peak hour with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement, thus this impact is significant and unavoidable.**

Impact TRF-13: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the weaving section of westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard to operate at an unacceptable LOS F during the PM peak hour under Existing Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) during the PM peak hour with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement, thus this impact is significant and unavoidable.**

Existing Plus Project Phasing Analysis

In order to mitigate the impacts of development of the Project, phasing of the Project to coordinate with the construction of new roadway infrastructure was examined. This section describes the impacts of different phasing alternatives that include varying combinations of development levels for the Project and new roadway infrastructure under the Existing Plus Project scenario.

The South River Road Bridge and Village Parkway segment south to Stonegate Drive are not assumed to be in place in the "Existing" scenario. Table 3.13-16 provides a description of the Project development levels and new roadway infrastructure that are assumed to be in place for each of the phases that is added to the Existing scenario (Fehr & Peers 2006). Table 3.13-17 shows the effects of the phasing plan on the significance of identified impacts under the Existing Plus Project scenario.

Table 3.13-16. Description of Phases—Existing Plus Project

Phase	River Park Development Levels	New Infrastructure
1	30% of River Park residential: 225 single family units 610 multi-family units	Stonegate Drive Extension (south to Davis Road)
2A	50% of River Park residential: 375 single family units 1,020 multi-family units	Stonegate Drive Extension (south to Davis Road) Village Parkway (from project north to Stonegate Drive)
2B	30% of River Park residential: 225 single family units 610 multi-family units	Stonegate Drive Extension (south to Davis Road) South River Road Bridge and approaches
3	100% of River Park Project	Stonegate Drive Extension (south to Davis Road) Village Parkway (from project north to Stonegate Drive) Add South River Road Bridge and approaches

Source: Fehr & Peers 2006.

Table 3.13-17. Change In Impacts with Phasing Options Existing and Project Scenario

		Levels of Significance[a]				
Impact	Intersection	E + P	E + Phase 1	E + Phase 2a	E + Phase 2b	E + Phase 3
1	Harbor Boulevard/Evergreen Avenue	SU	SU	SU	SU	SU
2	Harbor Boulevard/US 50 WB Ramps	SU	SU	SU	SU	SU
3	Harbor Boulevard/US 50 EB Ramps	SU	SU	SU	SU	SU
4	Harbor Boulevard/Industrial Blvd	LTSWM	LTS	LTS	LTS	LTSWM
5	Jefferson Blvd/SR 275 WB and US 50 WB Ramps	SU	SU	SU	SU	SU
6	Jefferson Blvd/Park/US 50 Ramps	SU	SU	LTS	SU	SU
7	Jefferson Blvd/15th Street	LTSWM	LTS	LTS	LTS	LTS
8	Jefferson Blvd/Devon/Gateway	LTSWM	LTS	LTS	LTS	LTS
9	Jefferson Blvd/Lake Washington	LTSWM	LTS	LTS	LTS	LTS
10	Jefferson Blvd/N. Linden Road	LTSWM	LTS	LTS	LTS	LTS
11	Jefferson Blvd/Davis Rd	LTSWM	LTS	LTS	LTS	LTS

[a] LTS = less than significant; LTSWM = less than significant after mitigation; SU = significant unavoidable.

Existing Plus Phase 1 Conditions

The extension of Stonegate Drive south to Davis Road allows for the development of approximately 600 units in the River Park Project. The traffic from an additional 235 units can be served on Davis Road and South River Road. Under this phase, all of the traffic uses the Jefferson Boulevard bridge as the main route to cross the Barge Canal. Tables 3.13-18 and 3.13-19 show the service levels for the Existing Plus Project phasing conditions. The following are highlights of the analysis results (Fehr & Peers 2006).

- All of the intersections on Jefferson Boulevard, south of the Barge Canal, would operate at LOS C or better conditions under Existing and Phase 1 conditions.
- The two intersections on South River Road, at US 50, would operate at LOS C or better conditions under Existing and Phase 1 conditions.
- Of the eight intersections in the vicinity of the US 50/Harbor Boulevard and US 50/Jefferson Boulevard interchanges, two would operate at better conditions and six at similar conditions under Existing and Phase 1 conditions when compared to Existing conditions (Fehr & Peers 2006).

Existing Plus Phase 2a Conditions

The extension of Stonegate Drive south to Davis Road allows for the development of approximately 600 units in the River Park Project. The extension of Village Parkway from the River Park Project north to Stonegate Drive allows for development of an additional 560 units in the River Park Project. The traffic from an additional 235 units can be served on Davis Road and South River Road. Under this phase, all of the traffic ultimately uses the Jefferson Boulevard bridge as the main route to cross the Barge Canal. Tables 3.13-18 and 3.13-19 show the service levels for the Existing Plus Project phasing conditions. The following are highlights of the analysis results (Fehr & Peers 2006).

- All of the intersections on Jefferson Boulevard, south of the Barge Canal, would operate at LOS C or better conditions under Existing and Phase 2a conditions.
- The two intersections on South River Road, at US 50, would operate at LOS C or better conditions under Existing and Phase 2a conditions.
- Of the eight intersections in the vicinity of the US 50/Harbor Boulevard and US 50/Jefferson Boulevard interchanges, eight would operate at similar conditions under Existing and Phase 2a conditions when compared to Existing conditions (Fehr & Peers 2006).

Existing Plus Phase 2b Conditions

The extension of Stonegate Drive south to Davis Road allows for the development of approximately 600 units in the River Park Project. The traffic from an additional 235 units can be served on Davis Road and South River Road. Under this phase, traffic uses the Jefferson Boulevard and South River Road bridges as main routes to cross the Barge Canal. All of the traffic destined for the South River Road Bridge is assumed to use Stonegate Drive or South River Road. Tables 3.13-18 and 3.13-19 show the service levels for the Existing and

Project phasing conditions. The following are highlights of the analysis results (Fehr & Peers 2006).

- All of the intersections on Jefferson Boulevard, south of the Barge Canal, would operate at LOS C or better conditions under Existing and Phase 2b conditions.
- The two intersections on South River Road, at US 50, would operate at LOS C or better conditions under Existing and Phase 2b conditions.
- Of the eight intersections in the vicinity of the US 50/Harbor Boulevard and US 50/Jefferson Boulevard interchanges, one would operate at better conditions and seven at similar conditions under Existing and Phase 2b conditions when compared to Existing conditions (Fehr & Peers 2006).

Existing Plus Phase 3 Conditions

The construction of the South River Road Bridge, as well as extensions of Stonegate Drive and Village Parkway south to Davis Road, would allow development of approximately 100% of the River Park Project. Under this phase, traffic uses the Jefferson Boulevard and South River Road bridges as main routes to cross the Barge Canal. Traffic destined for the South River Road Bridge is assumed to use Stonegate Drive, Village Parkway or South River Road. Tables 3.13-18 and 3.13-19 show the service levels for the Existing and Project phasing conditions. The following are highlights of the analysis results (Fehr & Peers 2006).

- All of the intersections on Jefferson Boulevard, south of the Barge Canal, would operate at LOS C or better conditions under Existing and Phase 3 conditions.
- The two intersections on South River Road, at US 50, would operate at LOS C or better conditions under Existing and Phase 3 conditions.
- Of the eight intersections in the vicinity of the US 50/Harbor Boulevard and US 50/Jefferson Boulevard interchanges, seven would operate at similar conditions and one at worse conditions under Existing and Phase 3 conditions when compared to Existing conditions (Fehr & Peers 2006).

Table 3.13-18. Phasing Analysis—Existing Plus Project Phases AM Peak Hour Intersection Level of Service

		Existing and Phase 1		Existing and Phase 2a		Existing and Phase 2b		Existing and Phase 3	
Study Intersections	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Harbor and Evergreen	Signal	48	D	48	D	48	D	48	D
Harbor and US 50 westbound on/off-ramp	Signal	>80	F	>80	F	>80	F	>80	F
Harbor and US 50 eastbound on/off-ramp	Signal	46	D	48	D	46	D	56	E
Harbor and Industrial	Signal	0.80	D	0.80	D	0.80	D	0.80	D
Jefferson 275 westbound ramps	Side-Street Stop	>50	F	>50	F	>50	F	>50	F
Jefferson and Tower Bridge Gateway eastbound on-ramp	Free	<10	A	11	B	10	B	<10	A
Jefferson and US 50 eastbound off-ramp	Signal	<10	A	<10	A	<10	A	<10	A
Jefferson and Park	Signal	37	D	41	D	36	D	39	D
South River and US 50 westbound off-ramp	Signal	17	B	17	B	17	B	18	B
South River and US 50 eastbound on-ramp	Side-Street Stop	<10	A	<10	A	<10	A	11	B
Jefferson and 15th Street	Signal	0.55	A	0.59	A	0.54	A	0.67	B
Jefferson and Stone	Signal	0.64	B	0.69	B	0.61	B	0.64	B
Jefferson and Devon/Gateway	Signal	0.75	C	0.79	C	0.72	C	0.77	C
Jefferson and Lake Washington	Signal	0.59	A	0.67	B	0.56	A	0.61	B
Lake Washington and Southport	Signal	0.43	A	0.43	A	0.43	A	0.44	A
Jefferson and N. Linden	Signal	0.60	B	0.67	B	0.58	A	0.70	C
Jefferson and Higgins	Signal	0.28	A	0.28	A	0.28	A	0.28	A
Jefferson and S. Linden	Signal	0.26	A	0.26	A	0.26	A	0.26	A
Jefferson and Davis	Side-Street Stop	11	B	11	B	10	B	11	B
Jefferson and Bevan	Side-Street Stop	10	B	11	B	10	B	11	B
Stonegate and N. Linden	All-Way Stop	11	B	12	B	11	B	13	B

Table 3.13-19. Phasing Analysis—Existing Plus Project Phases PM Peak Hour Intersection Level of Service

		Existing and Phase 1		Existing and Phase 2a		Existing and Phase 2b		Existing and Phase 3	
Study Intersections	Control	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Harbor and Evergreen	Signal	39	D	40	D	39	D	40	D
Harbor and US 50 Westbound on- and off-ramp	Signal	47	D	48	D	47	D	56	E
Harbor and US 50 Eastbound on- and off-ramp	Signal	40	D	44	D	40	D	68	E
Harbor and Industrial	Signal	0.70	B	0.70	B	0.70	B	0.70	B
Jefferson 275 Westbound Ramps	Side-Street Stop	>50	F	>50	F	>50	F	>50	F
Jefferson and Tower Bridge Gateway Eastbound on-ramp	Free	12	B	12	B	12	B	12	B
Jefferson and US 50 Eastbound off-ramp	Signal	<10	A	<10	A	<10	A	<10	A
Jefferson and Park	Signal	55	D	59	E	51	D	57	E
South River and US 50 Westbound Off-ramp	Signal	14	B	15	B	16	B	20	C
South River and US 50 Eastbound on-ramp	Side-Street Stop	<10	A	10	B	10	B	15	B
Jefferson and 15th Street	Signal	0.70	C	0.75	C	0.65	B	0.68	B
Jefferson and Stone	Signal	0.63	B	0.67	B	0.59	A	0.63	B
Jefferson and Devon/Gateway	Signal	0.60	B	0.64	B	0.58	A	0.62	B
Jefferson and Lake Washington	Signal	0.52	A	0.60	B	0.50	A	0.71	C
Lake Washington and Southport	Signal	0.48	A	0.49	A	0.48	A	0.53	A
Jefferson and N. Linden	Signal	0.44	A	0.52	A	0.41	A	0.57	A
Jefferson and Higgins	Signal	0.33	A	0.33	A	0.33	A	0.33	A
Jefferson and S. Linden	Signal	0.36	A	0.36	A	0.36	A	0.37	A
Jefferson and Davis	Side-Street Stop	14	B	14	B	14	B	16	B
Jefferson and Bevan	Side-Street Stop	10	B	10	B	10	B	10	B
Stonegate and N. Linden	All-Way Stop	11	B	12	B	11	B	15	B

Existing Plus Approved Projects Plus Project Conditions

Impact TRF-14: Degradation of LOS at Jefferson Boulevard/US 50 Westbound On-Ramp/Tower Bridge Gateway Westbound Off-Ramp Intersection during AM and PM Peak Hours (Significant and Unavoidable)

The addition of project traffic would cause the Jefferson Boulevard/US 50 westbound on-ramp/Tower Bridge Gateway westbound off-ramp intersection to operate at an unacceptable LOS F during both the AM and PM peak hours under Existing Plus Approved Projects Plus Project conditions.

The worst-case movement at this intersection would operate at LOS F (more than 5 seconds of delay added) during both the AM and PM peak hours. The intersection operates at deficient level due to the heavy northbound and southbound through movements.

Mitigation of unacceptable conditions at this intersection can be achieved through implementation of the planned reconstruction of the Jefferson Boulevard/US 50 interchange. Improvements to the Jefferson Boulevard/US 50 interchange are a future planned project by the City of West Sacramento. **The proposed Project would not construct the recommended improvement; therefore, this is a short-term significant and unavoidable impact.**

Impact TRF-15: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection during AM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the Jefferson Boulevard/Park Boulevard/US 50 Ramps intersection to operate at an unacceptable LOS F during the AM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS E to LOS F (more than 5 seconds of delay added) during the AM peak hour. The intersection operates at deficient level due to the heavy northbound through, southbound through, and westbound left-turn movements.

Mitigation of unacceptable conditions at this intersection can be achieved through implementation of the planned reconstruction of the Jefferson Boulevard/US 50 interchange. Improvements to the Jefferson Boulevard/US 50 interchange are a future planned project by the City of West Sacramento. **The proposed Project would not construct the recommended improvement; therefore, this is a short-term significant and unavoidable impact.**

Impact TRF-16: Degradation of LOS at Jefferson Boulevard/15th Street Intersection during the AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/15th Street intersection to operate at an unacceptable LOS D during the AM peak hour and LOS F during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS B to D during the M peak hour and LOS E to LOS F (more than 0.05 increase in V/C) during the PM peak hour. The intersection operates at deficient level due to the heavy northbound through and right-turn, westbound left-turn, and southbound through movements. With implementation of Mitigation Measures TRF-5 and TRF-16, the Jefferson Boulevard/15th Street intersection would operate at LOS D (0.81) during the AM peak hour and LOS D (0.88) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. **Implementation of Mitigation Measures TRF-5 and TRF-16 would reduce impacts to less-than-significant levels.**

Mitigation TRF-16: Extend Stonegate Drive from N. Linden Road to Davis Road

Implement the extension of Stonegate Drive from N. Linden Road to Davis Road. This improvement would allow vehicles traveling to/from eastbound I-80 and Downtown Sacramento to use Stonegate Drive instead of Jefferson Boulevard.

Impact TRF-17: Degradation of LOS at Jefferson Boulevard/Stonegate Boulevard during PM Peak Hour (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Stone Boulevard intersection to operate at an unacceptable LOS F during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS D to LOS F (more than 0.05 increase in V/C) during the PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measures TRF-5 and TRF-16, the Jefferson Boulevard/Stone Boulevard intersection would operate at LOS D (0.90) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. **Implementation of Mitigation Measures TRF-5 and TRF-16 would reduce impacts to less-than-significant levels.**

Impact TRF-18: Degradation of LOS at Jefferson Boulevard/Devon Avenue/Gateway Drive Intersection during AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection to operate at an unacceptable LOS E during both the AM peak hour and LOS F during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS C to LOS E during the AM peak hour and from LOS D to LOS F during the PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measures TRF-5, TRF-16 and TRF-18, the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection would operate at LOS B (0.62) during the AM peak hour and at LOS C (0.77) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. I**mplementation of Mitigation Measures TRF-5, TRF-16 and TRF-18 would reduce impacts to less-than-significant levels.**

Mitigation TRF-18: Add Free Right-Turn Lane to Gateway Drive Approach

Add a free right-turn lane to the Gateway Drive approach to the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection.

Impact TRF-19: Degradation of LOS at Jefferson Boulevard/Lake Washington Boulevard Intersection during AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Lake Washington Boulevard intersection to operate at an unacceptable LOS D during the AM peak hour and LOS E during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS B to LOS D during the AM peak hour and from LOS C to LOS E during the PM peak hour. The intersection operates at deficient level due to the heavy northbound through and left-turn and southbound through movements. With implementation of Mitigation Measures TRF-5 and TRF-16, the Jefferson Boulevard/Lake Washington Boulevard intersection would operate at LOS C (0.74) during the AM peak hour and LOS C (0.79) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. **Implementation of Mitigation Measures TRF-5 and TRF-16 would reduce impacts to less-than-significant levels.**

Impact TRF-20: Degradation of LOS at Jefferson Boulevard/N. Linden Road Intersection during the AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/N. Linden Road intersection to operate at an unacceptable LOS E during the AM peak hour and LOS D during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS B to LOS E during the AM peak hour and from LOS A to LOS D during the PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measures TRF-5 and TRF-16, the Jefferson Boulevard/N. Linden Road intersection would operate at LOS C (0.79) during the AM peak hour and LOS B (0.63) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. **Implementation of Mitigation Measures TRF-5 and TRF-16 would reduce impacts to less-than-significant levels.**

Impact TRF-21: Degradation of LOS at Jefferson Boulevard/Higgins Road Intersection during the AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Higgins Road intersection to operate at an unacceptable LOS D during both the AM and PM peak hours under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS A to LOS D during the AM and PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measures TRF-5 and TRF-16, the Jefferson Boulevard/Higgins Road intersection would operate at LOS A (0.54) during the AM peak hour and LOS A (0.53) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. **Implementation of Mitigation Measures TRF-5 and TRF-16 would reduce impacts to less-than-significant levels.**

Impact TRF-22: Degradation of LOS at Jefferson Boulevard/S. Linden Road Intersection during the PM Peak Hour (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/S. Linden Road intersection to operate at an unacceptable LOS D during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS A to LOS D during the PM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. With implementation of Mitigation Measures TRF-5 and TRF-16, the Jefferson Boulevard/S. Linden Road intersection would operate at LOS A (0.54) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions. **Implementation of Mitigation Measures TRF-5 and TRF-16 would reduce impacts to less-than-significant levels.**

Impact TRF-23: Degradation of LOS at Jefferson Boulevard/Davis Road Intersection during the AM and PM Peak Hours (Less than Significant with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Davis Road intersection to operate at an unacceptable LOS F during both the AM and PM peak hours under Existing Plus Approved Projects Plus Project conditions.

The intersection would degrade from LOS B to LOS F during the AM peak hour and from LOS C to LOS F during the PM peak hour. The intersection operates at deficient level due to the heavy southbound left-turn and westbound right-turn movements. With implementation of Mitigation Measure TRF-23, the Jefferson Boulevard/Davis Road intersection would operate at LOS A (0.52) during the AM peak hour and LOS B (0.63) during the PM peak hour under Existing Plus Approved Projects Plus Project conditions, **reducing impacts to less-than-significant levels.**

Mitigation TRF-23: Install Traffic Signal at Jefferson Boulevard/Davis Road Intersection

Install a traffic signal at the Jefferson Boulevard/Davis Road intersection.

Impact TRF-24: Degradation of LOS at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split During AM and PM Peak Hours (Significant and Unavoidable)

The addition of project traffic would cause the westbound off-ramp diverge to South River Road from the Jefferson Boulevard/South River Road split to operate at an unacceptable LOS E during the AM peak hour and LOS F during the PM peak hour under Existing Plus Approved Projects Plus Project conditions.

The ramp diverge would degrade from LOS D to E during the AM peak hour and operate at LOS F (more than 35 passenger cars per mile per lane) during the PM peak hour. The ramp would operate at a deficient level due to the heavy traffic flows on both the Jefferson Boulevard and South River Road off-ramps.

Mitigation of unacceptable conditions at this location can be achieved by separating the Jefferson Boulevard off-ramp from the South River Road off-ramp. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement, thus this impact is significant and unavoidable.**

Impact TRF-25: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the weaving section of eastbound US 50 between South River Road and I-5 to operate at an unacceptable LOS F during the AM peak hour and LOS E during the PM peak hour under Existing Plus Approved Projects plus Project conditions.

The weaving section would operate at LOS F (more than 45 passenger cars per mile per lane) during the AM and LOS E during the PM peak hour with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement, thus this impact is significant and unavoidable.**

Impact TRF-26: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the weaving section of westbound US 50 between I-5 and South River Road to operate at an unacceptable LOS F during the AM and PM peak hours under Existing Plus Approved Projects plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) during the AM and PM peak hours with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project would not construct**

the recommended improvement, thus this impact is significant and unavoidable.

Impact TRF-27: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour (Significant and Unavoidable)

The addition of project traffic would cause the weaving section of westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard to operate at an unacceptable LOS F during the PM peak hour under Existing Plus Approved Projects plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) during the PM peak hour with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project would not construct the recommended improvement**

Existing Plus Approved Projects Plus Project Phasing Analysis

In order to mitigate the impacts of development of the Project, phasing of the Project to coordinate with the construction of new roadway infrastructure was examined. This section describes the impacts of different phasing alternatives that include varying combinations of development levels for the Project and new roadway infrastructure under the Existing Plus Approved Projects Plus Project scenario.

The South River Road Bridge and Village Parkway segment south to Stonegate Drive are assumed to be in place in the “Existing Plus Approved Projects” scenario. Table 3.13-20 provides a description of the River Park development levels and new roadway infrastructure that are assumed to be in place for each of the phases that is added to the Existing and Approved Projects scenario (Fehr & Peers 2006). Table 3.13-21 show the effects of the phasing plan on the significance of identified impacts under the Existing Plus Approved Plus Project scenario. Tables 3.13-22 and 3.13-23 display LOS and delay with the phasing plan under the Existing Plus Approved Plus Project scenario.

Table 3.13-20. Description of Phases—Existing Plus Approved Projects Plus Project

Phase	River Park Development Levels	New Infrastructure
1	30% of River Park residential: 225 single family units 610 multi-family units	Stonegate Drive Extension (south to Davis Road)
2	100% of River Park Project	Stonegate Drive Extension (south to Davis Road) Village Parkway (from project north to Stonegate Drive)

Source: Fehr & Peers 2006.

Table 3.13-21. Change In Impacts With Phasing Options Existing & Approved & Project Scenario

		Levels of Significance		
Impact #	Intersection	E + A + P	E + A + Phase 1	E + A + Phase 2
14	Jefferson Blvd/SR 275 WB & 50 WB Ramps	SU	SU	SU
15	Jefferson Blvd/Park/US 50 Ramps	SU	SU	SU
16	Jefferson Blvd/15th Street	LTSWM	LTS	LTS
17	Jefferson Blvd/Stone Blvd	LTSWM	LTS	LTS
18	Jefferson Blvd/Devon/Gateway	LTSWM	LTS	LTS
19	Jefferson Blvd/Lake Washington	LTSWM	LTS	LTS
20	Jefferson Blvd/N. Linden Road	LTSWM	LTS	LTS
21	Jefferson Blvd/Higgins Road	LTSWM	LTS	LTS
22	Jefferson Blvd/S. Linden Road	LTSWM	LTS	LTS
23	Jefferson Blvd/Davis Road	LTSWM	LTSWM	LTSWM

Level of Significance:

LTS = less than significant

LTSWM = less than significant after mitigation

SU = significant unavoidable

Table 3.13-22. Phasing Analysis—Existing Plus Approved Plus Project Phases AM Peak Hour Intersection Level of Service

		Existing and Approved Projects		Existing and Approved + Phase 1		Existing and Approved + Phase 2	
Study Intersections	Control	Delay	LOS	Delay	LOS	Delay	LOS
Harbor and Evergreen	Signal	29	C	29	C	28	C
Harbor and US 50 westbound on/off-ramp	Signal	22	B	25	C	26	C
Harbor and US 50 eastbound on/off-ramp	Signal	27	C	28	C	31	C
Harbor and Industrial	Signal	0.48	A	0.48	A	0.51	A
Jefferson 275 westbound ramps	Side-Street Stop	>50	F	>50	F	>50	F
Jefferson and SR 275 eastbound on-ramp	Free	15	B	16	C	17	C
Jefferson and US 50 eastbound off-ramp	Signal	10	B	10	B	10	B
Jefferson and Park	Signal	59	E	62	E	64	E
South River and US 50 westbound off-ramp	Signal	18	B	20	B	24	B
South River and US 50 eastbound on-ramp	Side-Street Stop	10	B	10	B	14	B
Jefferson and 15th Street	Signal	0.69	B	0.71	C	0.81	D
Jefferson and Stone	Signal	0.69	B	0.71	C	0.73	C
Jefferson and Devon/Gateway	Signal	0.79	C	0.81	D	0.83	D
Jefferson and Lake Washington	Signal	0.67	B	0.69	B	0.74	C
Lake Washington and Southport	Signal	0.57	A	0.59	A	0.64	B
Jefferson and N. Linden	Signal	0.64	B	0.70	C	0.79	C
Jefferson and Higgins	Signal	0.53	A	0.54	A	0.54	A
Jefferson and S. Linden	Signal	0.38	A	0.39	A	0.40	A
Jefferson and Davis	Side-Street Stop	14	B	15	C	16	C
Jefferson and Bevan	Side-Street Stop	19	C	20	C	21	C
Stonegate and N. Linden	All-Way Stop	<10	A	11	B	12	B

Table 3.13-23. Phasing Analysis—Existing Plus Approved Plus Project Phases PM Peak Hour Intersection Level of Service

		Existing and Approved Projects		Existing and Approved + Phase 1		Existing and Approved + Phase 2	
Study Intersections	Control	Delay	LOS	Delay	LOS	Delay	LOS
Harbor and Evergreen	Signal	38	D	39	D	42	D
Harbor and US 50 westbound on/off-ramp	Signal	23	B	23	B	24	B
Harbor and US 50 eastbound on/off-ramp	Signal	32	C	33	C	38	D
Harbor and Industrial	Signal	0.52	A	0.77	C	0.82	D
Jefferson 275 westbound ramps	Side-Street Stop	>50	F	>50	F	>50	F
Jefferson and SR 275 eastbound on-ramp	Free	14	B	14	D	15	D
Jefferson and US 50 eastbound off-ramp	Signal	6	A	< 10	A	< 10	A
Jefferson and Park	Signal	37	D	38	D	45	D
South River and US 50 westbound off-ramp	Signal	27	C	30	C	58	E
South River and US 50 eastbound on-ramp	Side-Street Stop	12	B	14	B	43	F
Jefferson and 15th	Signal	0.93	E	0.96	E	0.97	E
Jefferson and Stone	Signal	0.80	D	0.82	D	0.84	D
Jefferson and Devon/Gateway	Signal	0.83	D	0.85	D	0.87	D
Jefferson and Lake Washington	Signal	0.70	C	0.73	C	0.79	C
Lake Washington and Southport	Signal	0.61	B	0.62	B	0.73	C
Jefferson and N. Linden	Signal	0.56	A	0.57	A	0.63	B
Jefferson and Higgins	Signal	0.51	A	0.53	A	0.53	A
Jefferson and S. Linden	Signal	0.52	A	0.54	A	0.54	A
Jefferson and Davis	Side-Street Stop	20	C	25	D	27	D
Jefferson and Bevan	Side-Street Stop	17	C	17	C	18	C
Stonegate and N. Linden	All-Way Stop	10	B	11	B	15	B

Existing Plus Approved Projects Plus Phase 1 Conditions

The extension of Stonegate Drive south to Davis Road allows for the development of approximately 600 units in the River Park Project. The traffic from an additional 235 units can be served on Davis Road and South River Road.

Under this phase, traffic uses the Jefferson Boulevard and South River Road bridges as main routes to cross the Barge Canal. All of the traffic destined for the South River Road Bridge is assumed to use Stonegate Drive or South River Road. Tables 3.13-18 and 3.13-19 show the service levels for the Existing and Approved Plus Project phasing conditions. The following are highlights of the analysis results (Fehr & Peers 2006).

- All of the intersections on Jefferson Boulevard, south of the Barge Canal, would operate at LOS D or better conditions under Existing and Approved and Phase 1 conditions. Seven of the 10 intersections would operate at LOS C or better conditions. Three intersections would require mitigations to achieve LOS C conditions.
- The two intersections on South River Road, at US 50, would operate at LOS C or better conditions under Existing and Approved and Phase 1 conditions.
- Of the eight intersections in the vicinity of the US 50/Harbor Boulevard and US 50/Jefferson Boulevard interchanges, three would operate at better conditions, three at similar conditions and two at worse conditions under Existing and Approved and Phase 1 conditions when compared to Existing conditions (Fehr & Peers 2006).

Existing Plus Approved Projects Plus Phase 2 Conditions

The construction of the South River Road Bridge, as well as extensions of Stonegate Drive and Village Parkway south to Davis Road, would allow development of approximately 100% of the River Park Project. Under this phase, traffic uses the Jefferson Boulevard and South River Road bridges as main routes to cross the Barge Canal. Traffic destined for the South River Road Bridge is assumed to use Stonegate Drive, Village Parkway or South River Road. Tables 3.13-18 and 3.13-19 show the service levels for the Existing and Approved and Project phasing conditions. The following are highlights of the analysis results (Fehr & Peers 2006).

- All of the intersections on Jefferson Boulevard, south of the Barge Canal, would operate at LOS D or better conditions under Existing and Approved and Phase 2 conditions. Seven of the 10 intersections would operate at LOS C or better conditions. Three intersections would require mitigations to achieve LOS C conditions.
- The two intersections on South River Road, at US 50, would operate at unacceptable conditions and require mitigations under Existing Plus Approved Projects Plus Phase 2 conditions.
- Of the eight intersections in the vicinity of the US 50/Harbor Boulevard and US 50/Jefferson Boulevard interchanges, two would operate at better conditions, four at similar conditions and two at worse conditions under Existing Plus Approved Projects Plus Phase 2 conditions when compared to Existing conditions (Fehr & Peers 2006).

Section 3.14

Utilities and Public Services

Introduction

This section describes the environmental setting for utilities and public services, the impacts on utilities and public services that would result from the Project, and the mitigation measures that would reduce these impacts.

Environmental Setting

This section discusses the existing conditions related to utilities and public services in the project area. State and local regulations related to utilities and public services that would apply to the Project are discussed below.

Existing Conditions

Fire Protection

The West Sacramento Fire Department provides fire protection to the City of West Sacramento and the surrounding area, including unincorporated areas of Yolo County between the southern city limits and Babel Slough and the area between the Yolo Bypass and the Deep Water Ship Channel. The fire department also provides services to the Port of Sacramento through an agreement between the port and the City.

The West Sacramento Fire Department currently operates four fire stations, with a total Emergency Services personnel complement of 45. These personnel are divided into three shifts of 15 each. Station 42, located at 3585 Jefferson Boulevard, is the station responsible for responding to fire-related incidents in the Southport area. This station responded to 652 incidents in its coverage area in 2003, and personnel and apparatus from this station participated in a total of 832 runs in that same year. While this station responded to the fewest incidents of the four stations in 2002 and 2003, its coverage area is by far the largest (City of West Sacramento 2005d).

The City of West Sacramento has put together a fire service committee to address the growing needs of the City. To date, the following actions have been made regarding stations and staffing (Rice pers. comm.):

- new living quarters on the Station 42 property have been completed;
- demolition of Station 41 has been completed (the committee is working with the City on designing the new station);
- plans are moving forward to build a new station closer to the Southport area,
- Station 45 anticipates completion in January 2007;
- as of July 2005, staffing increases have been made on fire trucks, going from two firefighters to three;
- as of January 2006, the number of division chiefs increased from four to five; and
- as of July 2006, nine new firefighters would be admitted to the academy, with the new firefighters online by January 2007.

Fire Response Study

The City of West Sacramento recently prepared an update to the existing study of Fire Services Deployment for use in environmental impact reports being prepared for development projects in Southport (Citygate 2006). The emphasis of this update was to identify the number, locations, and timing of construction of fire stations in the Southport area, given the current simultaneous development proposals before the City.

In summary, the report concludes that the continuing development in Southport would require a total of three fire stations for effective first-due and multiple-unit coverage.

- New Station 45, already under development by the City, is necessary and appropriately located.
- As growth occurs in the Southeast and Southwest villages, where the River Park and Yarbrough projects are proposed, respectively, the existing Station 42 should be relocated to the south.
- Growth in the Parks at Southport project area, in the Northwest village, would require a sixth station in the City, the third in Southport. This station would be even more necessary when the eventual relocation of existing Station 43 to the north occurs.

The report also recommends thresholds that would assist the City to determine when relocated Station 42 and new Station 46 should be online.

Police Protection

Law enforcement inside the City of West Sacramento is the responsibility of the West Sacramento Police Department (WSPD). The WSPD, located at 550 Jefferson Boulevard, employs 67 sworn officers (City of West Sacramento 2005e). According to the latest General Plan update in 2000 (City of West Sacramento Department of Community Development 1990a), the WSPD is responsible for patrolling neighborhoods within the city limits, as well as providing a law enforcement presence at the Port of Sacramento. The desired staffing level for the WSPD is two officers per 1,000 residents (City of West Sacramento 2005e). The City sets a response time performance goal of responding to an emergency call within 5 minutes (City of West Sacramento 2005).

According to population estimates prepared by the California Department of Finance, the estimated 2005 population of the City was 40,206 persons (State of California 2005a). On the basis of the existing number of officers (67) and the current estimated population, the WSPD currently operates at a level of service ratio of 1.6 officers per 1,000 persons.

Schools

Washington Unified School District (WUSD) serves the City of West Sacramento. The district currently operates 14 schools, including an adult school, an independent study school, and an early education center. Enrollment is approximately 6,200 students (Washington Unified School District n.d.).

The nearest existing WUSD school to the project site is Southport Elementary, located at 2747 Linden Road, at a distance of approximately 1.8 miles. Our Lady of Grace Elementary is also nearby, located at 1990 Linden Road, at a distance of approximately 1.5 miles from the site. This school is operated by Our Lady of Grace Catholic Church and is not affiliated with WUSD. Planning is also currently under way for a new high school, which would be located in Southport at the intersection of Jefferson Boulevard and Linden Road, a distance of approximately 2 miles from the project site (Washington Unified School District n.d.)

In addition to the WUSD, the West Sacramento area is also served by the Los Rios Community College District, which includes American River College, Sacramento City College, and Cosumnes River College, all of which are located in the City of Sacramento. A satellite community college campus is located on Harbor Boulevard, south of US 50.

Gas and Electricity

Natural gas and electric service are provided privately to West Sacramento residents by the Pacific Gas and Electric Company (PG&E). According to the

California Energy Commission's 2004 update to its Integrated Energy Policy Report, PG&E should have adequate electric generation reserves under normal weather conditions to supply its customers until at least 2008. Under hot weather conditions, their estimates indicate that reserves might dip below the 7% goal set by the state, and rotating outages would then be a possibility for 2008 (California Energy Commission 2004).

Pacific Gas & Electric currently operates two 115-kilovolt (kV) source lines in the area, as well as one 115 kV interconnection line and two distribution substations, the West Sacramento substation and the Deepwater substation. The West Sacramento substation is located in the northern portion of the City, near the intersection of Reed Avenue and Sacramento Avenue. The Deepwater substation in located in Southport, near the industrial park. The project site is served from this substation (City of West Sacramento Department of Community Development 1990a).

Water Service

The City provides water service for the entire city limits north of the Deep Water Ship Channel and the Port of Sacramento, as well as the developed areas in the Northeast and Northwest villages of the Southport area. The project site is not currently served by City water. The capacity of the Bryte Bend Water Treatment Plant (BBWTP) is approximately 60 million gallons per day (mgd).

As described in Water Supply Assessment (WSA) (Appendix G), in the past the City used groundwater as its sole source of supply and still has existing wells with a pumping capacity of about 5.6 mgd (Appendix G). Currently, the wells are not in good operating condition, and the quality of water they produce is poor. Use of groundwater in the City thus involves the need to treat the water to remove iron, manganese, methane, and probably arsenic. Treatment, however, does not reduce the dissolved solids concentration, which affects taste. Rehabilitation of these wells and integration of wellhead treatment units and emergency power supplies to make the wells available during power outages could be costly when compared to providing equivalent treated water storage capacity on a life cycle cost basis. This resource, therefore, does not provide the City with a highly reliable supply option.

As indicated in the City's Water Master Plan Update 2005, the City intends to deactivate its existing groundwater sources. On this basis, the 2005 Urban Water Management Plan (UWMP) assumes that groundwater is not available as a source of future water supply. Consistent with the UWMP, for the purposes of this WSA, it is assumed that groundwater would not be a source of water supply for the City. Groundwater wells are now considered solely an emergency supply.

Water supplies to the City are obtained from three sources.

- The City holds an appropriative right for diversion of surface water from the Sacramento River.

- The City holds a contract with Reclamation for Central Valley Project (CVP) water.
- The majority of the City, including the project area, is within the boundaries of the North Delta Water Agency (NDWA) service area.

The City's existing surface water supply facilities include the 58 mgd BBWTP.

Appropriative Water Right

The City has an appropriative right for diversion of surface water from the Sacramento River. Permit number 18150, issued by the State Water Resources Control Board, allows, under this right, the city to divert up to 18,350 afy of water from the Sacramento River at the BBWTP intake structure. This permit was issued in 1981 and limits the diversion of water to the periods of January 1 through June 30 and September 1 through December 31 of each year, with a maximum rate of diversion for municipal use limited to 62 cubic feet per second (cfs), or about 40 mgd. Under this permit the City does not have the right to divert water during the high-demand months of July and August.

U.S. Department of the Interior, Bureau of Reclamation

To obtain water during the summer months, the City has entered into a 40-year agreement with Reclamation. This contract authorizes the City to divert from the Sacramento River a specified amount of water supply created by the CVP. The City can divert up to 23,600 afy from the Sacramento River of combined appropriative right water and CVP water. The total diversion amount is equivalent to an average-day diversion of 21.1 mgd.

North Delta Water Agency

Most of the City lies within the service area of NDWA. The NDWA negotiated a contract that assures that the state, through the State Water Project (SWP), would maintain a dependable water supply of adequate quantity and quality for municipal, industrial, and agricultural purposes to the NDWA.

Wastewater (Sewer) Service

The City of West Sacramento currently performs wastewater treatment operations at its Wastewater Treatment Plant (WWTP) on South River Road, just north of the Deep Water Ship Channel. The WWTP was constructed in 1951 and has been expanded to its current treatment capacity of 7.5 mgd. Sewage reaches the plant through a network of collector lines, main interceptor lines, pump stations, and force mains. There are two operating pump stations in the Southport area. The Bridgeway Island Station serves the development in the

Northwest Village area, and the Southport Station serves the development in the Northeast Village area. These two stations are both approximately 2 miles from the project site, which is not currently served by City sewer services (City of West Sacramento Department of Community Development 1990a).

The City of West Sacramento has agreed to join the Sacramento Regional County Sanitation District (SRCSD). The SRCSD has planned the construction of the Lower Northwest Interceptor (LNWI) for the period of 2006–2010. This pipeline would bring wastewater from West Sacramento to the Sacramento Regional Wastewater Treatment Plant (SRWTP) in Elk Grove, which is currently undergoing expansion to accept the additional volume. The 2020 SRWTP Master Plan describes planned expansions to wastewater treatment capacity and the methods used to define the design guidelines for the expansion process. The future capacity of the SRWTP was determined based on flow projections calculated from population projections prepared by SACOG and an estimated flow rate per capita of 132.4 gpd. This flow factor was derived from an average of daily dry-weather flow rates for the period of 1996–2000 (Sacramento County Department of Environmental Review and Assessment 2002). Until this project is complete, wastewater from Southport would continue to be processed at the City's existing WWTP (Sacramento Regional County Sanitation District 2005).

Solid Waste Disposal

Waste Management of Sacramento provides solid waste disposal services to the residents of West Sacramento under franchise from the City. A&A Recycling Systems, Tri-C Waste Disposal, Golden State Disposal, and BFI Waste Systems provide private solid waste disposal services for certain commercial and industrial users in the City. Most of this waste is disposed of in the Yolo County Central Landfill, approximately 15 miles from West Sacramento. The facility is a Class III sanitary landfill and has been in operation since 1975. It has an ultimate capacity of approximately 28 million cubic yards (18 million tons) (City of West Sacramento Department of Community Development 1990a) The California Integrated Waste Management Board (CIWMB) (2005a) lists the Yolo County Central Landfill as capable of remaining in operation until 2045.

The City of West Sacramento's Department of Finance also oversees administration of the City's curbside recycling program, which is intended to reduce solid waste disposal demands on the county landfill by recycling many household waste products, including cardboard, newspaper, glass, plastic, oil, metal, and organic yard waste (City of West Sacramento 2005f).

Stormwater Drainage

Stormwater management in West Sacramento is a cooperative effort between the City, the local reclamation districts, and the State of California. The state and the local reclamation districts share responsibility for the levees that control flooding from the river, and the City shares responsibility with the reclamation districts for stormwater infrastructure inside the city. Most of city, including the entire Southport area, lies within Reclamation District 900. The primary drainage facilities in the Southport area are the Main Drainage Canal and the Main Pump Station. The canal collects stormwater drainage from the area and carries it south to the pump station, which discharges into the Deep Water Ship Channel (City of West Sacramento Department of Community Development 1990a).

Though the project site is not currently served by any stormwater drainage facilities maintained by the City, the *Southport Drainage Master Plan* (Borcalli & Associates 2001) recommends that stormwater pipes, a detention pond, and a pump station be constructed to route drainage water to the main canal. The Project includes implementation of a drainage concept plan that is based on the use of the central parkway feature for stormwater conveyance, detention, and stormwater quality management. Stormwater discharge and surface runoff would be channeled toward the parkway where it would be collected and reused in the water feature. The water channels and open water areas of the parkway would be designed to serve as detention basins and stormwater quality management facilities.

Regulatory Setting

State Regulations

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. CPUC is responsible for assuring California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud and promoting the health of California's economy. The CPUC establishes service standards and safety rules and authorizes utility rate changes. It enforces CEQA for utility construction as well. CPUC also regulates the relocation of power lines by public utilities under its jurisdiction, such as PG&E. CPUC works with other state and federal agencies in promoting water quality, environmental protection, and safety.

California Integrated Waste Management Act

In 1989, Assembly Bill 939 (AB 939), known as the Integrated Waste Management Act, was passed into law. Enactment of AB 939 established the CIWMB and set forth aggressive solid waste diversion requirements. Under AB 939, every city and county in California is required to reduce the volume of waste sent to landfills by 50% through recycling, reuse, composting, and other means. AB 939 requires counties to prepare a Countywide Integrated Waste Management Plan (CIWMP). An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, existing and proposed solid waste facilities, and an overview of specific steps that would be taken to achieve the goals outlined in the components of the CIWMP.

Local Regulations

West Sacramento General Plan

The City of West Sacramento's General Plan Policy Document (City of West Sacramento Department of Community Development 1990b) sets forth the following relevant goals and policies:

Goal A: To maintain an adequate level of service in the City's water system to meet the needs of existing and future development.

Policies:

1. The City shall continue to use treated surface water from the Sacramento River as the principal source of domestic water for the city, relying on treated groundwater only to supply the port pressure zone and as an emergency backup to the surface water source. The City shall pursue as expeditiously as possible, acquisition of additional surface water rights necessary to accommodate projected water demand.
2. The City shall continue to expand and develop water treatment, distribution, and storage facilities to accommodate the needs of existing and planned development.
3. To minimize the need for the development of new water sources and facilities and to minimize sewer flows, the City shall promote water conservation both in City operations and in private development.
7. The City shall, through a combination of water development fees and other funding mechanisms, ensure that new development pays its fair share of the costs of water system improvements.

Goal B: To maintain an adequate level of service in the City's sewage collection and disposal system to meet the needs of existing and future development.

Policies:

2. The City shall ensure the provision of adequate sewer service to all new development in the city and support the extension of sewer service to existing developed areas where this service is lacking.
3. The City shall expand and develop new wastewater treatment and disposal facilities to accommodate the needs of existing and planned development.
4. The City shall, through a combination of sewer development fees and other funding mechanisms, ensure that new development pays its fair share of the costs of sewer system improvements.

Goal C: To maintain an adequate level of service in the City's storm drainage system to accommodate runoff from existing and future development and to prevent property damage due to flooding.

Policies:

1. Where practical and economical, the City shall upgrade existing drainage facilities as necessary to correct localized flooding problems.
2. The City shall continue to expand and develop storm drainage facilities to accommodate the needs of existing and planned development.
4. The City shall, through a combination of drainage improvement fees and other funding mechanisms, ensure that new development pays its fair share of the costs of drainage system improvements.
5. The City shall cooperate with other responsible agencies in ensuring that levees surrounding the city are maintained and improved to provide a minimum 200-year flood protection.

Goal D: To provide for the collection and disposal of solid waste while minimizing the generation of waste.

Policies:

1. The City shall study and actively pursue methods of solid waste recycling and reuse, including source separation, with the goal of reducing its solid waste generation by 50 percent by the year 2000. Recycling methods that involve the production of energy shall be considered.
4. The City shall maintain close contact with the Yolo County Public Works Department concerning the City's continuing use of the Yolo County Central Landfill and its capacity projections.

Goal E: To ensure that an adequate level of police service is maintained as new development occurs.

Policies:

1. The City shall, through adequate staffing and patrol arrangements, endeavor to maintain the minimum feasible response times for police calls. The goal for average response time for Priority 1 (emergency) calls shall be five minutes.
2. The Police Department shall continually monitor response times and report annually on the results of the monitoring.
3. The City shall encourage the use of private patrols and security personnel in large residential and commercial developments to supplement police services.

Goal F: To ensure that an adequate level of fire service is maintained as new development occurs.

Policies:

1. The City shall endeavor to achieve and maintain a fire insurance (ISO) rating of 3 or better in the developed portion of the City. The goal for average response time for Priority 1 (emergency) calls shall be five minutes for 95 percent of the calls.

2. Fire stations shall be strategically located to ensure optimal response time. The existence of physical barriers shall be an important siting consideration.
3. The City shall attempt to offset the need for new fire department staff and equipment and to improve fire safety by requiring installation of built-in fire suppression equipment in all new development of buildings exceeding 4,000 SF.
5. The City shall ensure that special equipment and trained personnel are available to address the needs of high-rise, waterfront, and industrial development.

Goal G: To provide for the educational needs of West Sacramento residents.

Policies:

1. The City shall assist the Washington Unified School District and others in locating and reserving appropriate sites for new schools.
2. Standards established by the School District shall be used in determining the number and location of new school sites. These standards are based on the assumed average number of students per household for each grade level (varies for different types of housing) and the average size of an elementary school, junior high school, or high school.
3. New elementary schools should be located on collector streets *within* residential areas. Elementary schools should be sited to avoid barriers such as railroad tracks and arterial streets that would separate them from the surrounding residential areas.
4. The City shall cooperate with the Washington Unified School District in an effort to ensure adequate financing for new school facilities. To this end, the City shall cooperate with the School District in the collection of school facility development fees from new residential and non-residential development. The City shall also work with the Washington Unified School District to identify, establish, and implement additional measures that may be necessary to adequately finance school facilities in the city.
6. To promote socioeconomic balance in the student population of neighborhood schools, the City shall consider the mix of low-, moderate-, and high-income households within school attendance areas when reviewing and approving residential development proposals.

Southport Framework Plan

The Southport Framework Plan calls for the coordination of provision of public services and utilities with the development of the land uses proposed in the Southport Framework Plan. The Southport Framework Plan EIR (Willdan Associates 1994) found that there would be no significant impacts related to provision of public services and utilities associated with implementation of the Southport Framework Plan and the Conformance Principles.

Impact Analysis

This section describes the methods used to determine the Project's impacts relating to utilities and public services and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Approach and Methods

Potential impacts related to utilities and public services that may result from the construction and/or operation of the Project are considered at a project level, and specific mitigation measures to avoid, minimize, or compensate for potentially significant impacts are described immediately following each impact discussion, as necessary.

Thresholds of Significance

Criteria for determining the significance of impacts related to utilities and public services were developed based on the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 *et seq.*) and City thresholds. An impact related to utilities and public services was considered significant if it would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable levels of performance for public services, including, but not limited to, fire protection, police protection, schools, and parks;
- exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board or result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, thereby requiring or resulting in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- create insufficient water supplies to serve the project from existing entitlements and resources, requiring new or expanded entitlements;
- require additional capacity, substantially increase demand, or affect energy supplies for electrical, natural gas, or telecommunications service; or

- not be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs or not comply with federal, state, and local statutes and regulations related to solid waste. Additionally, a significant impact would occur if the City's waste disposal hauler/contractor could not accommodate increased waste streams.

A discussion of impacts to parks is included in Section 3.12, *Recreation*.

Impacts and Mitigation Measures

Impact US-1: Increased Demand for Fire Protection Services (Less than Significant)

Project implementation would increase demand in the City of West Sacramento for fire protection services to serve the proposed project. To offset this increased demand for new or expanded facilities, the City requires developers to pay Fire Facility Development fees to provide funding for necessary public service facility improvements, including fire station expansion and equipment. These development fees are described in Title 12 of the City of West Sacramento's Municipal Code (Section 12.40). Funding for additional staff would not be covered through the payment of these funds, and the capital improvements do not address long-term personnel costs.

The proposed project, when considered together with other approved and pending developments in Southport, could affect the West Sacramento Fire Department's ability to maintain the current levels of service to City residents. The current response standard in the City is for an appropriately staffed unit to arrive at the scene of an emergency within city limits in 5 minutes from the time of fire crew notification 95% of the time (Citygate 2006). The 5-minute standard comprises 1 minute for "turnout" time (to hear the dispatch, don the appropriate protective clothing, and get the apparatus moving) plus 4 minutes of actual driving time. This performance measure has not been adopted by the city council other than as a budget measure.

In addition to this response time performance standard, the City's General Plan sets a staffing goal of 1.5 firefighters per 1,000 residents. The City has recently revised this service level goal to a staffing goal of two firefighters per 1,000 residents. As described in Section 3.11, *Population and Housing*, the Project is estimated to result in a population of 7,197 persons at full buildout, an increase of approximately 1,916 persons beyond that envisioned in the Southport Framework Plan. On the basis of the level of service ratio described above, 14.4 firefighters would need to be added to the West Sacramento Fire Department to serve the population of the project area at buildout. The Project would require approximately 3.8 firefighters more than the number that would have been required from development of the Southeast Village under the current Southport Framework Plan.

The City of West Sacramento recently conducted a fire response study to determine the combined impacts of the increased demand for fire protection services from the proposed development projects within the Southport area, including the proposed Project. The impacts to fire response identified in the report are not specific to the proposed Project. The report includes a summary of the impacts of all currently proposed development projects in Southport. The proposals are in various stages of review by the City. The City has expressed a concern that because the six development proposals are being reviewed in parallel, the impacts to fire response services from all of the development proposals taken together may not be fully identified. To address this concern, the analysis described and documented in the report provides an evaluation of the impacts of all six development proposals considered together.

According to the Fire Response Study, the City’s per capita fire staffing standard is largely outmoded, and current industry practices are based on response times rather than per capita ratios for fire department personnel (Citygate 2006). The City’s per capita formula could have required upwards of 118 firefighters at buildout of Southport without regard to neighborhood response times or fire station distribution (i.e., geographic location). Therefore, the Fire Response Study analyzed fire response in Southport by utilizing a systems approach known as “Standards of Response Coverage.” According to the report, a systems approach to deployment rather than a one-size-fits-all prescriptive formula allows for local determination. The City can match localized need (risks and expectations) with the costs of various levels of service (Citygate 2006). In brief, there are two geographic perspectives to fire station deployment:

- **Distribution**—the spreading out or spacing of first-due fire units to stop routine emergencies and provide initial emergency medical care; and
- **Concentration**—the clustering of fire stations close enough together so that building fires can receive enough resources from multiple fire stations quickly enough. This is known as the Effective Response Force, or more commonly the “First Alarm Assignment,” the collection of a sufficient number of firefighters on scene, delivered within the concentration time goal to stop the escalation of the problem.

The Fire Response Study analyzed fire response unit travel time coverage using a geographic mapping tool that measures travel time over a street network. Several deployment map studies were prepared, and their effectiveness for various parts of the community was measured. Additional information on the modeling methodology and the deployment maps is contained in the Fire Response Study (Appendix H). On the basis of this analysis, the report concluded that the Southport area would eventually require three fire stations for effective fire response coverage due to its large area and non-grid-type street network. More specifically, the report found that:

- new Station 45, already under development by the City, is necessary and appropriately located;
- as growth occurs in the Southeast and Southwest villages, where the River Park and Yarbrough projects are proposed, respectively, existing Station 42

should be relocated to the south along Jefferson Boulevard, within the boundaries of the Yarbrough project; and

- development of the Parks at Southport project area, in the Northwest Village, would require a sixth station in the City, the third in Southport. This station would be even more necessary when the eventual relocation of existing Station 43 (located north of the ship channel) occurs.

These station locations are interdependent, and if any one area of Southport significantly develops outside the primary reach of current Station 42 and new Station 45, that area would not have primary unit coverage. Additionally, if Station 43 is moved northerly before Station 46 is opened, then the multi-unit coverage in Southport would not be effective for the southern area of Southport. In order to model the timing of these fire stations, the report estimated that the development in the Southport area would be phased as follows:

- 1st phase—Harbor Pointe project;
- 2nd phase—The Parks, if approved; Yarbrough, northern portion; River Park, northern portion;
- 3rd phase—Yarbrough, southern portion; River Park, remaining portion; beginning of Seaway development; and
- 4th phase—Seaway, remaining portion; University Park, if annexed.

Assuming that the above phasing occurs, the report recommends that the City strive for station additions or relocations as 20% to 25% of a newly developed area exceeds a 4-minute travel time from a fire station. Thus, as these areas develop, the report recommends the following.

- Station 45 should be opened before any significant development occurs in Harbor Pointe or any other Southport Framework Plan area.
- Yarbrough and The Parks at Southport, occurring close together, trigger the need for the relocation of Station 42 to the south and construction of the new Station 46. This should occur when 25% of the units are located beyond the 4-minute reach of current Station 42 and new Station 45.
- If initial occupancy of Yarbrough or River Park occurs with or after The Parks at Southport, then the new Station 46 is needed for multi-unit coverage in all of Southport.
- If Station 43 is relocated before Seaway and/or The Parks at Southport begins, then Station 46 should open when initial occupancy of those projects occurs for effective primary unit coverage.
- Southern Yarbrough and a University Park annexation contribute substantially to the need for the southerly relocation of Station 42.

The report recommends that the City consider developing and implementing an assessment district or community-financing district requiring all of the major developments in Southport to contribute for a fixed period of time to the staffing cost of Station 46. The time frame could reasonably be from when the City requires the station to be staffed to when the project is fully sold out, and thus the

General Fund should have the necessary revenue capacity to carry the station. As River Park, Yarbrough, and The Parks at Southport all substantially contribute to the need for Station 46 and the relocation of Station 42, they could be required to advance their development impact fees per unit for the entire project to the initial project occupancy so the City can gain the capital construction funding for the stations.

The payment of fire facility impacts fees, in accordance with West Sacramento Municipal Code Section 12.40, and participation in an assessment district, community facilities district, or similar mechanism would ensure that adequate funding is available for fire protection services. For this reason, the proposed Project would have a less-than-significant impact related to the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable levels of performance for fire protection.

The City intends that property owner agreements to participate in a Community Facilities District ensure that the project area "pays its own way" for these services. Participation of the major Southport projects (including River Park) in a Community Facilities District would fund safety personnel. The need for funding of safety personnel, while important, is not considered to be an impact under CEQA. **Potential impacts would be less than significant. No mitigation is necessary.**

Impact US-2: Increased Demand for Police Protection Services (Less than Significant)

Project implementation would increase the need for West Sacramento-provided law enforcement services in the project area. The Project is estimated to result in a population of 7,197 persons at full buildout, an increase of approximately 1,916 persons over that envisioned in the Southport Framework Plan. In order to maintain the level of service ratio identified by the City of West Sacramento of two officers per 1,000 residents, 14.4 officers would need to be added to the WSPD for the proposed Project. The Project would require approximately 3.8 officers more than the number that would have been required from development of the Southeast Village under the current Southport Framework Plan. In order to maintain level of service ratios and adhere to the department's goals, additional police officers and police vehicles would have to be added to the department, and subbeats would likely need to be added or expanded to keep pace with new development in Southport (Willdan Associates 1994).

To offset these increased demands, the City requires developers to pay impact fees to cover necessary public service facility improvements, including police station expansion and equipment. These development fees are described in Title 12 of the City of West Sacramento's Municipal Code (Section 12.42) and could be used to purchase new vehicles and help fund the construction of a new police substation in Southport. Funding for additional staff would not be covered through the payment of these funds, and the capital improvements do not address long-term personnel costs.

The proposed Project, when considered together with other approved and pending developments in Southport, could affect the ability of the West Sacramento Police Department to maintain current levels of service to residents. The payment of police development fees, in accordance with West Sacramento Municipal Code Section 12.42, would ensure that adequate funding is available for police protection services. **Potential impacts would be less than significant. No mitigation is necessary.**

Impact US-3: Increased Need for Schools (Less than Significant)

The Project includes the development of 2,788 new residential units (including rural residential low-, medium-, and high-density offerings) at full buildout. A comparison of number and type of units under the existing Southport Framework Plan and the proposed Project are shown in Table 2-1 in Chapter 2, *Project Description*. These numbers were used to calculate student yield rates, as shown in Table 3.14-1 below. On the basis of these figures, the Project is projected to yield approximately 756 elementary school students (grades K–6), 171 middle school students (7–8), and 218 high school students (9–12). Applying these same generation rates to the number of units projected to be developed under the existing Southport Framework Plan, development of the Southeast Village is projected to generate approximately 579 elementary school students (K–6), 128 middle school students (7–8), and 95 high school students (9–12).

Table 3.14-1. Student Yield Rates of Project Based on Rates Established in School Facility Needs Analysis

School Type	Single-Family Detached Units (RR, RE, and LR)	Single-Family Attached Units (MR)	Multiple-Family Units (HR)	Total	Southport Framework Plan Total
K-6	239.25 (0.319/unit)	341.25 (0.236/unit)	174.64 (0.295/unit)	756	579
Middle (7–8)	52.5 (0.07/unit)	80.976 (0.056/unit)	37.296 (0.063/unit)	171	128
High School (9–12)	77.25 (0.103/unit)	80.976 (0.056/unit)	59.2 (0.10/unit)	218	95

Compared to the Southport Framework Plan, the proposed Project is projected to result in approximately 177 additional K–6 students, approximately 43 additional middle school students, and approximately 123 additional high school students. Further, as described in Chapter 2, *Project Description*, the project includes the dedication of a 10-acre school within the project area (Figure 2-4). Construction and permitting for the school would be undertaken as a separate action by the school district. The new elementary school is anticipated to accommodate as many as 600 students in grades K–6 and intended to serve the proposed Project. Although this school is designed to accommodate the new residents of the

Project, the number of projected elementary school students exceeds the estimated capacity of the future elementary school; therefore, students who reside within the Project may need to attend elementary schools outside of the Project. Elementary schools are planned in nearby proposed development areas.

Potential impacts to existing elementary schools in the area would be less than significant. Developer fees paid through the building permit process in accordance with Title 3 of the municipal code would be used to cover costs of new school facilities incurred due to additional middle and high school students at the local schools. The payment of school impact fees, in accordance with Government Code Section 65995, would reduce potential impacts to these schools to less-than-significant levels. **Therefore, the project impact would be less than significant. No mitigation is necessary.**

The payment of school impacts fees and/or the dedication of land for the elementary school site would ensure that adequate funding and dedicated land is available for these public services. **Potential impacts would be less than significant. No mitigation is necessary.**

Impact US-4: Exceed Wastewater Treatment Requirements of the Regional Water Quality Control Board or Exceed the Capacity of Current Wastewater Treatment, Resulting in the Construction of New or Expanded Water or Wastewater Treatment Facilities (Less than Significant)

As described under "Environmental Setting," the City of West Sacramento currently performs wastewater treatment operations at the WWTP on South River Road, just north of the Deep Water Ship Channel. The WWTP was constructed in 1951 and has been expanded to its current treatment capacity of 7.5 mgd. The City of West Sacramento has agreed to join the SRCSD and would use the proposed LNWI pipeline planned for construction during 2006–2010. This pipeline would bring wastewater from West Sacramento to the Sacramento Regional Wastewater Treatment Plant in Elk Grove, which is currently undergoing expansion to accept the additional load. The LNWI would be capable of carrying approximately 200 mgd. Until this project is complete, wastewater from Southport would continue to be processed at the City's existing WWTP (Sacramento Regional County Sanitation District 2005).

The Project includes preparation of a Sanitary Sewer Concept Plan. This plan would be designed in accordance with the *Southport Sanitary Sewer Master Plan* (City of West Sacramento 2003), which is based on an agreement between the City and the Sacramento Regional County Sanitation District to connect to the LNWI, which would then convey wastewater south to the Sacramento Regional Wastewater Treatment Plant. The LNWI sewer line would be constructed along the westerly portions of the proposed Project as a separate project, which would include the construction of a manhole on the proposed Project specifically designed as a connection point for a local sewer system.

The LNWI would feed into the SRWTP. The 2020 SRWTP Master Plan includes expansion of current treatment capacity to accommodate future flows from the areas being annexed into the SRCSD, including the Southport area. The population projections in the plan, which was prepared in 2000, were based on growth projections prepared by SACOG and were not based on service area demands (e.g., growth in and around cities) or projections contained in the individual general plans of cities in the service area (Seyfried pers. comm.). If growth in the SRCSD service area occurs at a faster rate than was anticipated in the 2020 SRWTP Master Plan, then the capacity improvements planned for in the 2020 SRWTP Master Plan would be constructed sooner. The reverse is also true; should development in the region occur at a slower rate than anticipated in the master plan, the planned improvements to the SRWTP would occur later.

The land use plan set forth in the Southport Framework Plan calls for 1,896 units in the Southeast Village. On the basis of the City's estimate of three persons per low-density household, 2.5 persons per medium-density household, and 2.25 persons per high-density household, the estimated buildout population is 5,281 persons. The Project proposes 2,788 units in the same area, with an estimated population of 7,177. Using the SRCSD flow factor of 132.4 gallons per capita per day, the estimated wastewater flow generated by the Project would be approximately 950,235 gallons per day. This represents a 36% increase compared to the 699,205 gallons per day estimated under the buildout conditions of the Southeast Village under the existing Southport Framework Plan. Compared to the planned overall SRWTP capacity of 218 million gallons per day, the Project's increase in gallons per day is considered relatively minor and within the capacity improvements planned at the SRWTP. The estimated flows of the Project and that envisioned from development of the original Southeast Village represent 0.44% and 0.32%, respectively, of the entire daily capacity of the SRWTP. The proposed increase in density would result in the Project using an additional 0.12% of the SRWTP's overall capacity compared to that estimated for buildout of the Southeast Village under the Southport Framework Plan. While the project may contribute to an acceleration in the timing of the planned capacity improvements at the SRWTP, these improvements have been planned for by the SRCSD, and the project is not anticipated to result in the construction of new or expanded water or wastewater treatment facilities not envisioned in the 2020 SRWTP Master Plan.

The Project's Sanitary Sewer Concept Plan would include coordination with the City regarding appropriate funding and installation of on-site and off-site wastewater infrastructure (such as the sewer interceptor/outfall) pursuant to the Southport Sanitary Sewer Master Plan, as well as the contribution of its fair share to the regional wastewater systems costs necessary to fulfill demands. **Therefore, wastewater generated as a result of buildout of the Project is anticipated to have a less-than-significant impact on wastewater disposal capacity. No mitigation is required.**

Impact US-5: Require the Construction or Expansion of Stormwater Drainage Facilities, the Construction of Which Could Cause Adverse Environmental Effects (Less than Significant with Mitigation Incorporated)

Construction of the Project would increase the amount of impervious surface in the area, thereby increasing stormwater runoff. The 2001 update of the 1995 *Southport Drainage Master Plan* identifies the construction of a detention pond and a pump station to offset the impacts of future development in the Southport area. Such improvements would be funded through payment of drainage impact fees and/or the construction of stormwater drainage facilities by the developer, who then works with the City, which may ultimately take possession of them (Borcalli & Associates 2001).

The design of the Project outlines a drainage concept plan to accommodate the increased stormwater runoff generated by the development. The main feature of this plan is the use of the parkway for stormwater detention. Street drainage and surface runoff would be channeled into the parkway via the existing agricultural drainage ditch for use as part of the parkway's signature water feature. Trunk lines for draining the residential areas would be provided by the developer, and the drainage improvements for the commercial and mixed-use areas would be the responsibility of the companies developing those individual areas. Impacts related to stormwater drainage are described in Section 3.8, *Hydrology and Water Quality*.

As described in Section 3.8, *Hydrology and Water Quality*, construction-related earth-disturbing activities would occur in the development of the proposed Project. These activities could cause soil erosion and sedimentation to local waterways. Construction of new stormwater drainage facilities and grading would require heavy equipment such as earth-moving devices. Large trucks would be used in the transportation of construction materials to the site. Such machines have the potential to leak hazardous materials that may include oil and gasoline. In addition, improper use of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, may also pose a threat to surface or groundwater quality. These impacts are considered significant.

As described in Impact HYD-1, in Section 3.8, *Hydrology and Water Quality*, conformance with the NPDES General Construction Permit and the City's municipal stormwater permit, and development and implementation of a spill prevention and control program as required by City standards would reduce these impacts, but not to a less-than-significant level. **Implementation of Mitigation Measures HYD-1a and HYD-1b would reduce impacts to a less-than-significant level.**

Mitigation Measure HYD-1a: Dry Season Construction

This mitigation measure is described in Section 3.8, *Hydrology and Water Quality*.

Mitigation Measure HYD-1b: Other Provisions for Work in Surface Waters

This mitigation measure is described in Section 3.8, *Hydrology and Water Quality*.

Impact US-6: Exceed Current Water Supply Capacity, Requiring the Acquisition or Expansion of Entitlements (Less than Significant)

The Project proposes to amend the current land use designations to support development of 2,788 residential units and other land uses, some of which were not accounted for in the City's General Plan and the UWMP. This includes an increase in the density of residential units of approximately 900 units. These amendments in land use designations would lead to an increase in water demand unaccounted for in the UWMP. According to the unit factors as presented in the *2005 Water Master Plan Update*, the total demand associated with the Project is 1,620,310 gallons per day (gpd), or 1,815 afy. The increase in demand under the project as currently proposed is 427,160 gpd, or 479 afy (Appendix G).

According to the UWMP, in all but emergency conditions, demands in all years would be met by first applying the City's entitlements to the portion of the City outside the NDWA boundary and then meeting remaining City demands by combining the remaining entitlements with NDWA water. Water delivery restriction projections indicate that Reclamation contract and appropriative rights are sufficient to supply the Northport area during all water-year types. NDWA assures water supply through its agreement with DWR, and therefore supplies in the Southport area are also ensured.

A comparison of existing and future supply and demand indicates that for the area within the NDWA service area, the total supply matches total demand, as NDWA ensures that adequate water quality and supplies would be available during all years; therefore, the project would not exceed current water supply capacity, requiring the acquisition or expansion of entitlements (Appendix G). **This impact is considered less than significant. No mitigation is required.**

Impact US-7: Require Additional Capacity, Substantially Increase Demand, or Affect Energy Supplies for Electrical, Natural Gas, or Telecommunications Service (Less than Significant)

The Southport Framework Plan assumes that development in accordance with the Southport Framework Plan would require extensions of electrical and natural gas facilities to the undeveloped portions of the Southport Framework Plan area. Specific facility and service needs are determined by PG&E, following submittal to PG&E of a formal service request for the Project. According to the Southport Framework Plan, PG&E has adequate resources to supply all electrical and natural gas needs of the Southport area at buildout. The Project proposes to increase the number of units envisioned in the Southport Framework Plan by approximately 1,100 units, and buildout of the Project would result in new gas and electrical hookups for up to 2,788 new residences, approximately 45,000–65,000 square feet of commercial and retail uses, and various other uses, such as street and traffic lights.

Because the amount of electricity used by individual residences and commercial and other uses depends on a variety of factors, such as total square footage, solar aspects, energy efficiency (e.g., structural materials and energy-efficient appliances and lighting fixtures), and the duration of occupancy (occupant work hours), is it difficult to precisely assess the energy demand of a residential development. Therefore, this EIR would not speculate on the estimated energy consumption of the Project at buildout.

The Southport Framework Plan EIR found that demand under buildout of the Southport Framework Plan is not expected to exceed the ability of PG&E to provide gas and electrical service. Current capacities of gas and electricity are estimated to be adequate for existing need and able to accommodate new growth as well. The Southport Framework Plan EIR contains a mitigation measure (MM 4.13-5-1) that requires, as part of the Tentative Map approval process, individual project applicants within the Southport area to demonstrate to the City that they have coordinated with and meet the requirements of PG&E to construct energy-efficient buildings and promote the use of energy-efficient appliances within homes and businesses in compliance with the energy-efficiency standards as defined by the California Energy Commission (contained in the California Code of Regulations, Title 24, Part 2, Chapter 2-53). Compliance with this mitigation measure would occur during the Tentative Map approval process. **Therefore, impacts to energy supply capacity are considered less than significant. No additional mitigation is required.**

Impact US-8: Exceed the Permitted Capacity of the Landfill Currently Serving the Area (Less than Significant)

The Yolo County Central Landfill is not expected to reach its storage capacity until the year 2045 unless it begins accepting large amounts of solid waste from outside Yolo County. According to the City of West Sacramento, the Yolo County landfill has an allowable daily capacity of 1,800 tons, and the total remaining capacity at the landfill is 16 million cubic yards. On the basis of data provided by the City of West Sacramento, the waste generation factor for residents in the City is 3.5 pounds per resident per day and 11.4 pounds per employee per day. Given the Project's estimated population of 7,197 persons and 350 jobs at full buildout, this translates to a household waste stream of approximately 25,200 pounds (12.5 tons) per day and 4,000 pounds (2 tons) per day of commercial waste for a total of 14.2 tons per day overall.

This estimate includes all materials discarded, whether they are later recycled or disposed of in a landfill; therefore, it is likely that the amount of waste sent to the Yolo County landfill would be considerably less than this estimate by implementation of recycling and composting programs by the City to reduce the amount of solid waste sent to the landfill. Assuming a worst-case scenario where none of the solid waste generated from the site is recycled or otherwise diverted from the landfill, the solid waste generated from the site would equal less than 1% of the maximum allowable daily disposal capacity of the Yolo County landfill. Therefore, the additional waste from the development of the Project is not anticipated to cause Yolo County to exceed the permitted daily disposal capacity at the Yolo County Central Landfill (California Integrated Waste Management Board 2005a). **This impact is considered less than significant. No mitigation is required.**

Chapter 4

Alternatives Analysis

Introduction and Overview

CEQA requires that an EIR describe a reasonable range of feasible alternatives to the Project, or to the location of the Project, that could substantially reduce one or more of the Project's significant environmental impacts while meeting most or all of the Project's objectives. The EIR is required to analyze the potential environmental impacts of each of the alternatives, although not at the same level of detail as the Project. There must be sufficient detail to be able to compare the respective merits of the alternatives.

This chapter describes potential alternatives to the proposed Project that were considered, identifies alternatives that were eliminated from further consideration and reasons for dismissal, and analyzes three alternatives in comparison to the potential environmental impacts associated with the proposed Project.

Key provisions of the CEQA Guidelines (Section 15126.6) pertaining to the alternatives analysis are summarized below.

- The discussion of alternatives shall focus on alternatives to the Project or its location that are feasible, meet most or all of the Project objectives, and would substantially reduce one or more of the significant effects of the Project.
- The range of alternatives must include the *No-Project* Alternative. The no-project analysis will discuss the existing conditions at the time the notice of preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the Project were not approved based on current plans and consistent with available infrastructure and community services. The No-Project Alternative is not required to be feasible, meet any of the project objectives, or reduce the Project's expected impacts to any degree.
- The range of alternatives required in an EIR is governed by a *rule of reason*; therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. An EIR is not required to analyze every conceivable alternative to a project.

- An EIR need not consider an alternative whose effects cannot be reasonably ascertained, whose implementation is remote and speculative, and that would not achieve the basic project objectives.

Project Objectives

The purpose and objectives of the Project include the following:

- preserve the site's unique natural resources,
- create a community that captures the most current practice in environmental stewardship and physically connects the project site with City and regional recreational opportunities, and
- provide a range of housing choices for current and future generations of West Sacramento residents.

The overall objective of the proposed Project is the orderly and systematic development of an integrated mixed-use community in the Southport Framework Plan's Southeast Village that is compatible with site characteristics and generally consistent with goals and policies of the City's General Plan and Southport Framework Plan.

In support of this overall objective, the proposed Project is designed to achieve the following more specific objectives.

Objective #1: Establish a mixed-use community that implements the general intent of the City's General Plan and Southport Framework Plan that the Southeast Village be developed with urban land uses that complement existing development in the City.

1. Establish a comprehensive land use plan that will guide development of the Southeast Village area in a way that is compatible with and complements existing and planned land uses in other portions of Southport and the City.
2. Update the City's long-term vision for the Southeast Village as a mixed-use community, as set forth in the City's General Plan (as amended), by incorporating refinements designed to reflect evolving innovation in land use planning concepts such as those envisioned in the SACOG Blueprint project.
3. Provide a balanced mix of land uses, including residential neighborhoods; service-related commercial/retail and other nonresidential, employment-generating land uses; and public/quasi-public land uses such as schools, parks, and civic-oriented facilities.
4. Provide roadway improvements and other needed infrastructure that benefits existing and future residents that will tie the proposed Project together with existing development in other Southport villages.

Objective #2: Provide a variety of housing types that will serve residents of varying household incomes.

1. Create opportunities for a variety and range of housing types and densities designed to provide more efficient land use, more attainable housing without reducing quality or amenities, more efficient use of public infrastructure, and more environmentally sensitive development patterns.
2. Contribute to the efforts to provide for the growing housing needs of the City and the region by encouraging the production of a broad mix of housing types and densities.

Objective #3: Create integrated neighborhoods that link with the commercial/retail and public/quasi-public uses.

1. Create a distinctive focal point for the plan area and a social centerpiece for the surrounding neighborhoods by anchoring the plan with a pedestrian-oriented, centrally located village center that will include neighborhood-serving retail, an elementary school, and an open space greenway that provides connectivity with surrounding neighborhoods.
2. Incorporate a mix of neighborhoods organized around interior parks and the open space greenway.
3. Provide retail services, entertainment, and recreational uses such that those who live and work within the plan area will not have to travel elsewhere for most routine or daily needs, and residents who live outside the plan area will be able to address more of their needs without traveling outside the Southport community.

Objective #4: Provide economic and planning benefits for the City as a whole through residential and commercial/retail development, availability of civic and public/quasi-public space, and increased tax revenues.

1. Establish a commercial/retail village center that provides neighborhood services and dining opportunities for the local community.
2. Generate positive fiscal benefits for the City where the municipal revenues generated by the project are greater than the costs of providing municipal services to the project.
3. Create a village that integrates neighborhoods, an open space greenway corridor, retail uses, and public recreational facilities that support increased land values associated with sustainable development for both the existing and future residents.

Objective #5: Provide opportunities for improved integration of transportation modes and increased transportation efficiency.

1. Encourage nonvehicular travel by linking village neighborhoods to the open space greenway, village center, parks, and school, as well as to each other, through an interconnected system of pedestrian and bicycle pathways.

2. Establish higher density residential land uses in proximity to public transit to minimize vehicular trip lengths and automobile usage and provide related air quality benefits.
3. Provide an integrated, efficient, and safe circulation system for pedestrians, bicyclists, transit, and vehicles.

Objective #6: Provide recreational benefits to the Southeast Village area and City residents through a comprehensive public parks program (including, in particular, the riverside parklands) and marina use.

1. Maximize active and passive recreational opportunities through the creation of a comprehensive public parks program that includes a linear open space greenway system bisecting the village and connecting the Sacramento River, marina, and large community park with the future Southport-wide trail system proposed by the City to be located along the former Yolo Shortline Railroad.
2. Enrich the relationship between the City and the Sacramento River by incorporating the river's edge as a component of the plan area parks program and water-related commercial uses (i.e., marina).

Project's Significant Environmental Effects

Alternatives to the Project were examined in order to substantially reduce one or more of the following significant impacts associated with the proposed Project:

- visual impacts during construction;
- loss of agricultural land, including prime farmland;
- degradation of air quality;
- impacts on biological resources;
- potential impacts on cultural resources;
- geologic hazards due to expansive soils;
- exposure of people to hazards, including hazardous materials and flooding;
- impacts related to drainage and flooding;
- water quality impacts;
- impacts related to consistency with land use plans;
- traffic noise impacts; and/or
- traffic and circulation impacts.

Methodology and Screening Criteria for Feasibility

A range of potential alternatives was subjected to screening criteria to winnow out those potential alternatives that do not qualify as alternatives under CEQA. As discussed above, there was no attempt to include every conceivable alternative in this range. Rather, the EIR preparers selected a number of representative alternatives to consider. The screening criteria for the potential alternatives are relatively simple.

- Does the alternative meet most or all of the Project objectives?
- Is the alternative potentially feasible?
- Would the alternative substantially reduce one or more of the significant effects associated with the Project?

Feasible is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (State CEQA Guidelines Section 15364). CEQA does not require that an EIR determine the ultimate feasibility of a selected alternative but rather that it is probably feasible. Accordingly, no economic studies have been prepared regarding the economic feasibility of the selected alternatives.

The significant effects of the Project may include those that are significant and unavoidable or that are less than significant with mitigation. The alternative should provide a means of reducing the level of impact that would otherwise result from implementation of the Project.

Those alternatives that meet the Project objectives, are probably feasible, and that would reduce one or more Project impacts are discussed in greater detail below.

Potential Alternatives Considered

The City considered several potential alternatives to the Project in its initial screening of alternatives for analysis in this EIR. The following alternatives were considered:

1. No Development,
2. Current Southport Framework Plan (No Project),
3. Maximum Density of Southport Framework Plan (2,265 units for project),
4. Reduced Density from Current Southport Framework Plan Application (2,525 units for project),
5. Alternative Loop Road Alignment,
6. Alternatives Sites, and
7. Revised Southport Framework Plan.

Alternatives Considered but Rejected

The following alternatives were considered in the initial screening and were not considered further for the reasons described below.

Alternative Sites

The project objectives relate to development within the Southport Framework Plan. Any alternative site would need to be within the Southport Framework Plan. There are currently several other proposals for development within Southport. Each of these requests an increase in the allowable intensity of development in comparison to the Southport Framework Plan. No substantial areas of undeveloped land remain in Southport that are not the subject of a current application for development approval. For this reason, there is no available alternative site for the proposed Project.

Revised Plan

It was considered whether an alternative arrangement of land uses would result in a greater internal capture of trips, significantly reducing traffic generated by the Project and reducing impacts of the Project on major roadways off of the project site. Given the levels of traffic generated by the Project, it was concluded that the impacts could not be reduced to a less-than-significant level by an alternative arrangement of land uses. For this reason, the phasing plan was developed, and alternative phasing plans were analyzed. This analysis is found in Section 3.13, *Traffic and Transportation*.

Alternatives Analyzed

The No-Project Alternative and four development alternatives are described below. The No-Project Alternative is based on the conditions that would "be reasonably expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services (CEQA Guidelines Section 15126.6(e)(2))." The No-Project Alternative is included in the EIR to allow for comparison of the impacts caused by approving the Project with the impacts that would result if the Project were not approved. The goal for developing a set of possible alternative scenarios was to identify other means to attain the Project objectives while substantially lessening or avoiding one or more of the potentially significant environmental impacts caused by the proposed Project.

1. No Development,
2. Current Southport Framework Plan (No Project),
3. Maximum Density of Southport Framework Plan (2,265 units for project),

4. Reduced Density from Current Southport Framework Plan Application (2,525 units for project), and
5. Alternative Loop Road Alignment.

Alternative 1

No-Project Alternative

Under the No-Project Alternative, neither the proposed Project nor the project alternatives discussed below would be constructed. The General Plan designation of the site would remain as shown in Figure 2-3, and no changes to the corresponding zoning designations would occur. This alternative assumes that no construction activities would occur at the site and that there would be no amendments to the existing General Plan or zoning designations. This alternative is included to allow for comparison of the impacts caused by approving the Project with the impacts that would result if it were not approved and the site not developed. Given the growth pressures on the Southport area, this is not a reasonable assumption. There are several major developments currently being proposed within the Southport Framework Plan and one in the adjoining unincorporated area. These proposals to intensify the planned development of this area indicate that land here will not remain vacant.

With this alternative, the existing physical conditions of the site would continue as described in the “Setting” section of each topic discussed in Chapter 3, *Environmental Setting, Impacts, and Mitigation*. There would be no changes to the physical or visual character of the site. No project-generated traffic would be added to City or county roadways, and no new air pollutant emissions or noise would be generated from the site. There would be no changes to the existing hydrology and water quality. Other project-specific impacts described in Chapter 3 would also not occur should the existing physical conditions on the project site persist.

Alternative 2

Current Southport Framework Plan

This alternative assumes development of the site in accordance with the provisions of the Southport Framework Plan.

Under this alternative, the site would be developed in accordance with the existing Southport Framework Plan land use designations. No General Plan or zoning changes would be made. This is similar in some ways to the No-Project Alternative in that it would retain the existing designations (Table 4-1). This alternative would result in lower density development than the Project, particularly in relation to the amount of medium- to high-density residential units. As a result, this alternative would have correspondingly lower air quality, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services and utilities, recreation, and traffic impacts than the Project.

Table 4-1. Acreage by Zoning Designation under Existing Southport Framework Plan

Existing Zoning	Gross Acres
RRA	10.4
RE	39.9
R1-B	270.9
R-2	32.0
R-3	20.0
C-1	6.3
CW	0.1
RP	86.6
PQP	9.6
POS	16.4
Roadway	3.4
Total	**495.6**

Development of the site under the existing Southport Framework Plan and EIR is estimated to result in approximately 1,896 residential units occupying the site at full buildout.

Aesthetics

This alternative would convert the Project site to urbanized uses, albeit at a lower density than the proposed Project. Nonetheless, development would result in the conversion of prime farmlands and the addition of substantial numbers of residences, as well as mixed and commercial uses, to the area. Also, development of the site according to the Southport Framework Plan is assumed to require removal of the existing grove of oak trees, which would be retained under the proposed Project. As concluded in the Southport Framework Plan EIR, this would be a less-than-significant impact. This alternative would have essentially the same impact as the Project.

Agricultural Resources

This alternative would result in the conversion of the existing prime farmlands to a mixture of high-, medium-, and low-density residential development. The impact would be significant and unavoidable.

Air Quality

This alternative would result in a substantial increase in the number of residences on the site, a new commercial area, and a new mixed-use area. This would increase current levels of vehicle traffic.

The impact of this alternative may be substantially less than that expected for the proposed Project because Alternative 2 proposed fewer residences and no school, resulting in fewer overall vehicle trips. However, the impacts on air quality would remain significant and unavoidable.

Biological Resources

Alternative 2 would change the open nature of the existing site and would have impacts on biological resources that would be similar to those that would result from development according to the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. Additionally, development of the site according to Alternative 2 is assumed to require removal of the existing grove of oak trees, which would be retained under the proposed Project. For this reason, biology impacts may be more significant for Alternative 2 than for the proposed Project. This impact would be significant and unavoidable.

Cultural Resources

This alternative would result in the development of the Project site with a lower density of residential uses than included in the proposed Project. This alternative would have impacts on cultural resources that would be similar to those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. The mitigation measures identified in Section 3.5, *Geology and Soils*, of this document would reduce these impacts below the level of significance.

Geology and Soils

This alternative would have impacts on geology that would be similar to those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. The impacts of this alternative would be similar to those of the proposed Project—less than significant.

Hazards and Hazardous Materials

This alternative would increase the number of homes in the area and, as a result, increase the amount of hazardous substances used during construction and incidental to residential use. The impact would be similar to that of the proposed Project, although at a smaller scale due to a reduction in excavation and construction activities, and would be less than significant.

Hydrology and Water Quality

This alternative would increase development of the area above existing levels. The impacts of this alternative would be similar to those of the proposed Project, though potentially reduced due to fewer planned residences, and would be less than significant with mitigation.

Land Use

This alternative would result in the eventual conversion of the agricultural portions of the site to residential, commercial, and mixed uses consistent with the provisions of the Southport Framework Plan. It would result in a level of development that is envisioned under the City's General Plan. This alternative will extend urban development southeastward from the existing urbanized areas but will not result in the physical division of any community. This impact would be similar to that of the proposed Project and would be less than significant.

Noise

In general, the impacts of development under this alternative would be similar, but reduced in severity, when compared to those of the proposed Project. The impact of this alternative would be less than significant with adoption of the mitigation measures identified in Section 3.10, *Noise,* of this document.

Population and Housing

The projected buildout population of the site under the existing Southport Framework Plan designations would result in approximately 5,281 residents[1] at full buildout. This is a substantial increase above the existing population and would induce a substantial increase in the existing population. This impact would be similar to that of the proposed Project but would reduced due to the

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[1] This figure was calculated using statistics provided by the City of West Sacramento that assume three persons per household for rural and low-density residential units, 2.5 persons per household for medium-density units, and 2.25 persons per household for high-density units. These numbers were averaged to create an average multiplier of 2.79, which was then multiplied by the total number of units included in the alternative to estimate the population at buildout.

reduced density of residential units. This would be a significant and unavoidable impact.

Alternative 2 provides for approximately 6.2 acres of commercial/mixed-use development. As a result, it would have job-generation figures similar to those of the proposed Project. As discussed in Section 3.11, *Population and Housing,* there would be no significant indirect impact on housing as a result.

Public Services, Utilities, and Recreation

This alternative would increase the number of residences on the Project site over current levels and would therefore increase demands on public services. Because Alternative 2 would not increase the level of development beyond that that is currently planned, and the City requires exactions for facilities, its impact relative to these services would be less than significant. This alternative would have an impact on public services that would be similar, although less intensive, to that of the proposed Project.

Similarly, this alternative would be subject to City parks and recreation requirements identified in Section 3.13, *Traffic and Transportation*. However, the impacts of improving the future park or recreational facilities cannot be analyzed at this time because nothing is known, nor can be known, about the location (e.g., one site or more), size, type of improvements, or operational details of the future facility or facilities.

This alternative would include development of the site. As a result, future development would be expected to be served by City water supplies. In this regard, the alternative would have an impact on water supplies that would be similar, although less intensive, to that of the proposed Project. Adoption of the mitigation measures identified in Section 3.13, *Traffic and Transportation,* would reduce this impact to a less-than-significant level.

Traffic and Transportation

Alternative 2 would increase development of the area above existing levels. As a result, future development would be expected to contribute traffic to area roadways. In this regard, it is assumed that Alternative 2 would have an impact on traffic that would be similar, although less intensive, to that of the proposed Project. Adoption of the mitigation measures identified in Section 3.13, *Traffic and Transportation,* would reduce traffic impacts, yet significant and unavoidable traffic impacts would remain.

Alternative 3

Maximum Density of Southport Framework Plan

This alternative assumes that the project site would be developed in accordance with maximum density of the Southport Framework Plan. Under the Southport Framework Plan, most of the project site is designated low-density residential (65%), with a central core of medium-density (10%) and high-density residential (21%), commercial, and public services land uses. On the basis of the estimates of the maximum development density permitted under the Southport Framework Plan, the project site could be developed with approximately 2,265 dwelling units at buildout, or approximately 523 fewer units than proposed by the Project. This would be in excess of the estimated Southport Framework Plan (see Alternative 2) and in excess of what was considered in the Southport Framework Plan EIR, which assessed the environmental impacts of the estimated buildout of the Southport Framework Plan as defined in the plan, which is less than buildout of the maximum densities in the plan.

The density of development under Alternative 3 would be approximately 18% less than the residential development proposed for the proposed Project. Air quality, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services and utilities, recreation, and traffic impacts would be reduced proportionately in relation to the levels identified for the proposed Project.

Aesthetics

Alternative 3 would convert the project site to urbanized uses, albeit at a lower density than the proposed Project. Also, development of the site according to the maximum permitted density is assumed to require removal of the existing grove of oak trees, which would be retained under the proposed Project. Development under this alternative would add substantial numbers of residences, as well as mixed and commercial uses, to the area, as compared to current conditions. As concluded in the Southport Framework Plan EIR, this would be a less-than-significant impact. This alternative would have essentially the same impact as the Project.

Agricultural Resources

Alternative 3 would result in the conversion of the existing agricultural lands to a mixed-density residential development. This alternative would have impacts on agricultural resources similar to those that would result from development according to the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. The impact would be significant and unavoidable.

Air Quality

Alternative 3 would result in a substantial increase in the number of residences on the site. No changes to the commercial/mixed-use area would occur under this alternative. Because this alternative would result in an increase in the number and density of residences at the site, albeit at a lower level than proposed by the Project, this alternative would result in an increase in the planned levels of vehicle traffic, resulting in an increase in air quality impacts.

The impacts of Alternative 3 would be proportionately less than those expected for the proposed Project because Alternative 3 proposes substantially fewer residences than the Project, resulting in fewer overall vehicle trips and a related decrease in air emissions. However, the impacts on air quality would remain significant and unavoidable.

Biological Resources

This alternative would change the open nature of the existing site and would have impacts on biological resources that would be similar to those that would result from development according to the Southport Framework Plan and those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the Southport Framework Plan and the proposed Project. Additionally, development of the site according to the Maximum Density designations in the Southport Framework Plan is assumed to require removal of the existing grove of oak trees, which would be retained under the proposed Project. This impact would be significant and unavoidable.

Cultural Resources

This alternative would have impacts on cultural resources that would be similar to those that would result from development according to the Southport Framework Plan and those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the Southport Framework Plan and the proposed Project. The mitigation measures identified in Section 3.5, *Cultural Resources,* of this document would reduce these impacts below the level of significance.

Geology and Soils

This alternative would have impacts on geology and soils that would be similar to those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. The impacts of this alternative would be similar to those of the proposed Project—less than significant.

Hazards and Hazardous Materials

Alternative 3 would increase the number of homes in the area and, as a result, increase the amount of hazardous substances used during construction and incidental to residential use. The impact would be similar to that of the proposed Project, although at a smaller scale due to a reduction in excavation and construction, and would be less than significant.

Hydrology and Water Quality

Alternative 3 would increase development of the area above existing levels. The impacts of this alternative would be similar to those of the proposed Project, though potentially reduced due to fewer planned residences, and would be less than significant with mitigation.

Land Use

Alternative 3 would result in the eventual conversion of the agricultural portions of the site to residential, commercial, and mixed uses in a manner similar to that envisioned in the Southport Framework Plan. As with the proposed Project, this alternative would increase the density of urban development in Southport but would not result in the physical division of any community. This impact would be similar to that of the proposed Project and would be less than significant.

Noise

Alternative 3 would introduce substantially more sensitive uses to noise than what currently exists on the project site and result in a substantial increase in the number of residences on the site. No changes to the commercial/mixed-use area would occur under this alternative. Because this alternative would result in an increase in the number and density of residences at the site, albeit at a lower level than proposed by the Project, this alternative would result in an increase in the planned levels of vehicle traffic, resulting in an increase in noise, and would introduce substantially more noise-sensitive land uses than that envisioned in the Southport Framework Plan. However, the impacts of Alternative 3 would be proportionately less than that expected for the proposed Project because Alternative 3 proposes substantially fewer residences than the Project. The impact of Alternative 3 would be less than significant, with adoption of the mitigation measures identified in Section 3.10, *Noise,* of this document.

Population and Housing

The projected buildout population of the site under this Alternative would result in approximately 6,319 residents at full buildout. This is a substantial increase above the existing population and would induce a substantial increase in the existing population. The impacts of Alternative 3 would be proportionately less than that expected for the proposed Project because Alternative 3 proposes substantially fewer residences than the Project. However, this would still be a significant and unavoidable impact.

No changes to the commercial/mixed-use area would occur under this alternative. As a result, it would have job-generation figures similar to those envisioned in the Southport Framework Plan and the proposed Project. As discussed in Section 3.11, *Population and Housing,* there would be no significant indirect impact on housing as a result.

Recreation and Utilities and Public Services

Alternative 3 would increase the number of residences on the project site over current levels and would therefore increase demands on public services. Because Alternative 3 would not increase the level of development beyond that that is currently planned, and the City requires exactions for facilities, its impact relative to these services would be less than significant. This alternative would have an impact on public services that would be similar, although less intensive, to that of the proposed Project.

Similarly, this alternative would be subject to city parks and recreation requirements identified in Section 3.13, *Traffic and Transportation*. However, the impacts of improving the future park or recreational facilities cannot be analyzed at this time because nothing is known, nor can be known, about the location (e.g., one site or more), size, type of improvements, or operational details of the future facility or facilities.

This alternative would include development of the site. As a result, future development would be expected to be served by city water supplies. In this regard, the alternative would have an impact on water supplies that would be similar, although less intensive, to that of the proposed Project. Adoption of the mitigation measures identified in Section 3.13, *Traffic and Transportation,* would reduce this impact to a less-than-significant level.

Traffic and Transportation

Alternative 3 would increase development of the area above existing levels. As a result, future development would be expected to contribute traffic to area roadways. In this regard, it is assumed that Alternative 3 would have an impact on traffic that would be similar, although less intensive, to that of the proposed Project. Adoption of the mitigation measures identified in Section 3.13, *Traffic and Transportation,* would reduce traffic impacts, yet significant and unavoidable traffic impacts would remain.

Alternative 4

Reduced Density from Current Southport Framework Plan Application

This alternative would reduce the proposed densities within the project site. Alternative 4 would have an overall lower residential density than that proposed by the Project but would result in a substantial increase (more than 20%) over that envisioned and planned for in the Southport Framework Plan. By reducing densities within selected planning areas, the total number of residential units would be approximately 263 fewer than the number under the proposed Project. All other proposed land uses (e.g., commercial, etc.) would remain the same. This alternative would result in the development of the site in much the same manner as the proposed Project but at a lower overall residential density.

Under Alternative 4, the number of residential units would be approximately 9.5% fewer than the number in the proposed Project. Air quality, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services and utilities, recreation, and traffic impacts would be reduced proportionately in relation to the levels identified for the proposed Project.

Aesthetics

Alternative 4 would convert the project site to urbanized uses, albeit at a lower density than the proposed Project. Development of this alternative is assumed to retain the existing grove of oak trees, which would be retained under the proposed Project. Alternative 4 would have essentially the same impact as the Project.

Agricultural Resources

Alternative 4 would result in the conversion of the existing agricultural lands to a mixed-density residential development. This alternative would have impacts on agricultural resources that would be similar to those that would result from development according to the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. The impact would be essentially the same impact as the Project—significant and unavoidable.

Air Quality

Alternative 4 would reduce the number of residences proposed by the Project by 9.5%. Because this alternative would still result in an increase in the number and density of residences at the site, albeit at a lower level than proposed by the

Project, this alternative would result in an increase in the planned levels of vehicle traffic, resulting in an increase in air quality impacts. The impacts of Alternative 4 would be proportionately less than that expected for the proposed Project because this alternative proposes approximately 9.5% fewer residences than the Project, resulting in fewer overall vehicle trips and a related decrease in air emissions. However, impacts to air quality would remain significant and unavoidable.

Biological Resources

Alternative 4 would change the open nature of the existing site and would have impacts on biological resources that would be similar to those that would result from development according to the Southport Framework Plan and those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the Southport Framework Plan and the proposed Project. The mitigation measures identified in Section 3.4, *Biological Resources,* of this document would reduce these impacts to less-than-significant levels.

Cultural Resources

Alternative 4 would have impacts on cultural resources that would be similar to those that would result from development according to the Southport Framework Plan and those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the Southport Framework Plan and the proposed Project. The mitigation measures identified in Section 3.5, *Cultural Resources,* of this document would reduce these impacts below the level of significance.

Geology and Soils

This alternative would have impacts on geology and soils that would be similar to those expected from the proposed Project because it would affect the same general footprint as the area planned for development under the proposed Project. The impacts of this alternative would be similar to those of the proposed Project—less than significant.

Hazards and Hazardous Materials

Alternative 4 would increase the number of homes in the area and, as a result, increase the amount of hazardous substances used during construction and incidental to residential use. The impact would be similar to that of the proposed Project, although at a smaller scale due to a reduction in excavation and construction, and would be less than significant.

Hydrology and Water Quality

Alternative 4 would increase development of the area above existing levels. The impacts of this alternative would be similar to those of the proposed Project, though potentially reduced due to fewer planned residences, and would be less than significant with mitigation.

Land Use

Alternative 4 would result in the eventual conversion of the agricultural portions of the site to residential, commercial, and mixed uses in manner similar to that envisioned in the Southport Framework Plan and proposed by the Project. As with the proposed Project, this alternative would increase the density of urban development in Southport but would not result in the physical division of any community. This impact would be similar to that of the proposed Project and would be less than significant.

Noise

Alternative 4 would introduce substantially more sensitive uses to noise than what currently exists on the Project site and result in a substantial increase in the number of residences on the site. No changes to the commercial/mixed-use area would occur under this alternative. Because this alternative would result in an increase in the number and density of residences at the site, albeit at a lower level than that proposed by the Project, this alternative would result in an increase in the planned levels of vehicle traffic, resulting in an increase in noise, and would introduce substantially more noise-sensitive land uses beyond that envisioned in the Southport Framework Plan. However, the impacts of Alternative 4 would be proportionately less than that expected for the proposed Project because Alternative 4 proposes substantially fewer residences than the Project. The impact of Alternative 4 would be less than significant, with adoption of the mitigation measures identified in Section 3.10, *Noise,* of this document.

Population and Housing

The projected buildout population of the site under this Alternative would result in approximately 7,045 residents at full buildout. This is a substantial increase above the existing population and would induce a substantial increase in the existing population. The impacts of Alternative 4 would be proportionately less than that expected for the proposed Project because Alternative 4 proposes substantially fewer residences than the Project. However, this would still be a significant and unavoidable impact.

No changes to the commercial/mixed-use area would occur under this alternative. As a result, it would have job-generation figures similar to those envisioned in the Southport Framework Plan and the proposed Project. As discussed in Section 3.11, *Population and Housing*, there would be no significant indirect impact on housing as a result.

Public Services, Utilities, and Recreation

Alternative 4 would increase the number of residences on the Project site over current levels and would therefore increase demands on public services. Alternative 4 would increase the level of development beyond that that is currently planned for in the Southport Framework Plan, even in the Maximum Density scenario. However, the City requires exactions for facilities, so any potential impacts relative to these services would be less than significant.

Traffic and Transportation

Alternative 4 would increase development of the area above existing levels. As a result, future development would be expected to contribute traffic to area roadways. In this regard, it is assumed that Alternative 4 would have an impact on traffic that would be similar, although less intensive, to that of the proposed Project. Adoption of the mitigation measures identified in Section 3.13, *Traffic and Transportation*, would reduce traffic impacts, yet significant and unavoidable traffic impacts would remain.

Alternative 5

Alternative Loop Road Alignment

An alternative alignment for Village Parkway would commence from an off-site realignment west of the project boundary, intersecting the westerly project boundary approximately 700 feet south of Bevan Road. The off-site portion of this alignment would be coordinated with proposed developments in the Southwest Village, and the potential impacts of this alternative road alignment are analyzed at a *programmatic* level. A series of residential collectors and local roads would provide access within River Park. The Project would include an amendment to the circulation diagram of the Southport Framework Plan to implement the above changes.

Except for the alignment of the Village Parkway, Alternative 5 would implement the same development details of the proposed Project, as follows: This alternative would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential and low-, medium-, and high-density offerings), a +/- 40-acre regional park, and community open space areas. This alternative would represent an increase of approximately 900 residential units compared to what was considered by the Southport Framework Plan.

Under Alternative 5, the number of residential units and other land uses would be the same as in the proposed Project. Impacts would be the same as those for the proposed Project for the following resource areas:

- Aesthetics;
- Agricultural Resources;
- Air Quality;
- Geology and Soils;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use;
- Noise;
- Population and Housing;
- Public Services, Utilities, and Recreation; and
- Traffic and Transportation.

Impacts to biological resources and cultural resources would be changed, as follows, due to the realignment of Loop Road.

Biological Resources

The proposed alternative Loop Road alignment extends from Jefferson Boulevard east to the Project boundary through agricultural lands. Current crop production includes safflower and wheat. ECORP Consulting, Inc., conducted a reconnaissance-level field assessment of sensitive biological resources (i.e., special-status plant and wildlife species and waters of the United States) within the alternative Loop Road alignment on October 4, 2005. According to ECORP Consulting (2005b), the following sensitive biological resources occur within or adjacent to the alternative Loop Road alignment and could be affected by roadway construction.

- **Waters of the United States (including wetlands)**. Three irrigation canals (including the Main Canal), one drainage ditch, and two roadside ditches (totaling 1.1 acres) are crossed by the alternative Loop Road alignment. No seasonal wetlands were identified during ECORP Consulting’s October 2005 field survey; however, a wetland delineation has not been conducted for this alternative. Implementation of this alternative would result in the placement of fill into potential waters of the United States that could be subject to state and federal regulations.
- **Special-Status Plants**. Agricultural canals and ditches crossed by the alternative Loop Road alignment provide potential habitat for one special-status plant, Sanford’s arrowhead (*Sagittaria sanfordii,* CNPS 1B species). Implementation of this alternative could result in the loss or substantial reduction in the size of the local population of this species.

- **Special-Status Wildlife**. Agricultural canals and ditches crossed by the alternative Loop Road alignment provide suitable aquatic habitat for the giant garter snake (*Thamnophis gigas*, federal and state threatened) and western pond turtle (*Clemmys mamorata*, state species of special concern). Giant garter snakes could also overwinter in annual grasslands and agricultural lands within the alternative Loop Road alignment and up to 200 feet from aquatic habitat.

  Annual grasslands and riparian habitat within and adjacent to the alternative Loop Road alignment provide potential nesting and foraging habitat for special-status birds and raptors such as Swainson's hawk (*Buteo swainsoni*, state threatened), white-tailed kite (*Elanus leucurus*, state fully protected species), burrowing owl (*Athene cunicularia*, state species of special concern), loggerhead shrike (*Lanius ludovicianus*, state species of special concern), and other non-special-status migratory birds.

  No elderberry shrubs, habitat for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*, federally threatened), were observed within or near the alternative Loop Road alignment during ECORP Consulting's October 2005 field survey; however, focused elderberry shrub surveys have not been conducted for this alternative. If elderberry shrubs are present in the alternative Loop Road alignment or up to 100 feet away from the edge of proposed construction, this alternative could result in direct or indirect impacts to habitat of this species.

The following mitigation measures would be implemented to avoid or minimize significant impacts on waters of the United States (including wetlands) and special-status species.

Mitigation Measure ALT 5-1: Conduct a Wetland Delineation and Obtain and Comply with State, Federal, and Local Permits

Before construction begins, the applicant or its contractor will retain a qualified wetlands ecologist to conduct a delineation of waters of the United States within the project area and submit a report and map of the results to the Corps for verification. If the Corps determines that the seasonal wetlands and irrigation ditches are not waters of the United States, the developer will not need to obtain a Clean Water Act Section 404 permit. If the Corps decides that these resources are waters of the United States, and therefore are under its jurisdiction, the developer will obtain a Section 404 permit from the Corps for placement of fill within waters of the United States and a Section 401 certification from the RWQCB.

In addition, the applicant or its contractor will identify the extent of the irrigation canals and drainage ditches that are within jurisdiction of DFG for the purpose of obtaining a Section 1602 Streambed Alteration Agreement. All conditions that are attached to the state and federal permits would be implemented as part of the Project. The conditions would be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

Mitigation Measure Alt 5-2: Document Special-Status Plant Populations That Could Occur along the Irrigation Ditches

The applicant or its contractor will retain a qualified botanist to document the presence or absence of special-status plants before project implementation. The botanist will conduct a floristic survey that follows the CNPS Botanical Survey Guidelines (California Native Plant Society 2001) in areas that are relatively undisturbed or have a moderate to high potential to support special-status plants (e.g., along irrigation canals and drainage ditches).

Mitigation Measure Alt 5-3: Conduct Focused Special-Status Wildlife Species Surveys and Implement Guidelines, if Necessary.

The applicant or its contractor will retain a qualified wildlife biologist to document the presence of species wildlife (i.e., valley elderberry longhorn beetle, giant garter snake, western pond turtle, burrowing owl, Swainson’s hawk, white-tailed kite, and loggerhead shrike) and quantify and map suitable habitat of these species within and adjacent to the alternative Loop Road alignment. The surveys and appropriate mitigation to compensate for project impacts should follow standardized survey and mitigation guidelines (e.g., USFWS 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, DFG’s 1994 *Staff Report Regarding Mitigation for Impacts to Swainson's Hawk in the Central Valley of California*, and DFG’s 1995 *Staff Report on Burrowing Owl Mitigation*).

Cultural Resources

A records search for the Revised Circulation Plan project area was conducted at the NCIC by Peak & Associates in September 2005. The records search indicated that there were no recorded cultural resources sites in the project area. One previous study addressed a portion of the alternative project area. However, this study was conducted in 1960 and no report was produced (Johnson n.d.).

Peak & Associates archaeologists also conducted a reconnaissance visit and visually examined the project area from a distance. No obvious built environment cultural resources were noted, with the exception of the Oakland, Antioch, and Eastern Railroad. No mounds or high points that may represent prehistoric habitation sites were noted.

Recent cultural resources inventories of areas on either side of the Revised Circulation Plan project area for this project and a neighboring development (Yarborough) did not result in the discovery of any cultural resources sites (Jones & Stokes 2004; Peak & Associates 2004). One prehistoric site is reported to be located within a 1-mile radius of the project area (Jones & Stokes 2005). The presence of a known site in the vicinity and the proximity of the project area to the Sacramento River indicates that it may be sensitive for buried prehistoric resources.

Three built environment cultural resources are located in the immediate vicinity of the project area: the Gregory Avenue canal crossing, the Sacramento Northern Railroad, and an irrigation canal. The Sacramento Northern Railroad was evaluated and recommended not eligible for listing in the CRHR or the NRHP (Jensen 2004;, Jones & Stokes 2005). The canal and canal crossing do not appear to have been formally recorded.

Impacts and Mitigation Measures

Impact ALT-5/CR-1: Damage to Setting of Irrigation Canal (Less than Significant with Mitigation Incorporated)

Built environment resources within or immediately adjacent to the Revised Circulation Plan project area consist of the agricultural canal, the railroad, and the canal crossing at Gregory Avenue. The railroad has been evaluated and determined not eligible for listing in the CRHR (Jensen 2004). The Project will not result in any disturbance to the canal crossing/culvert at Gregory Road because no road widening at that location is included in this Project. However, the construction of the road may result in impacts to the irrigation canal.

The age of the irrigation canal has not been determined, but canals in the area were often constructed as part of the land reclamation projects in the late 19th century. Because all work will take place north of the agricultural canal, there will be no direct impact. However, the construction of a thoroughfare immediately adjacent to the canal may result in an indirect impact to the setting of the canal. This is considered a significant impact. **Implementation of Mitigation Measure ALT-5/CR-1 would reduce this impact to a less-than-significant level.**

Mitigation Measure ALT-5/CR-1: Record and Evaluate Canal

Historic research will be conducted to determine if the canal is historic. If the canal is more than 50 years of age, it will be formally recorded on California Department of Parks and Recreation 523 forms. Archival research will be used to evaluate the canal for eligibility for listing in the CRHR. If the canal meets eligibility requirements for listing in the CRHR, project impacts to the setting of the canal will need to be assessed and, if necessary, appropriate treatment measures will need to be devised in consultation with the City of West Sacramento, the SHPO, and other appropriate agencies.

Impact ALT-5/CR-2: Disturbance or Destruction of Unknown Archaeological Resources (Less than Significant with Mitigation Incorporated)

While no known archaeological resources are located within the project area, only a reconnaissance-level survey has been conducted. Because of the nature of archaeological resources, they are often not visible from a distance and are located during intensive pedestrian surveys. It is possible that archaeological sites are present within the project area. Road construction involves several types of ground-disturbing activities that would result in the disturbance or destruction of any archaeological sites that are present within the project area but were not located as a result of the reconnaissance-level survey conducted by Peak & Associates (2005). This is considered a significant impact. **Implementation of Mitigation Measure ALT-5/CR-2 would reduce this impact to a less-than-significant level.**

Mitigation Measure ALT-5/CR-2: Conduct Preconstruction Archaeological Inventory

Prior to construction, a qualified archaeologist will conduct a pedestrian inventory of the project area. Survey methods will be determined in the field and will be based upon archaeological sensitivity and visibility. Any archaeological resources located as a result of this inventory will be plotted using a global positioning system receiver, photographed, and recorded using the appropriate DPR 523 forms. The forms will be sent to the Northwest Information Center for addition to the state’s database of recorded archaeological sites. If impacts to a site cannot be avoided by project design, the resource will be evaluated for eligibility for listing in the CRHR. Should the resource be eligible for CRHR listing, appropriate treatment measures will be developed in consultation with the City of West Sacramento, the SHPO, and other appropriate agencies.

Impact ALT-5/CR-3: Potential Disturbance to Unidentified Cultural Resources during Construction (Less than Significant with Mitigation Incorporated)

Even if no cultural resources are located during preconstruction surveys, it is possible that subsurface archaeological resources are present within the project area. Activities associated with construction can result in the disturbance or destruction of cultural resources, should any be located within the project area. This impact is considered potentially significant. **Implementation of Mitigation Measure ALT-5/CR-2, described in Section 3.5, *Cultural Resources*, would reduce this impact to a less-than-significant level.**

Impact ALT-5/CE-4: Inadvertent Discovery of Native American Human Remains (Less than Significant with Mitigation Incorporated)

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

No human remains are known to be located in the project area. However, there is always the possibility that unmarked burials may be unearthed during construction. This impact is considered potentially significant. **Implementation of Mitigation Measure CR-4, described in Section 3.5, *Cultural Resources*, would reduce this impact to a less-than-significant level.**

Environmentally Superior Alternative

CEQA requires an EIR to examine a range of feasible alternatives to the project. CEQA Guidelines Section 15126.6(e)(2) requires that the EIR identify which of those alternatives is the Environmentally Superior Alternative. If the No-Project Alternative is the Environmentally Superior Alternative, then CEQA requires an EIR to identify which of the other alternatives is the environmental superior.

Five alternatives to the proposed Project have been examined in this EIR. On the basis of the assessment included within this chapter, Alternative 4, Reduced Density from Current Southport Framework Plan Application (2,525 units for project), would be considered the Environmentally Superior Alternative. In comparison to the Project, this alternative reduces impacts to air quality, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services and utilities, recreation, and traffic. However, many of these impacts still remain significant and unavoidable under Alternative 4.

Alternative 2 (Current Southport Framework Plan) and Alternative 3 (Maximum Density of Southport Framework Plan) would further reduce these impacts, as those alternatives have fewer planned residential units than Alternative 4, yet many impacts would remain significant and unavoidable. Additionally, Alternatives 2 and 3 both require removal of the existing grove of oak trees, which would be retained under the proposed Project. This represents a significant and unavoidable biology impact for Alternatives 2 and 3. Although Alternatives 2 and 3 would reduce the intensity of some impacts (though they would not reduce significant and unavoidable impacts to less-than-significant levels), they would also increase the biology impacts from less than significant to significant and unavoidable. Therefore, Alternative 4 is the Environmentally Superior Alternative.

Comparison to the Project

In comparison to the Project, Alternative 4 reduces the following impacts, though it does not reduce significant and unavoidable impacts to less than significant: air quality, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services and utilities, recreation, and traffic. However, Alternative 4 does not provide the following benefits that would accrue from the Project:

Agriculture: The Project, by virtue of its higher residential density, enables the City to accommodate its future population growth on a smaller increment of agricultural land than would Alternative 4. On the basis of the upper estimate of residential development under Alternative 4 (2,525 dwelling units), its overall residential density is approximately 6.8 units per acre. On the basis of the upper estimate of the Project's residential development (2,788 dwelling units), the Project's overall density would be approximately 7.6 dwellings per acre.

This increase in residential densities allows for a greater population to be accommodated on the same size plot of land and is in keeping with current best planning practices, as recommended by SACOG.

Chapter 5
Other CEQA Considerations

Introduction

This chapter discusses the following subjects, as required by CEQA, with respect to the Project:

- growth inducement,
- cumulative impacts, and
- significant and irreversible environmental changes.

As discussed in Chapter 2, *Project Description*, the proposed Project would modify the planned development of the Southeast Village. The area is currently planned for residential development ranging from low to high densities, neighborhood commercial, WRC, elementary school, open space, and parkland uses. The Project would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential, low-, medium-, and high-density offerings), a ±40-acre regional park, and community open-space areas (Figure 2-3).

Growth inducement and cumulative impacts associated with the Water Related Commercial area and the school site are analyzed at a qualitative, programmatic level, because at present there are no plans for site-specific development in either of these areas.

Although the EIR to be prepared for the Project is a *project EIR* for all land uses on the landward side of the levees along the Sacramento River (see CEQA Guidelines, §15161), the proposed Water Related Commercial area and elementary school site associated with the Project are analyzed herein at only a general or *programmatic* level (see CEQA Guidelines, § 15168). Additional, site-specific CEQA analysis will be required when the applicant submits specific WRC proposals in the future and/or when the school district finalizes future development plans for the site.

Growth Inducement

The State CEQA Guidelines require an EIR to discuss the ways in which a proposed Project may directly or indirectly foster economic or population growth or the construction of additional housing in the surrounding environment. Projects considered include those that would remove obstacles to population growth. The guidelines state that growth in an area is not necessarily beneficial, detrimental, or insignificant to the environment.

Impact Analysis

Significance Thresholds

Growth can be induced in several ways, such as eliminating obstacles to growth and stimulating economic activity within the region. Based on the significance thresholds contained in State CEQA Guidelines, a project is considered to be directly or indirectly growth-inducing if it:

- fosters economic or population growth or additional housing;
- removes obstacles to growth (e.g., through development of physical infrastructure, roadways, and utilities); or
- taxes community services or facilities to such an extent that new services or facilities would be necessary.

The following discussion examines whether the Project would induce growth beyond that envisioned in the City of West Sacramento Southport Framework Plan.

Impacts and Mitigation Measures

Impact GI-1: Fostering of Economic or Population Growth (Less than Significant)

The project has the potential to contribute directly and indirectly to future population growth in West Sacramento, but its contribution is not anticipated to exceed City or regional projections. Anticipated population increases resulting from the Project are discussed in Section 3.11, *Population and Housing*. Construction of the project would be phased, as described in Chapter 2, *Project Description*. As such, the additional population growth attributed to the Project would occur over several years and would be consistent with the rate of growth discussed in the *Southport Framework Plan*.

Anticipated job generation and resultant indirect housing demand from the project site is described in Section 3.11, *Population and Housing*. The project site is located within an area planned for new job creation and residential development under the Southport Framework Plan. Given the mobility of workers in the region (e.g., workers are not limited to the project site in their choice of homes), the economic growth and demand for new housing generated by the mixed-use commercial and school employment related to buildout of the Southport community, would be less than significant in the context of the projected growth in the area. **Therefore, this impact is less than significant. No mitigation is required.**

Impact GI-2: Removal of Obstacles to Growth (Less than Significant)

The proposed Project would extend public services, including sewer and water service, to the previously unserved project site. It would also construct new roadways and include capacity improvements to existing area roadways and construction of new roadways to serve the proposed development. These improvements would remove an existing obstacle to growth at the project site. However, these services and facilities would be proportionate to the level necessary to accommodate the Project and would not, in themselves, increase the development potential of properties outside of the Southport area not planned for urbanization under the Southport Framework Plan. **Therefore, this impact is considered less than significant. No mitigation is required.**

Impact GI-3: Taxation of Community Services or Facilities to Such an Extent that New Services or Facilities Would Be Necessary (Less than Significant)

As stated, the proposed Project would require the extension of various services and facilities to serve the project site. However, the capacity of these services and facilities would be proportionate to the level necessary to accommodate the project. The Project would not require additional community services or facilities outside the Southport area. **Therefore, this impact is considered less than significant. No mitigation is required.**

Cumulative Impacts

Cumulative impacts are significant impacts that are the result of two or more individual projects considered together. Cumulative impacts often result from individually minor, but collectively significant projects that take place over an extended period (State CEQA Guidelines Section 15355). Cumulative impacts are the result of past, present, and reasonably foreseeable future projects each contributing their part to the overall impact.

The State CEQA Guidelines require that an EIR examine a project in the context of the cumulative impacts to which it contributes. The EIR must disclose whether the project makes a “cumulatively considerable” (i.e., important) contribution to any cumulative impact. A project can make a cumulatively considerable contribution even if the project's individual impact is less than significant. A project's contribution can be rendered "less than cumulatively considerable" if the project is required to implement or fund its fair share of a mitigation measure or take part in a program that is designed to alleviate the cumulative impact (State CEQA Guidelines Section 15130).

Requirements

State CEQA Guidelines Section 15130 requires the cumulative-impact discussion to reflect the severity of the cumulative impacts and their likelihood of occurrence, but it does not need to provide as much detail as is provided for the impacts attributable to the project alone.

Previously approved land use documents, such as general plans, may be used in cumulative-impact analysis. No further cumulative-impact analysis is required if a project is consistent with a general, specific, or comparable programmatic plan in which the lead agency determines in a certified EIR for that plan that the regional or area-wide cumulative impacts of the project have already been adequately addressed, as defined in State CEQA Guidelines Section 15152(e). Also, if a cumulative impact was addressed adequately in a prior EIR for a general plan and the project is consistent with that plan, the project's EIR should not further analyze that cumulative impact.

The proposed Project includes an amendment to the Southport Framework Plan. Because the density of development proposed under the River Park Project portion of the proposed Project was not analyzed in the Southport Framework Plan, an analysis of its contribution to potentially significant cumulative impacts is required.

Approach

The State CEQA Guidelines provide two alternative methods of examining cumulative effects. The "list" method involves preparing a list of past, present, and future projects that contribute to a given cumulative effect and examining the project's contribution within that context. The "plan or projections" approach relies upon adopted plans or projections to describe the cumulative context.

This analysis is based on a combination of the plan/projections and list approaches, using the projections of the Southport Framework Plan regarding future development within the City's Southport planning area and a list of proposed projects in the Southport area that would be include development intensities beyond what was planned in the Southport Framework Plan. The Southport Framework Plan area provides an appropriate context and study area for this analysis because it establishes the geographic limits of growth for West Sacramento and is intended to contain most of the city's growth through the planning horizon. For those impact areas not affected by development density or intensity, the Southport Framework Plan provides a basis for assessment of cumulative impacts. Since there are a large number of projects proposed in the Southport area that, if approved, would result in an increase in population and commercial uses, the list method was used for the assessment of impacts related to public services, traffic, air quality, and noise.

The Southport Framework Plan determined that the cumulative impacts of geology/soils and hazardous materials are less than significant. The project will result in potentially significant project-level impacts related to geology/soils and hazards and hazardous materials. Mitigation measures for these impacts, which are related to site-specific conditions and construction activities at the project site, would reduce these impacts to a less-than-significant level. As no significant cumulative impacts in these areas were identified in the Southport Framework Plan EIR, the project would not contribute to any potential cumulative impact related to these impacts.

The EIR for the Southport Framework Plan addressed cumulative impacts from projected buildout of the general plan, including development of the River Park Project site under existing land use designations. It identified the following significant cumulative impacts to which the proposed Project would contribute:

- **Agriculture:** Implementation of the Southport Framework Plan would result in the conversion of approximately 3,045 acres of Prime Farmland and would contribute to the cumulative reduction of agricultural lands in the region.
- **Air Quality:** Implementation of the Southport Framework Plan would result in significant air pollutant emissions produced by increased numbers of resident and nonresident mobile sources.
- **Biological Resources:** Implementation of the Southport Framework Plan would result in substantial losses in the acreage and numbers of native plant and animal communities.
- **Noise:** Implementation of the Southport Framework Plan would result in increased traffic volumes, which would increase noise in sensitive areas of West Sacramento.
- **Transportation:** Implementation of the Southport Framework Plan would result in significant transportation impacts. Several intersections would operate below the City's minimum threshold.

The proposed Project's contribution to cumulative impacts on air quality was evaluated based on the Super Cumulative Traffic Study (DKS Associates 2005) prepared for the City of West Sacramento. The proposed Project's contribution to cumulative impacts on water supply was evaluated based on a review of the information provided in the WSA) prepared for the project (Appendix G). The proposed Project's contribution to cumulative transportation impacts was evaluated in the Transportation Study—River Park Project (Fehr & Peers 2006). The proposed Project's contribution to cumulative impacts on other resource areas was evaluated based on the contents of this EIR.

Related Projects

This cumulative analysis incorporates reasonably foreseeable, relevant projects and focuses on those that, when combined with the proposed Project, could contribute to cumulative effects. Projects considered in the cumulative impact analysis were identified by the City of West Sacramento as related projects and are described as follows. The related projects include projects that are not described in detail in the Southport Framework Plan EIR, or an existing project-level environmental document, but could affect the same resources in the same timeframe as the proposed project, contributing to a cumulative impact.

Over the last two years applications have been received for five major developments in or adjacent to Southport. Including the proposed River Park Project (Figure 2-6). The other four projects are:

- Yarbrough General Plan Amendment and Rezoning Project,
- The Parks at Southport,
- University Park, and
- Harbor Pointe.

All of these projects involve amendments to the General Plan and Zoning designations, as well as amendments to the Southport Framework Plan. Two applications involve reconfiguring villages planned in the Southport Framework Plan (River Park and Harbor Pointe), one expands the southwest village core of the Southport Framework Plan (Yarbrough), one is located outside the Southport Framework Plan area directly south of the City Limits (University Park), and one proposes changes to the southern portions of the Southport Business Park to residential and commercial (The Parks at Southport). There has also been discussion of converting the Port of Sacramento’s Seaway Property in Southport to residential although no application has been submitted. Because no application has been filed, this project is not considered reasonably foreseeable and is not described below.

Yarbrough Project

The proposed Yarbrough Project involves the creation of a residential village with 3,004 residences of various types, a *village core* with commercial and mixed uses, an 18-hole golf course, extensive recreational facilities along a new chain of lakes, and an elementary school (to be separately planned and built by the Washington Unified School District) on 710 acres in the Southport area’s Southwest Village. The proposal would exceed the level of development currently planned in the Southport Framework Plan by 1,847 residential units, eliminate the agricultural buffer, and provide substantially more recreational area. The applicant is requesting the necessary revisions to that plan to support this proposal.

The Yarbrough Project would establish a network of streets and trails providing both motorized and nonmotorized access. This includes a system of landscaped pedestrian, bicycle, and equestrian trails, including the lake promenade; a multi-use regional recreation trail along the levee system on the western and southern sides of the project site; Class 2 bike lanes along Jefferson Boulevard, Southport Parkway, and collector roads within the project site; and pedestrian connectors along selected local streets. The Yarbrough Project would also include a comprehensive system of arterial and collector streets. Jefferson Boulevard would be expanded to four lanes from the northern edge of the project site to the intersection with Southport Parkway in the village core; it would transition to two lanes south of that point. Jefferson Boulevard would cross the proposed lake on a new bridge near the village core. Jefferson Boulevard would be built as a parkway, with a landscaped median and sides.

The City is the lead agency responsible for preparing the environmental documentation for the Yarbrough Project. At the time this draft EIR was prepared, the City was preparing a draft EIR.

The Parks at Southport

This application by Blackridge Southport LLC is the first portion of a major application that seeks to amend the general plan and makes zoning amendments for approximately 279 acres of land within the Southport Business Park. The Parks and Southport project area is located generally south of Carlin Drive, east of the Deep Water Ship Channel, west of the Main Drain Canal and north of the Bridgeway Island subdivision. The application calls for rezoning of lands from heavy industrial, light industrial, and business park to low-density residential, medium-density residential, high-density residential, public/quasi-public, and recreation and parks. Designations involving high density residential, mixed use and neighborhood commercial would remain on the site. The application provides over 22 acres of parks. The applicant is in the process of preparing applications for amendments to PD-21, the Southport Business Park development agreement, and a vesting tentative map. In excess of 2,050 single and multi-family residential units would be planned for the site. An EIR is currently under preparation.

University Park

This is an application to annex 587 acres to the City and to establish General Plan and Pre-Zoning designations for low-density residential, medium-density residential, high-density residential, and open space land uses. The project site is south of the City limits, between the Deep Water Ship Channel, the city’s southern incorporated limits, and the Sacramento River. Approximately 2,500 active adult housing units are proposed. The University Park project also proposes an educational park of 25 to 40 acres, which would include a demonstration school, educational center, and a residential complex for interns and students studying in the Sacramento area. An Environmental Impact Report is currently under preparation.

Harbor Pointe

This application proposes a general plan amendment and rezone on 477.7 acres. The project comprises a significant portion of the Southport Northwest Village and is bounded by Linden Road on the north, the former Yolo Short Line/Sierra Pacific railroad tracks on the west, Davis Road on the south and the Sacramento River on the east. A Vesting Tentative Subdivision map dividing the property into single-family, multi-family, commercial, public/quasi-public, parks, and open space lots is also included as a part of this project. The application is proposing up to 1,724 dwelling units, a five-acre neighborhood commercial site, two school sites, and 63 ± acres of parks; open space and detention basin/lake. An Environmental Impact Report is underway on this project.

Impact Analysis

Aesthetics

Impact CE-1: Cumulative Effect on Aesthetic and Visual Resources (Less than Cumulatively Considerable)

Development of the site would result in several of the impacts to visual resources as identified in Section 3.1, *Visual Resources*, and could contribute to cumulative visual impacts in the area. These impacts include temporary visual changes as a result of construction activities, changes in visual character and quality at the project site, changes in views of the project area, and changes in light and glare at the project site and vicinity introduced from new lighting sources.

Buildout under the Southport Framework Plan has the potential to contribute similar types of effects to aesthetic/visual resources. These impacts would result from construction activities and development of roadways, parking areas and buildings and introduction of new light sources that would change the visual resources in the area.

Although these impacts would be cumulatively considerable, implementation of the mitigation measures incorporated into the project would reduce the project's contribution to these cumulative impacts to a level below the "cumulatively considerable" threshold. **Therefore, the proposed project's contribution to these impacts is less than cumulatively considerable. No additional mitigation is required.**

Agricultural Resources

Impact CE-2: Cumulative Effect of Conversion of Agricultural Lands (Cumulatively Considerable)

The proposed project is located on agricultural/undeveloped lands within the southeast village of Southport and is planned for urban development under the Southport Framework Plan. Buildout of the Southport Framework Plan would result in generally the same amount of undeveloped agricultural lands as the proposed project. At full buildout under either scenario, this land would be converted to urban uses. As discussed in Section 3.2, *Agricultural Resources*, the proposed project area consists of 297 acres of land, the majority of which is currently farmed and has been farmed historically. Of the project area land, approximately 90% (at least 260 acres) is farmland of local importance, as noted on the California FMMP map for Yolo County (California Department of Conservation 1999). The conversion of approximately 260 acres of farmland of local importance contribute to the cumulative loss of farmland.

Buildout of the Southport Framework Plan would also result in the irreversible conversion of farmland to urban development. Development of the southeast village, as envisioned in the Framework Plan would contribute to this impact. The cumulative loss of farmland was considered a significant cumulative impact in the Southport Framework Plan. Although the proposed project proposes to increase the density of development in the Southeast Village, it would not do so by converting more agricultural lands than that envisioned, and planned for, in the Southport Framework Plan. However, the project would result in the conversion of farmlands and would contribute to the cumulative conversion of farmlands.

The project design features (e.g., the open space framework, regional park, oak preserve park, etc), coupled with implementation of the project-specific measures would reduce the project’s contribution to this cumulative impact but not to a less-than-significant level, as the project will result in the permanent conversion of approximately 300 acres of undeveloped farmland to urban development. **Therefore, the project’s contribution to this impact is considered cumulatively considerable. No mitigation is feasible, because similar lands in this area are also planned for urbanization.**

Air Quality

The analysis of the Project’s cumulative air quality impacts is based on the Super Cumulative Traffic Study prepared by DKS Associates for the City of West Sacramento. This study was prepared to determine the combined impacts of the proposed developments within the Southport Area, including the proposed River Park Project. The *Executive Summary* of the study is included in the discussion of cumulative transportation impacts, below.

Approach and Methodology

The primary operational emissions associated with the project are CO, PM10, and ozone precursors emitted as vehicle exhaust. The effects of CO "hot spot" emissions were evaluated through CO dispersion modeling, while mass emissions of CO, PM10, and ozone precursors were evaluated using the ARB's EMFAC2002 (version 2.2) emission rate program. Both models are briefly described below.

Carbon Monoxide Hot Spot Emissions

An evaluation to determine whether CO hot spots would occur at roadway intersections in the vicinity of the proposed project was conducted through CO dispersion modeling. The ambient air quality effects of operation-related CO emissions were evaluated using the CALINE4 dispersion model developed by the California Department of Transportation (Caltrans) (Benson 1989). CALINE4 treats each segment of a roadway as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments. CO modeling was conducted for two conditions: design-year baseline and design-year with project conditions. Detailed methodology of the CO analysis is provided in Appendix B.

The EMFAC2002 (version 2.2) Model

The ARB's EMFAC2002 (version 2.2) emission rate program calculates emission rates from all motor vehicles (i.e., cars, trucks, etc.) operating on highways, freeways and local roads in California. EMFAC will calculate the emission rates of hydrocarbons, CO, NO_X, particulate matter, lead, SO_2 and CO_2 for up to 45 model years for each vehicle class within each calendar year; for 24 hourly periods; for each month of the year; and for each district, basin, county and subcounty in California. Emission inventories associated with the proposed project are estimated by applying emission rate data from EMFAC model to vehicle activity data. Detailed methodology of the mass emissions analysis is provided in Appendix B.

Impact CE-3: Exposure of Sensitive Receptors to Substantial Concentrations of CO (Less than Cumulatively Considerable)

CO modeling protocol analysis was conducted to evaluate whether the super cumulative scenario would cause or contribute to localized violations of the state or federal ambient standard in the project vicinity. CO concentrations at sensitive receptors near congested roadways and intersections were estimated using CALINE4 dispersion modeling. Table 5-1 summarizes CO modeling results for base year (2002) and future year (2025) with and without project conditions.

Table 5-1. Modeled Carbon Monoxide Levels Measured at Receptors in the Vicinity of the Project Area

		Existing		Future no project		Future with project	
Intersection[1]	Receptor[2]	1-hour CO[3]	8-hour CO[4]	1-hour CO[3]	8-hour CO[4]	1-hour CO[3]	8-hour CO[4]
3rd Street/Tower Bridge Gateway	1	5.2	3.7	5.3	3.8	5.3	3.8
	2	5.2	3.7	5.3	3.8	5.3	3.8
	3	5.3	3.8	5.3	3.8	5.3	3.8
	4	5.2	3.7	5.3	3.8	5.3	3.8
Jefferson Boulevard/ US 50 eastbound Ramps	5	6.2	4.3	5.3	3.8	5.3	3.8
	6	6.1	4.2	5.3	3.8	5.4	3.8
	7	6.2	4.3	5.3	3.8	5.3	3.8
	8	6.1	4.2	5.3	3.8	5.3	3.8
Jefferson Boulevard/ Lake Washington Boulevard	9	5.6	3.9	5.2	3.7	5.3	3.8
	10	5.5	3.9	5.2	3.7	5.2	3.7
	11	5.5	3.9	5.2	3.7	5.3	3.8
	12	5.6	3.9	5.2	3.7	5.2	3.7
Southport Parkway /Lake Washington Boulevard	13	5.3	3.8	5.3	3.8	5.3	3.8
	14	5.3	3.8	5.3	3.8	5.3	3.8
	15	5.3	3.8	5.2	3.7	5.3	3.8
	16	5.4	3.8	5.3	3.8	5.4	3.8

[1] Receptors 1 through 4 represent receptors located 100 feet diagonally from the intersection center.

[2] Background concentrations of 5.0 ppm and 3.6 ppm were added to the modeling 1-hour and 8-hour results, respectively.

[3] The federal and state 1-hour standards are 35 and 20 ppm, respectively.

[4] The federal and state 8-hour standards are 9 and 9.0 ppm, respectively.

As indicated in Table 5-1, no violations of the state or federal 1- or 8-hour CO standards are anticipated in the project area under design-year with-project conditions. **Therefore, the contribution of proposed project traffic conditions on ambient CO levels in the project area is considered less than cumulatively considerable. No mitigation is required.**

Impact CE-4: Generation of ROG and NO$_X$, CO, and PM10 Emissions in Excess of YSAQMD Thresholds (Cumulatively Considerable)

Long-term air quality impacts are those associated motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. Emission of ROG, NO$_X$, CO, and PM10 for base year (2002) and future year (2025) with and without project conditions were evaluated through modeling conducted using the ARB's EMFAC2002 (version 2.2) emission rate program and traffic data provided by DKS Associates (DKS Associates 2005). The conditions modeled in the analysis include traffic operating on the following types of roadways:

- surface streets and freeway ramps
- freeway/HOV lanes, and
- all combined roadways in the roadway network.

The assessment of a cumulative contribution to an air quality impact was conducted by evaluating whether cumulative emissions would exceed the YSAQMD's thresholds of significance for project operations (Table 5-2). Cumulative emissions under the super cumulative scenario were obtained by comparing future year (2025) with project emissions to future year (2025) no project emissions. To help identify which types of roadways were contributing the greatest to cumulative emissions, emissions were modeled for the vehicles operating on surface streets and freeway ramps, freeway/HOV lanes, and all combined roadways in the roadway network. However, for the assessment of impacts, total roadway emissions were evaluated against the YSAQMD's thresholds of significance indicated in Table 5-2. The results of these calculations are summarized in Table 5-3.

Table 5-2. Modeled Carbon Monoxide Levels Measured at Receptors in the Vicinity of the Project Area

		Existing		Future no project		Future with project	
Intersection	Receptor	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO
3rd Street/ Tower Bridge Gateway	1	5.2	3.7	5.3	3.8	5.3	3.8
	2	5.2	3.7	5.3	3.8	5.3	3.8
	3	5.3	3.8	5.3	3.8	5.3	3.8
	4	5.2	3.7	5.3	3.8	5.3	3.8
Jefferson Boulevard/ US 50 Eastbound Ramps	5	6.2	4.3	5.3	3.8	5.3	3.8
	6	6.1	4.2	5.3	3.8	5.4	3.8
	7	6.2	4.3	5.3	3.8	5.3	3.8
	8	6.1	4.2	5.3	3.8	5.3	3.8
Jefferson Boulevard/ Lake Washington Boulevard	9	5.6	3.9	5.2	3.7	5.3	3.8
	10	5.5	3.9	5.2	3.7	5.2	3.7
	11	5.5	3.9	5.2	3.7	5.3	3.8
	12	5.6	3.9	5.2	3.7	5.2	3.7
Southport Parkway/ Lake Washington Boulevard	13	5.3	3.8	5.3	3.8	5.3	3.8
	14	5.3	3.8	5.3	3.8	5.3	3.8
	15	5.3	3.8	5.2	3.7	5.3	3.8
	16	5.4	3.8	5.3	3.8	5.4	3.8

Notes: Receptors 1 through 4 represent receptors located 100 feet diagonally from the intersection center. Background concentrations of 5.0 ppm and 3.6 ppm were added to the modeling 1-hour and 8-hour results, respectively. The federal and state 1-hour standards are 35 and 20 ppm, respectively. The federal and state 8-hour standards are 9 and 9.0 ppm, respectively.

Table 5-3. Motor Vehicle Emissions for Super Cumulative Conditions (Pounds/Day)

Condition	ROG	NO_X	CO	PM10
Base year (2002)				
Surface street/ramp	389	2,193	6,638	80
Freeway/HOV lane	251	2,789	5,510	57
All roadways	267	2,141	5,431	63
Future no project (2025)				
Surface street/ramp	1,049	5,909	17,888	215
Freeway/HOV lane	676	7,516	14,847	153
All roadways	718	5,769	14,635	170
Future with project (2025)				
Surface street/ramp	1,167	6,571	19,892	239
Freeway/HOV lane	752	8,358	16,510	170
All roadways	799	6,415	16,274	189
Future with project—Future no project				
Surface street/ramp	**118**	**662**	**2,004**	**24**
Freeway/HOV lane	**76**	**842**	**1,663**	**17**
All roadways	**80**	**646**	**1,639**	**19**
YSAQMD thresholds of significance	*82*	*82*	*550*	*150*

Notes:
Underline indicates emissions in excess of YSAQMD thresholds (Table 3.3-1)
Emissions calculations are based on EMFAC2002 Model

It should be noted that although surface street/ramp roadways have the least amount of vehicular activity for the roadways analyzed, emissions are highest for these roadways because they are generally more congested and travel speeds are significantly lower for these types of roadways, compared to the other roadways analyzed (Appendix B). Vehicular emissions typically follow a bell-shaped curve with regard to speed; emissions are typically greatest at the lower and higher speeds, and lowest at intermediate speeds.

As indicated in Table 5-3, emissions of NO_X and CO are anticipated to exceed the YSAQMD's thresholds of significance (Table 3.3-1). There are not measures available to reduce emissions to levels below YSAQMD thresholds. **Consequently, the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Biological Resources

Impact CE-5: Cumulative Effect on Biological Resources (Less than Cumulatively Considerable with Mitigation Incorporated)

The project would result in impacts to biological resources during project construction or operation through the degradation or removal of habitat and impacts to riparian wetland areas. Mitigation measures are identified in Section 3.4, *Biological Resources*, to reduce project-related impacts to biological resource to less-than-significant levels.

Buildout of the southeast village under the existing Southport Framework Plan has the potential to contribute to similar types of effects on biological resources as those identified for the project, as both would involve development on roughly the same area of land. These impacts would result from construction activities and development of roadways and structures that would impact biological resources in the region. **Implementation of project-specific mitigation measures would reduce the Project's contribution to a less-than-cumulatively-considerable level.**

Cultural Resources

Impact CE-6: Cumulative Impacts on Cultural Resources (Less than Cumulatively Considerable with Mitigation Incorporated)

The proposed Project would result in potential impacts on cultural resources during construction because development of the project would involve ground disturbance and other activities that could potentially affect unknown or subsurface cultural resources. Mitigation measures are identified in Section 3.5, *Cultural Resources*, to reduce individual project-related impacts on cultural resource to less-than-significant levels.

Buildout of the Southport Framework Plan has the potential to contribute to similar types of impacts on cultural resources as those identified for the proposed Project, as both would involve development on roughly the same area of land. Such impacts would result from construction activities and development of roadways and structures in the region. **Implementation of project-specific mitigation measures would reduce the proposed Project's contribution to a less-than-cumulatively-considerable level.**

Hydrology and Water Quality

Impact CE-7: Cumulative Increase in Water Demand (Less than Cumulatively Considerable)

The proposed Project's contribution to cumulative impacts on water supply was analyzed based on the Water Supply Assessment (WSA) that is discussed in Section 3.8, *Hydrology and Water Quality*, of this document, and attached as Appendix G. The purpose of the WSA is to determine the adequacy of existing and planned future water supplies available to the City and the City's ability to meet the water demands of the proposed project while considering other planned developments in Southport and the City's service area. The WSA indicates that there is sufficient water to supply the City's needs over both the short- and long-terms. Therefore, **the proposed project's contribution to these impacts is less than cumulatively considerable**.

Impact CE-8: Cumulative Increase in Stormwater Runoff (Less than Cumulatively Considerable with Mitigation Incorporated)

Most of the project area currently contains vacant land or agricultural fields with pervious surfaces. The proposed Project would result in the construction of impervious surfaces associated with roadway construction and residential and commercial structures, thereby preventing precipitation from infiltrating and causing it to pond or runoff. The proposed project would therefore increase runoff, resulting in potential stormwater impacts. Mitigation measures are identified in Section 3.8, *Hydrology and Water Quality*, to reduce project-related impacts on water resources to less-than-significant levels.

Buildout of the Southport Framework Plan has the potential to contribute to similar types of effects as identified for the project, although such impacts may be somewhat lesser than those identified for the proposed project as the project proposes an increase in density of structures and could therefore result in more impervious surfaces than that which might reasonably expected from development under the existing Southport Framework Plan. Such impacts would result from construction activities and development of roadways and structures at the project site. **Implementation of the project-specific mitigation measures would reduce the proposed project's contribution to this cumulative impact to a less-than-cumulatively-considerable level.**

Impact CE-9: Cumulative Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed (Cumulatively Considerable)

The Sacramento River Watershed from Knights Landing to the Delta is CWA 303(d) listed as impaired for diazinon, mercury, and unknown toxicity. Under this impairment, the Sacramento River has no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration.

These constituents could be gathered from lawn runoff, rooftops, and even indoor household runoff. However, the concentration of these constituents is expected to be relatively low. In addition, all drainage from the River Park Project will be channeled toward the water channels and open water areas of the parkway that would be designed as detention stormwater quality management facilities, which would reduce the potential for such contaminants to reach the Sacramento River at concentrations that would contribute to the impairment. **While the impact is less than significant on a project level, given the impairment of the water body, the project would contribute to cumulatively considerable impact. No mitigation is available to reduce this impact to a less than significant level, and therefore the impact is significant and unavoidable.**

Land Use and Planning

Impact CE-10: Cumulative Impacts on Land Use (Less than Cumulatively Considerable)

As with the proposed Project, buildout of the Southport Framework Plan is generally planned to occur on agricultural and rural residential lands, which characterize much of the area slated for development within the Southport area of the City. According to the Southport Framework Plan EIR, the loss of undeveloped land to residential or nonresidential land uses is a significant impact. As discussed in Section 3.9, *Land Use and Planning*, of this document, the proposed Project would not conflict with this adopted policy, or policies of the Southport Framework Plan relative to lands planned for urbanization. **Therefore, the proposed Project's contribution would be less than cumulatively considerable. No mitigation is required.**

The proposed Project would change the existing agricultural uses at the project site. The proposed project's contribution to cumulative impacts on agricultural resources is described above.

Noise

Impact CE-11: Cumulative Impacts on Noise (Cumulatively Considerable)

The results in Table 3.10-7 indicate that traffic noise levels under cumulative conditions are predicted to exceed 60 L_{dn} along several roadway segments in the area with adjacent residences. Noise levels with the project are also predicted to exceed these noise standards at these locations. Because the City's transportation noise standards are predicted to be exceeded under cumulative conditions, a significant cumulative traffic noise impact is considered to occur in the project area. The project's contribution to this significant cumulative noise impact is cumulatively considerable if the increase in noise associated with the project exceeds 1 dB. Predicted cumulative traffic noise level exceeds 60 L_{dn} and the project-related increase is greater than 1 dB is along the following roadway segments:

- Stonegate Drive between Linden Road and Lake Washington Boulevard
- Village Parkway between Linden Road and Stonegate Drive

Apart from a residential subdivision adjacent to Linden Road, land along this segment of Stonegate Drive is currently undeveloped. However, it is planned for residential development. A residential subdivision is currently located along this segment of Village Parkway. **The project's contribution to the significant cumulative noise impact is therefore cumulatively considerable along these segments.**

Potential mitigation measures to reduce exterior traffic noise along these segments include the construction of sound walls and/or the use of noise-reducing pavement. However, it is not anticipated that these measures can be implemented in all cases where significant cumulative traffic noise impacts occur due to physical constraints, including locations of driveways. In addition, there is currently no funding mechanism for implementing mitigation measures for cumulative traffic noise impacts. **For these reasons, this impact is considered to be significant and unavoidable.**

Population and Housing

Impact CE-12: Cumulative Impact on Population and Housing (Less than Cumulatively Considerable)

Cumulative impact analysis requires this project to be viewed in the context of its contribution to any cumulative significant effect on population or housing need. For population and housing, the cumulative impact analysis utilizes information available from the Sacramento Area Council of Governments, the California Department of Finance, and the City of West Sacramento General Plan and Housing Element.

The City of West Sacramento and the Sacramento Metropolitan area is expected to undergo substantial growth over the next two decades. As discussed in Section 3.11, *Population and Housing*, the estimates prepared by SACOG estimate that West Sacramento's population will increase by approximately 27,155 people by 2020. This growth is attributable to natural increases in the existing population and the migration of new residents to West Sacramento and the Sacramento Metropolitan area. The Southport Framework Plan (as amended 1998), which the Project seeks to modify, calls for a 1,896 new housing units in the Project area, or a population increase of 5,281. This would account for approximately 19% of projected growth for the City. At full buildout, the Project is expected to contribute 7,197 persons, which would account for approximately 26% of projected growth over this period. The Project's inclusion of approximately 900 additional units would make up the additional 7%. This represents a substantial increase in the population of West Sacramento beyond that envisioned in the Southport Framework Plan.

In the broader context of West Sacramento and the Sacramento Metropolitan area, the project presents a much smaller profile. While the Project would induce population growth through the addition of new homes and jobs, this growth is not anticipated to substantially exceed the growth currently projected for the region. In addition, the proposed project's 2,788 housing units is anticipated to be beneficial in the context of creating available housing units in meeting the overall housing demands of the region and per SACOG's and the City's housing goals. **Therefore, the proposed Project's contribution would be less than cumulatively considerable.**

Transportation

Planned Transportation Improvements

The following roadway improvements within the study area are planned by the City of West Sacramento and were assumed in place for the cumulative conditions analysis (Fehr & Peers 2006).

- Reconstruction of the US 50/Jefferson Boulevard interchange.
- Reconstruction of the US 50/Harbor Boulevard interchange.
- Construction of the South River Road Bridge.
- Extension of Village Parkway to Davis Road.
- Extension of Stonegate Drive to Davis Road.
- Signalization of the South River Road/US 50 EB on-ramp, Jefferson Boulevard/Davis Road, Jefferson Boulevard/Bevan Road, and Stonegate Drive/North Linden Road intersections.

The lane configurations at the study intersections and locations for new traffic signals were based on improvements identified in the 2004 Traffic Demand Model Update, Final Report. The future lane configurations and traffic controls at the study intersections are shown in Figure 8 in the Fehr & Peers (2006) Transportation Study.

Traffic Forecasts

The City of West Sacramento Cumulative Buildout Travel Demand Model was used to develop AM and PM peak hour intersection volumes for cumulative conditions. This model contains buildout of the City of West Sacramento General Plan with increased development densities in The Triangle and in the areas just north and south of The Triangle (including Raley's Landing). The 2025 model contains 32,860 total dwelling units (a 127% increase from the base year model) and 72,210 employees (a 140% increase from the base year model). The model also contains the planned roadway improvements discussed above (Fehr & Peers 2006).

The model generates cumulative traffic volumes based on future land use and roadway network assumptions. The cumulative no project scenario assumes that the proposed project is not constructed and the project site remains undeveloped. The raw model forecasts were adjusted to reflect the growth in traffic between the base year and future year models. The forecasted growth was added to the existing traffic volumes to develop traffic forecasts for cumulative conditions. Figures 8 and 9 in the Fehr & Peers Transportation Study display the AM and PM peak hour traffic forecasts at the study intersections under cumulative no project conditions (Fehr & Peers 2006).

Intersection Operations

The analysis of cumulative conditions intersection operations was performed using the Circular 212 planning and *2000 HCM* methods.

Level of Service

The AM and PM peak hour traffic operations were analyzed at each study intersection. Tables 5-4 and 5-5 present the LOS results for cumulative conditions without the development of the proposed River Park Project during the AM and PM peak hours. The following study intersections on City streets (i.e., not at freeway interchanges) operate at LOS D or worse under cumulative conditions (Fehr & Peers 2006).

- Harbor Boulevard/Industrial Avenue operates at LOS D during the PM peak hour under cumulative conditions.
- Jefferson Boulevard/15th Street operates at LOS F during the AM and PM peak hours under cumulative conditions.
- Jefferson Boulevard/Stone Boulevard operates at LOS D during the AM peak hour and LOS E during the PM peak hour under cumulative conditions (this intersection is within 0.25 mile of the barge canal).
- Jefferson Boulevard/Devon Avenue/Gateway Drive operates at LOS F during the AM and PM peak hours under cumulative conditions.
- Jefferson Boulevard/Lake Washington Boulevard operates at LOS E during the AM peak hour and LOS D during the PM peak hour with and without the development of the proposed project under cumulative conditions.
- Lake Washington Boulevard/Southport Parkway operates at LOS E during the PM peak hour under cumulative conditions.
- Jefferson Boulevard/North Linden Road operates at LOS D during the AM and PM peak hour under cumulative conditions.
- Jefferson Boulevard/Higgins Road operates at LOS D during the AM and PM peak hour under cumulative conditions.
- Jefferson Boulevard/South Linden Road operates at LOS D during the PM peak hour under cumulative conditions (Fehr & Peers 2006).

The following study intersection at freeway interchanges (i.e., ramp terminal intersections) will operate at LOS E or worse under cumulative conditions.

- Jefferson Boulevard/US 50 Ramps operates at LOS E during the PM peak hour under cumulative conditions.

Table 5-4. Cumulative Conditions AM Peak Hour Intersection Level Of Service

		Cumulative Conditions			
		No Project		Plus Project	
Study Intersection	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Blvd./Evergreen Ave.	Signal	17	B	17	B
2. Harbor Blvd./US 50 WB Ramps	Signal	15	B	16	B
3. Harbor Blvd./US 50 EB Ramps	Signal	<10	A	<10	A
4. Harbor Blvd./Industrial Blvd.	Signal	0.69	B	0.73	C
5. Jefferson Blvd./US 50 & SR 275 Ramps	Signal	16	B	17	B
6. Jefferson Blvd./SR 275 EB On-Ramp	Side-Street Stop	<10	A	<10	A
7 & 8. Jefferson Blvd./US 50 Ramps	Signal	44	D	46	D
9. S. River Road/Riske Lane/US 50 WB Off-Ramp	Signal	27	C	29	C
10. S. River Road/US 50 EB On-Ramp	Signal	<10	A	<10	A
11. Jefferson Blvd./15th Street	Signal	**>1.0**	**F**	**>1.0**	**F**
12. Jefferson Blvd./Stone Blvd.	Signal	0.83	D	0.86	D
13. Jefferson Blvd./Devon Ave./Gateway Drive	Signal	**>1.0**	**F**	**>1.0**	**F**
14. Jefferson Blvd./Lake Washington Blvd.	Signal	**0.96**	**E**	**>1.0**	**F**
15. Lake Washington Blvd./Southport Pkwy.	Signal	0.67	B	0.74	C
16. Jefferson Blvd./N. Linden Road	Signal	**0.89**	**D**	**0.91**	**E**
17. Jefferson Blvd./Higgins Road	Signal	**0.90**	**D**	**0.92**	**E**
18. Jefferson Blvd./S. Linden Road	Signal	0.66	B	0.68	B
19. Jefferson Blvd./Davis Road	Signal	0.62	B	0.67	B
20. Jefferson Blvd./Bevan Road	Signal	0.53	A	0.57	A
21. Stonegate Drive/N. Linden Road	Signal	0.42	A	0.53	A
22. Village Pkwy./N. Linden Road	Side-Street Stop	19	C	**35**	**E**
23. Stonegate Drive/Davis Road	All-Way Stop	<10	A	21	C
24. Village Pkwy./Davis Road	All-Way Stop	<10	A	14	B

Source: Fehr & Peers 2005.

Notes: V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle. Side-street stop-controlled intersection LOS is based on average delay per vehicle for the worst-case movement.

Bold = Unacceptable LOS per significance thresholds defined in this report

Table 5-5. Cumulative Conditions PM Peak Hour Intersection Level Of Service

		Cumulative Conditions			
		No Project		Plus Project	
Study Intersection	Traffic Control	V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
1. Harbor Blvd./Evergreen Ave.	Signal	23	B	23	B
2. Harbor Blvd./US 50 WB Ramps	Signal	11	B	11	B
3. Harbor Blvd./US 50 EB Ramps	Signal	<10	A	<10	A
4. Harbor Blvd./Industrial Blvd.	Signal	**0.89**	**D**	**0.92**	**E**
5. Jefferson Blvd./US 50 & SR 275 Ramps	Signal	21	C	22	C
6. Jefferson Blvd./SR 275 EB On-Ramp	Side-Street Stop	<10	A	<10	A
7 & 8. Jefferson Blvd./US 50 Ramps	Signal	**69**	**E**	**69**	**E**
9. S. River Road/Riske Lane/US 50 WB Off-Ramp	Signal	35	D	35	D
10. S. River Road/US 50 EB On-Ramp	Signal	<10	A	<10	A
11. Jefferson Blvd./15th St.	Signal	**>1.0**	**F**	**>1.0**	**F**
12. Jefferson Blvd./Stone Blvd.	Signal	**0.96**	**E**	**0.99**	**E**
13. Jefferson Blvd./Devon Ave./Gateway Drive	Signal	**>1.0**	**F**	**>1.0**	**F**
14. Jefferson Blvd./Lake Washington Blvd.	Signal	**0.85**	**D**	**0.88**	**D**
15. Lake Washington Blvd./Southport Pkwy.	Signal	**1.00**	**E**	**>1.0**	**F**
16. Jefferson Blvd./N. Linden Rd.	Signal	**0.82**	**D**	**0.82**	**D**
17. Jefferson Blvd./Higgins Rd.	Signal	**0.83**	**D**	**0.83**	**D**
18. Jefferson Blvd./S. Linden Rd.	Signal	**0.82**	**D**	**0.82**	**D**
19. Jefferson Blvd./Davis Rd.	Signal	0.56	A	0.55	A
20. Jefferson Blvd./Bevan Rd.	Signal	0.52	A	0.56	A
21. Stonegate Drive/N. Linden Rd.	Signal	0.32	A	0.37	A
22. Village Pkwy./N. Linden Rd.	Side-Street Stop	19	C	35	E
23. Stonegate Drive /Davis Rd.	All-Way Stop	<10	A	21	C
24. Village Pkwy./Davis Road	All-Way Stop	<10	A	14	B

Source: Fehr & Peers 2005.

Notes: V/C = volume-to-capacity ratio. Delay is shown in seconds per vehicle. Side-street stop-controlled intersection LOS is based on average delay per vehicle for the worst-case movement.

Bold = Unacceptable LOS per significance thresholds defined in this report

Traffic Signal Warrant Analysis

A peak hour volume traffic signal warrant analysis was conducted for the five unsignalized study intersections under cumulative conditions without the construction of the proposed project. Most of the study intersections are signalized under cumulative conditions. The study intersections that remain unsignalized under cumulative conditions do not meet the criteria to install a traffic signal based on the peak hour traffic signal warrant without the development of the proposed project (Fehr & Peers 2006). Figure 5-1 presents peak hour traffic volumes and lane configurations under Cumulative No-Project conditions, and Figure 5-2 presents peak hour traffic volumes and lane configurations under Cumulative Plus Project conditions

Freeway Operations

Freeway mainline and ramp operations with and without the project are summarized in Table 5-6. As shown, all ramp merge/diverge locations and freeway weaving segments within the study area operate at LOS F under cumulative conditions without the development of the proposed project (Fehr & Peers 2006).

Table 5-6. Ramp and Freeway Facility Level of Service—Cumulative Conditions

		Cumulative Conditions					
		No Project			Plus Project		
Facility	Peak Hour	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
Off-ramp (diverge): eastbound SR 275 at off-ramp to Jefferson Boulevard	AM	390	**>35**	**F**	390	**>35**	**F**
	PM	420	**>35**	**F**	430	**>35**	**F**
Off-ramp (diverge): westbound South River Rd. off-ramp at Jefferson/South River Rd. split	AM	2,840	**>35**	**F**	3,000	**>35**	**F**
	PM	3,170	**>35**	**F**	3,170	**>35**	**F**
Weaving section: US 50 eastbound from I-80 to Harbor Boulevard	AM	11,680	**>45**	**F**	11,680	**>45**	**F**
	PM	8,570	**>45**	**F**	8,650	**>45**	**F**
Weaving section: US 50 eastbound from Harbor Boulevard to Jefferson Boulevard	AM	11,040	**>45**	**F**	11,100	**>45**	**F**
	PM	9,930	**>45**	**F**	9,930	**>45**	**F**
Weaving section: US 50 eastbound from South River Road to I-5	AM	11,850	**>45**	**F**	11,960	**>45**	**F**
	PM	10,930	**>45**	**F**	10,980	**>45**	**F**
Weaving section: US 50 westbound from I-5 to South River Road	AM	12,390	**>45**	**F**	12,390	**>45**	**F**
	PM	13,800	**>45**	**F**	13,800	**>45**	**F**
Weaving section: US 50 westbound from Jefferson Boulevard to Harbor Boulevard	AM	9,850	**>45**	**F**	9,970	**>45**	**F**
	PM	12,550	**>45**	**F**	12,630	**>45**	**F**
Weaving section: US 50 westbound from Harbor Boulevard to I-80	AM	9,010	**>45**	**F**	9,110	**>45**	**F**
	PM	10,670	**>45**	**F**	10,690	**>45**	**F**

Source: Fehr & Peers 2005 in Fehr & Peers 2006

Notes: **Bold** = Unacceptable operation per significance thresholds defined in this report.

[1] Density reported as passenger cars per mile per lane (pc/mi/ln) in the peak hour.

[2] Level of service.

Impact CE-13: Cumulative Degradation of LOS at Jefferson Boulevard/Devon Avenue/Gateway Drive Intersection during AM and PM Peak Hours (Less than Cumulatively Considerable with Mitigation Incorporated)

The addition of project traffic would cause the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection to operate at an unacceptable LOS F during both the AM and PM peak hours under Cumulative Plus Project conditions.

The intersection would operate at LOS F (more than 0.05 increase in V/C) during the AM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. During the PM peak hour, the increase in V/C is less than 0.05. **With implementation of Mitigation Measure CE-39, the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection would operate at LOS D during the AM peak hour and LOS E during the PM peak hour under Cumulative Plus Project conditions, reducing impacts to less than cumulatively considerable.**

Mitigation CE-13: Provide Free Right-Turn Lane to Gateway Drive Approach

Mitigation of unacceptable conditions at this intersection can be achieved by adding a westbound free right-turn lane to the Gateway Drive approach to the Jefferson Boulevard/Devon Avenue/Gateway Drive intersection.

Impact CE-14: Cumulative Degradation of LOS at Jefferson Boulevard/Lake Washington Boulevard Intersection during AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the Jefferson Boulevard/Lake Washington Boulevard intersection to operate at an unacceptable LOS F during the AM peak hour and LOS D during the PM peak hour under Cumulative Plus Project conditions.

The intersection would degrade from LOS E to LOS F (more than 0.05 increase in V/C) during the AM peak hour. The intersection operates at deficient level due to the heavy northbound and southbound through movements. During the PM peak hour, the increase in V/C is less than 0.05. **There are no feasible mitigation measures available to reduce the impacts at this intersection, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-15: Cumulative Degradation of LOS at Village Parkway/N. Linden Road Intersection during AM and PM Peak Hours (Less than Cumulatively Considerable with Mitigation Incorporated)

The addition of project traffic would cause the Village Parkway/North Linden Road intersection to operate at an unacceptable LOS E during both the AM and PM peak hours under Cumulative Plus Project conditions.

The intersection would degrade from LOS C to LOS E during both the AM and PM peak hours. The intersection operates at deficient level due to the heavy northbound and southbound through movements. **With implementation of Mitigation Measure CE-15, the Village Parkway/North Linden Road intersection would operate at LOS A (0.33) during the AM peak hour and LOS A (0.33) during the PM peak hour under Cumulative Plus Project conditions, reducing impacts to less than cumulatively considerable.**

Mitigation CE-15: Provide Traffic Signal at Village Parkway/N. Linden Road Intersection

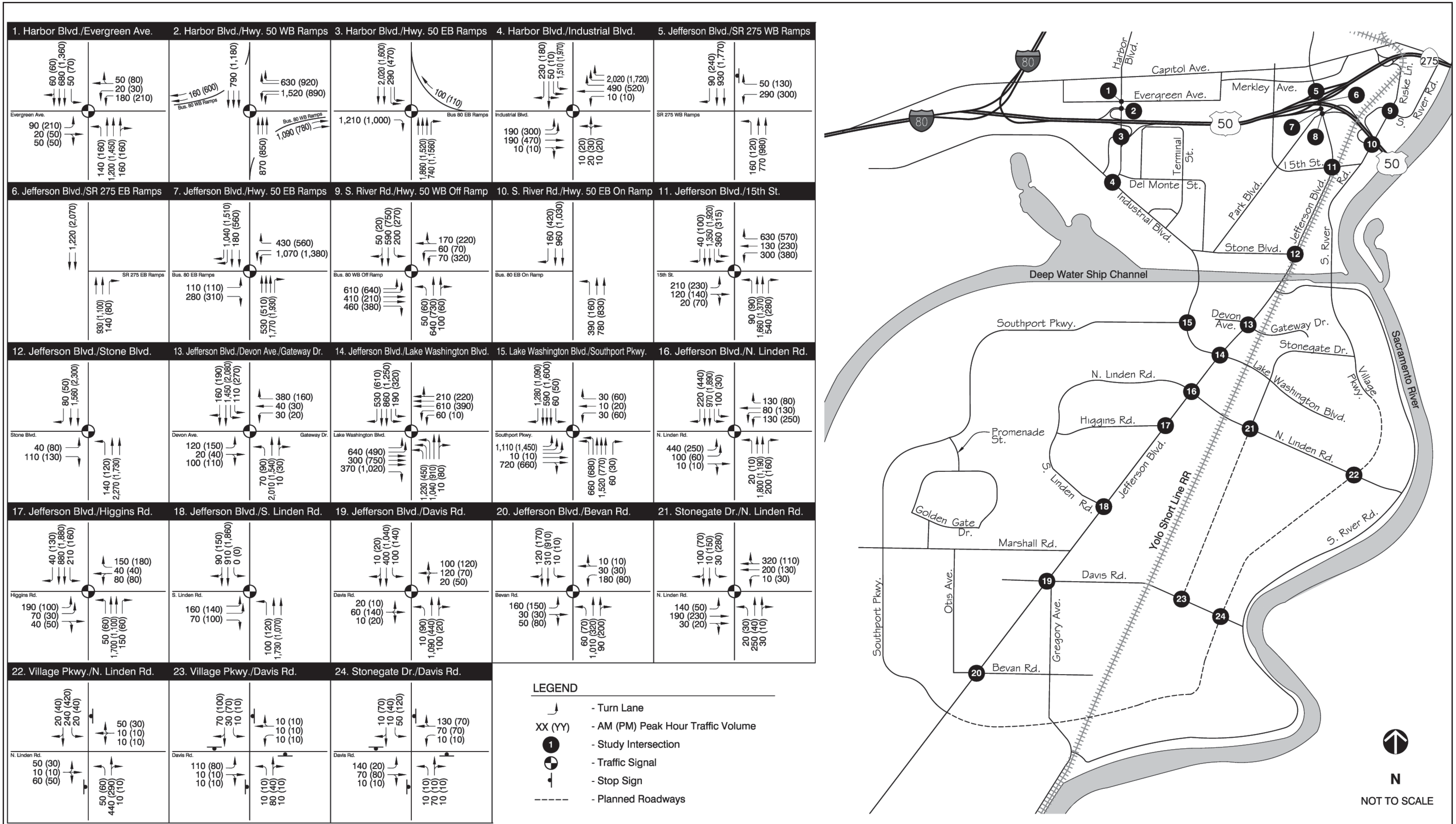
Mitigation of unacceptable conditions at this intersection can be achieved through installation of a traffic signal at the Village Parkway/North Linden Road intersection.

Impact CE-16: Cumulative Degradation of LOS at SR 275 Eastbound Off-Ramp Diverge to Jefferson Boulevard during AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the US 50 eastbound off-ramp diverge to Jefferson Boulevard to operate at an unacceptable LOS F during both the AM and PM peak hours under Cumulative Plus Project conditions.

The ramp diverge would operate at LOS F (more than 35 passenger cars per mile per lane) with and without the development of the proposed Project. The ramp would operate at a deficient level due to the heavy traffic flows on US 50 and the Jefferson Boulevard off-ramp.

Mitigation of unacceptable conditions at this ramp can be provided by constructing an additional lane on mainline SR 275 and on the Jefferson Boulevard on-ramp. No funding sources have been identified for this improvement. **The proposed Project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**



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Jones & Stokes

Figure 5-1
Peak Hour Traffic Volumes and Lane Configurations -
Cumulative No Project Conditions

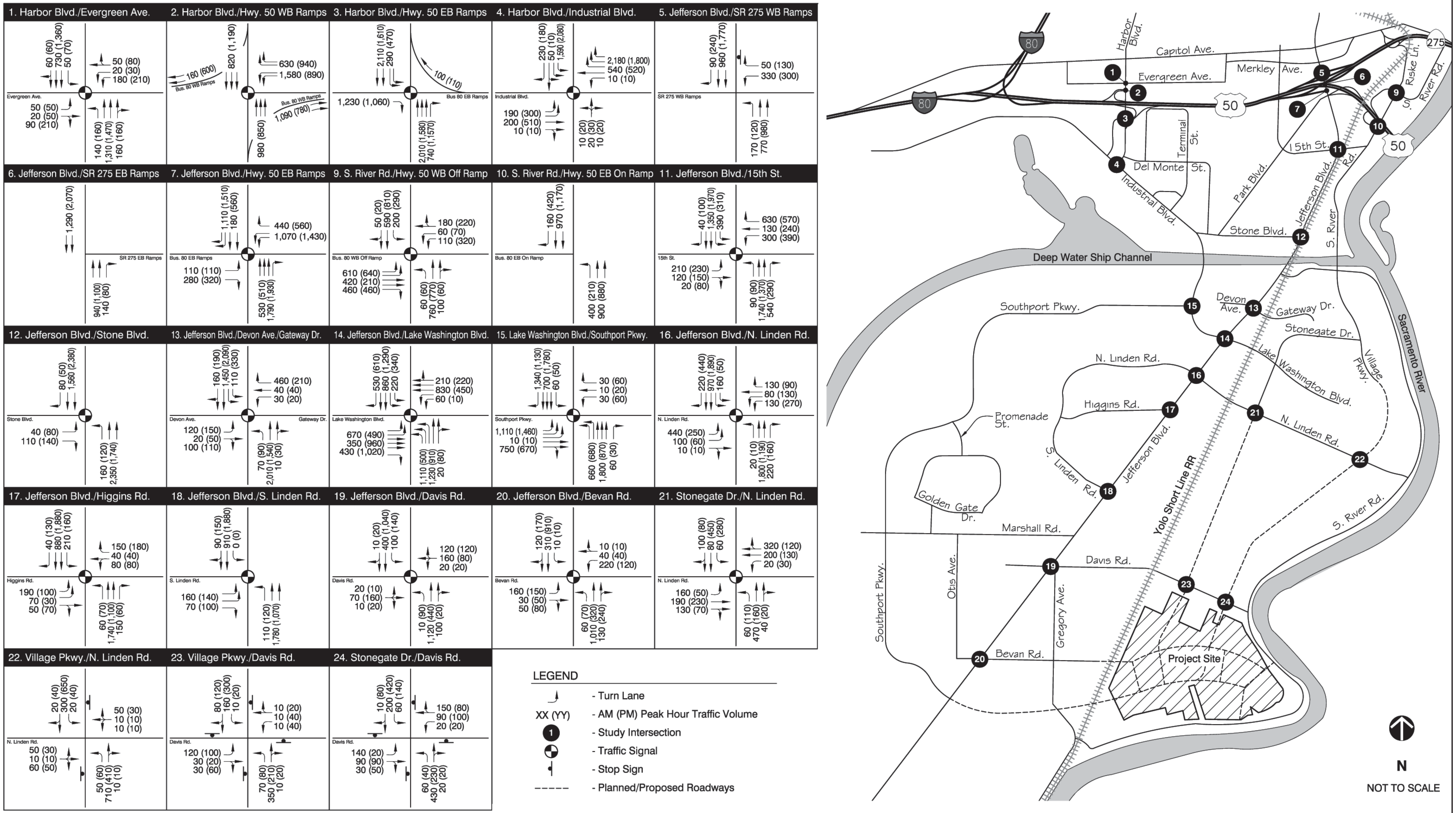

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Figure 5-2
Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project Conditions

Impact CE-17: Cumulative Degradation of LOS at Westbound US 50 Off-Ramp Diverge to South River Road at the Jefferson Boulevard/South River Road Split during the AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the westbound US 50 off-ramp diverge to South River Road from the Jefferson Boulevard/South River Road split to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions. The ramp would operate at a deficient level due to the heavy traffic flows on both the Jefferson Boulevard and South River Road off-ramps.

Mitigation of unacceptable conditions at this location can be achieved by separating the Jefferson Boulevard off-ramp from the South River Road off-ramp. This improvement is being considered as part of the US 50/Jefferson Boulevard and US 50/South River Road interchange improvement projects. **The proposed project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-18: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from I-80 to Harbor Boulevard during the AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the eastbound US 50 weaving section from I-80 to Harbor Boulevard to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions.

The weaving section would operate at LOS F (more than 45 passenger cars per mile per lane) with and without the development of the proposed Project. The mainline would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-19: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from Harbor Boulevard to Jefferson Boulevard during AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the eastbound US 50 weaving section from Harbor Boulevard to Jefferson Boulevard to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) with and without the development of the proposed Project. The weaving section would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-20: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from South River Road to I-5 during the AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the eastbound US 50 weaving section from South River Road to I-5 to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) with and without the development of the proposed project. The weaving section would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-21: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from I-5 to South River Road during the AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the westbound US 50 weaving section from I-5 to South River Road to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) with and without the development of the proposed Project. The weaving section would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-22: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Jefferson Boulevard to Harbor Boulevard during the AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the westbound US 50 weaving section from Jefferson Boulevard to Harbor Boulevard to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) with and without the development of the proposed Project. The weaving section would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Impact CE-23: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Harbor Boulevard to I-5 during the AM and PM Peak Hours (Cumulatively Considerable and Unavoidable)

The addition of project traffic would cause the westbound US 50 weaving section from Harbor Boulevard to I-5 to operate at an unacceptable LOS F during the AM and PM peak hours under Cumulative Plus Project conditions.

The mainline would operate at LOS F (more than 45 passenger cars per mile per lane) with and without the development of the proposed Project. The weaving section would operate at a deficient level due to the heavy traffic flows on US 50.

Mitigation of unacceptable conditions at this location can be achieved by providing an additional lane on mainline US 50. No funding sources have been identified for this improvement. **The proposed Project will not construct the recommended improvement, thus the Project's contribution to this impact is significant and unavoidable and cumulatively considerable.**

Super Cumulative Conditions

The City of West Sacramento recently conducted a study to determine the combined impacts of proposed development projects within the Southport Area, including the proposed River Park Project. The Executive Summary of the *Super Cumulative Traffic Study: Analysis of Six Combined Projects in Southport Area* (DKS Associates 2005) is included below (Fehr & Peers 2006).

> **Executive Summary**
> The City of West Sacramento has been presented with a number of development proposals in the Southport area, which, if approved, would require significant amendment of the adopted Southport Framework Plan. The development proposals are:
>
> - Port-Seaway
> - Parks-at-Southport
> - Harbor Point
> - River Park
> - Yarborough
> - University Park
>
> The proposals are in various stages of review by the City. At the time of writing, five of the six (Yarborough and River Park) have formally submitted applications to the City, and have initiated public environmental review. Each of the development proposals will be evaluated individually as part of the public environmental review process. A CEQA concern exists, that because the six development proposals are being reviewed in parallel, the impacts of all of the development proposals taken together may not be fully identified. To address this concern, the analysis described and documented in this report provides a

programmatic evaluation of the traffic impacts of all six development proposals considered together. This new scenario is referred to as the “Combined Project” land use scenario.

The primary question this study answers is: What additional transportation improvements, above-and-beyond already planned improvements, would be needed if all of the Combined Projects are built as proposed?

Cumulative No Project Scenario

The point of comparison for this traffic analysis is buildout of the City’s current General Plan, along with all of the currently planned transportation improvements within the City. This scenario is referred to as “Cumulative No Project”--in other words, a forecast of traffic conditions in the City with its current General Plan built out and all currently planned transportation improvements, but with none of the six new development proposals. Compared to the City in Fall 2002, this Cumulative No Project scenario would add 19,336 dwelling units (33,816 total), and 41,702 jobs (71,751 total). See Table ES-1 [in the Fehr & Peers (2006) Transportation Study].

Within Southport, the Cumulative No Project scenario includes 12,119 additional dwelling units (15,932 total), and 14,771 new jobs (15,776 total). These projections are based on the current Southport Framework Plan. At buildout, Southport would account for 47 percent of the City’s dwelling units (compared to 26% in Fall 2002), and 22 percent of the City’s jobs (compared to 3% in Fall 2002).

The City has planned for transportation improvements to maintain reasonable mobility within the City with buildout of the City’s current General Plan (see Table 1-2 of the DKS report for a listing of the major transportation improvements currently planned and fundable, based in part of traffic impact fees from new development).

Using the City’s travel demand forecasting model, peak hour intersection LOS was forecasted for the Cumulative No Project scenario. At all but one of thirty-six study intersections, these forecasts show that the City’s LOS standards were maintained during the AM and PM peak hours (see Table 1-9 of the full report) [in the Fehr & Peers (2006) Transportation Study].

Impacts of the Combined Projects

For purposes of traffic analysis, the Combined Projects were defined in terms of changes from the City’s current General Plan. Since all of the Combined Projects are in Southport, the current General Plan is the Southport Framework. The changes from the Southport Framework for each project in terms of dwelling units and employment are shown in Table ES-2 [in the Fehr & Peers (2006) Transportation Study]. In total change in dwelling units represented by the Combined Projects is an increase of 8,997. The increases come from conversion of lands designated for agriculture or employment uses to residential use. The total change in employment represented by the Combined Projects is a decrease of 3,701.

Within Southport, the Combined Projects would result in 24,929 dwelling units (compared to 15,932 for the current Southport Framework), and 12,075 jobs (compared to 15,776 for the current Southport Framework). See Table 1-13 of the full report [in the Fehr & Peers (2006) Transportation Study] for more details. At buildout with the Combined Projects, Southport would account for 58 percent of the City's dwelling units (compared to 47% for Cumulative No Project) and 18 percent of the City's jobs (compared to 22% for Cumulative No Project).

The City's travel demand model was used to forecast the effects of these changes in land use on traffic. Because of the limited roadway capacity across the Ship Channel and the Sacramento River, and the size and scale of the Combined Projects, four "major roadway alternatives" were developed:

- Three Bridges. This alternative includes only the existing crossings of the Ship Channel and barge canal (the Palamidessi Bridge and Jefferson Boulevard bridge), plus the planned South River Road Bridge. This alternative includes the planned widening of the Palamidessi Bridge.
- Three Bridges Plus Broadway Bridge. This alternative includes the same Ship Channel/barge canal crossings as in the Three Bridges alternative, but adds a new crossing of the Sacramento River as envisioned in the recently completed Riverfront Master Plan, as an extension of Broadway from the City of Sacramento west to South River Road in West Sacramento.
- Three Bridges Plus Enterprise Bridge. This alternative adds a new crossing of the Ship Channel, extending Enterprise Boulevard south and east to connect to Southport Parkway in Southport Business Park.
- Three Bridges Plus Both New Bridges. This alternative adds both the Broadway Bridge and Enterprise Bridge to the Three Bridges alternative.

Even with additional bridge crossings, additional transportation improvements will be needed; however, the extent and location of these additional improvements varies by major roadway alternative.

Table ES-3 [in the Fehr & Peers (2006) Transportation Study] provides a summary of the peak hour intersection analysis of the Combined Projects for all four major roadway alternatives. The key point of comparison is the number of "new LOS deficiencies" for the alternatives. This means that the traffic added by the Combined Projects caused an intersection, which would meet City standards for the Cumulative No Project scenario to fail, or not meet the City standards. New LOS deficiencies require additional transportation improvements, over-and-above those currently planned and funded.

The Three Bridges alternative generates new LOS deficiencies at nine locations, including several where additional improvements will be very difficult (e.g., Jefferson Boulevard/US 50 EB Ramps-WB Off Ramp, Jefferson Boulevard/Lake Washington Boulevard, Lake Washington Boulevard/Southport Parkway, Reed Avenue/I-80 EB Ramps).

The Three Bridges Plus Broadway Bridge generates new LOS deficiencies at six locations. Compared to the Three Bridges alternative, it avoids new deficiencies at two locations where improvements will be very difficult (e.g., Jefferson Boulevard/US 50 EB Ramps-WB Off Ramp, Reed Avenue/I-80 EB Ramps), and reduces the impact at Jefferson Boulevard/Lake Washington Boulevard. Additionally, by providing an alternate route to the Tower Bridge crossing of the Sacramento River, this alternative would relieve traffic on Tower Bridge Gateway.

The Three Bridges Plus Enterprise Bridge generates new LOS deficiencies at four locations. It avoids new deficiencies at two locations where improvements will be very difficult (Jefferson Boulevard/US 50 EB Ramps-WB Off Ramp, Reed Avenue/I-80 EB Ramps), and reduces the impact at Jefferson Boulevard/Lake Washington Boulevard. However, this alternative generates a new deficiency at the Enterprise/I-80 interchange, which will be very difficult to improve beyond current plans.

The Three Bridges Plus Both New Bridges alternative generates new LOS deficiencies at six locations. It avoids new deficiencies at two locations where improvements will be very difficult (Jefferson Boulevard/US 50 EB Ramps-WB Off Ramp, Reed Avenue/I-80 EB Ramps). Additionally, this alternative provides the most traffic relief to Tower Bridge Gateway, and adds the least new traffic to Jefferson Boulevard/Lake Washington Boulevard. However, this alternative generates a new deficiency at the Enterprise/I-80 interchange, which will be very difficult to improve beyond current plans.

Combined Projects Mitigation Options

Table ES-4 [in the Fehr & Peers (2006) Transportation Study] provides a summary of mitigation options for all alternatives.

For the Three Bridges alternative, mitigation options are as follows:

- With the Combined Projects as proposed, the Jefferson Boulevard/US 50 EB Ramps-WB Off Ramp intersection would not meet the City’s LOS standard, and no physical improvement beyond those currently planned is feasible; therefore, the only effective mitigation measure for this location is reduction of the size of the Combined Projects. The calculated reduction to eliminate the new LOS deficiency at this location was 70 percent--in other words, the Combined Projects incremental development, compared to the Framework, would need to be reduced by 70 percent in order to maintain the City LOS standard. Alternatively, the City could accept the LOS failure at this location, or modify the applicable LOS standard from “D” to “E”.
- The “Reduced Development” alternative includes +2,700 dwelling units over-and-above the Southport Framework, compared to +8,997 for the Combined Projects as proposed. A total of 6,297 dwelling units would need to be eliminated from the Combined Projects, in total.
- Mitigations required at other locations depend on whether the “Reduced Development” mitigation is implemented:
  - With “Reduced Development”, relatively modest intersections mitigations are required at two locations: Jefferson Boulevard/Lake Washington Boulevard, and Lake Washington Boulevard/Southport Parkway.
  - With full improvements would be required at seven other locations, including Jefferson Boulevard/Lake Washington Boulevard, Lake Washington Boulevard/Southport Parkway, Reed Avenue/I-80 EB Ramps, and others).

For the Three Bridges Plus Broadway Bridge alternative, mitigation options are as follows:

- Jefferson Boulevard/Lake Washington Boulevard would require an additional NB left turn lane (three total), plus operational improvements.

- Lake Washington Boulevard/Southport Parkway would also require an additional NB left turn lane (three total), plus operational improvements.
- Other improvements would be needed at four locations.

For the Three Bridges Plus Enterprise Bridge alternative, mitigation options are as follows:

- Enterprise/I-80 EB Ramps fail to meet City LOS standards due to limited capacity to travel NB on Enterprise to EB on US 50. Currently planned improvements allow for this movement only at the left turn lane, via a loop on-ramp. The NB right turn lane only allows for access to I-80 EB via a diagonal on-ramp, based on current plans. This diagonal on-ramp, plus the I-80/US 50 EB connector to I-80 EB, would need to be grade-separated to allow for access to US 50 EB via the diagonal on-ramp. This is a major improvement, which would require approval from Caltrans and FHWA.
- Jefferson Boulevard/Lake Washington Boulevard would require an additional NB left turn lane (three total), plus operational improvements.
- Other improvements would be needed at three locations.

For the Three Bridges Plus Both New Bridges alternative, mitigation options are as follows:

- The same Enterprise/I-80 EB Ramps improvement described above would be needed.
- At Jefferson Boulevard/Lake Washington Boulevard and Lake Washington/Southport Parkway, the same operational improvements needed for the Cumulative No Project scenario would suffice.
- Other improvements would be needed at three locations.

Utilities and Public Services

Impact CE-24: Cumulative Effect on Public Services and Utilities (Less than Cumulatively Considerable with Mitigation Incorporated)

Implementation of the proposed Project would result in an increase in the need for fire services, police services, emergency access/medical services, public utilities, stormwater drainage facilities, and recreational facilities to serve the new development. To offset these increased demands, the City requires payment of impact fees to provide funding for necessary public service facility improvements, including police and fire station expansion and equipment. Funding for additional staff would not be covered through the payment of these funds.

Buildout of the Southport Framework Plan has the potential to contribute to similar types of effects on these resources as identified for the proposed Project. These impacts would result from construction activities and development of additional residences and commercial buildings that would increase the demand for public services and utilities in the region. **Because project-specific mitigation measures would be implemented as part of subsequent development plans, the proposed Project's contribution to cumulative demands for these services is less than cumulatively considerable.**

Impact CE-25: Cumulative Impact on Educational Facilities (Less than Cumulatively Considerable)

As discussed in Chapter 2, *Project Description,* the Southport Framework Plan land use diagram shows a ±10.5 acre elementary school site within in the core of the Southeast Village. This site will be maintained as part of the River Park Project but will be rezoned to residential use (R-2). The project does not include construction of the school. An elementary school may still be developed on the site although it would not be zoned Public Quasi-Public (PQP). Should the Washington Unified School District determine that a different school site is preferable or that an elementary school is unnecessary within the project boundaries, the existing school site would be developed with R-2 residential uses. Although the EIR to be prepared for the Project is a *project EIR* for all land uses on the landward side of the levees along the Sacramento River (see CEQA Guidelines, §15161), the proposed elementary school site associated with the Project is analyzed herein at only a *programmatic* level (see CEQA Guidelines, §15168). Additional, site-specific CEQA analysis will be required when the school district finalizes future development plans for the site.

The project applicant will pay the required school impact fees through the building permit process as the project is constructed. These fees are intended to offset the impacts of the project's projected increase in school-age children. Construction of the school is expected to occur as development of the site occurs and as determined necessary by the Washington Unified School District. While the anticipated amount of developer fees that would be collected from buildout of the project may not be sufficient to provide adequate school facilities with the project area, as mandated by Government Code Section 65997, school impacts are considered to be mitigated below a level of significance by payment of school impact fees and exercise of any or all of the financing options set out in the section. **Because the proposed Project includes provisions for a school site and it would be required to take part in a program (building permit fees) designed to alleviate the impact, the proposed project's contribution is considered to be less than cumulatively considerable.**

Significant and Unavoidable Impacts

A significant and unavoidable impact is one that would cause a substantial adverse effect on the environment and for which no mitigation is available to reduce the impact to a less-than-significant level. The significant and unavoidable impacts of the proposed project are as follows:

- Impact AG-1: Convert Prime Farmland, as Designated by the Farmland Mapping and Monitoring Program, to Nonagricultural Use
- Impact AIR-1: Temporary Increase in Construction-Related Emissions of ROG, NO_X and PM10 during Grading and Construction Activities
- Impact AIR-3: Conflict with or Obstruct Implementation of Air Quality Attainment Plan
- Impact AIR-4: Generation of PM10, ROG and NO_X Emissions in Excess of Thresholds
- Impact NZ-2: Exposure of Existing Noise-Sensitive Land Uses to Increased Traffic Noise
- Impact TRF-1: Degradation of LOS at Harbor Boulevard/US 50 Westbound Ramps Intersection
- Impact TRF-3: Degradation of LOS at Jefferson Boulevard/Tower Bridge Gateway Westbound Off-Ramp/US 50 Westbound On-Ramp
- Impact TRF-4: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection
- Impact TRF-10: Degradation of LOS at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split during PM Peak Hour
- Impact TRF-11: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour
- Impact TRF-12: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour
- Impact TRF-13: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour
- Impact TRF-14: Degradation of LOS at Jefferson Boulevard/US 50 Westbound On-Ramp/Tower Bridge Gateway Westbound Off-Ramp Intersection during AM and PM Peak Hours
- Impact TRF-15: Degradation of LOS at Jefferson Boulevard/Park Boulevard/US 50 Ramps Intersection during AM Peak Hour
- Impact TRF-24: Degradation of LOS at at South River Road Off-Ramp Diverge at the Jefferson Boulevard/South River Road Split During AM and PM Peak Hours
- Impact TRF-25: Degradation of LOS on the Weaving Section of Eastbound US 50 Between South River Road and I-5 During AM and PM Peak Hour
- Impact TRF-26: Degradation of LOS on the Weaving Section of Westbound US 50 between I-5 and South River Road During AM and PM Peak Hour
- Impact TRF-27: Degradation of LOS on the Weaving Section of Westbound US 50 between Jefferson Boulevard/SR 275 and Harbor Boulevard During PM Peak Hour

- Impact CE-2: Cumulative Effect of Conversion of Agricultural Lands
- Impact CE-4: Generation of ROG and NO_X, CO, and PM10 Emissions in Excess of YSAQMD Thresholds
- Impact CE-9: Cumulative Water Quality Impacts from Discharges to Surface Water Where Water Bodies are 303(d) Listed
- Impact CE-11: Cumulative Impacts on Noise
- Impact CE-14: Cumulative Degradation of LOS at Jefferson Boulevard/Lake Washington Boulevard Intersection during AM and PM Peak Hours
- Impact CE-16: Cumulative Degradation of LOS at SR 275 Eastbound Off-Ramp Diverge to Jefferson Boulevard during AM and PM Peak Hours
- Impact CE-17: Cumulative Degradation of LOS at Westbound US 50 Off-Ramp Diverge to South River Road at the Jefferson Boulevard/South River Road Split during the AM and PM Peak Hours
- Impact CE-18: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from I-80 to Harbor Boulevard during the AM and PM Peak Hours
- Impact CE-19: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from Harbor Boulevard to Jefferson Boulevard during AM and PM Peak Hours
- Impact CE-20: Cumulative Degradation of LOS at Eastbound US 50 Weaving Section from South River Road to I-5 during the AM and PM Peak Hours
- Impact CE-21: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from I-5 to South River Road during the AM and PM Peak Hours
- Impact CE-22: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Jefferson Boulevard to Harbor Boulevard during the AM and PM Peak Hours
- Impact CE-23: Cumulative Degradation of LOS at Westbound US 50 Weaving Section from Harbor Boulevard to I-5 during the AM and PM Peak Hours

Significant and Irreversible Environmental Changes

State CEQA Guidelines Section 15126.2(c) provides the following direction for the discussion of irreversible changes:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents

> associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The proposed Project would result in an irreversible commitment of energy resources, primarily fossil fuels for construction equipment (e.g., fuel, oil, natural gas, and gasoline), and the consumption or destruction of other nonrenewable or slowly renewable resources (e.g., gravel, metals, and water). The proposed Project would result in the permanent conversion of agricultural lands to developed land uses, which would represent an irreversible commitment of land to another land use.

Development of the proposed Project would result in substantial landform alterations that would be irreversible. The agricultural uses at the project site would be permanently changed to a fully developed parcel. The proposed change in use is considered a long-term commitment of the site to that new use because once an area is altered and developed, it is unlikely that it would be later re-established as agricultural lands.

Construction of new buildings and roadways would involve substantial quantities of building materials and energy, some of which are nonrenewable. The addition of employees and customers in the area would increase the local demand for finite energy resources, such as electricity, petroleum, and natural gas. Consumption of such materials and energy is associated with any new development project, and these commitments are not unique or unusual to this Project or region. The proposed Project would also result in an increase in automobile and transit trips. These additional trips, plus construction activities from development of the site, would also require the use of fossil fuels and other nonrenewable resources.

Chapter 6
References Cited

Printed References

Allan, J. M. 2002a. *Evaluation of Navigation Hazards in the Sacramento River, Sacramento and Yolo Counties.* MS on file: North Central Information Center, California State University, Sacramento.

———. 2002b. *Report of Archival and Historic Literature Research on Select Obstructions to Navigation in the Sacramento River, Sacramento and Yolo Counties, California*. MS on file: North Central Information Center, California State University, Sacramento.

———. 2002c. *Site Record for P-57-000425 (Navigation Obstruction 8)*. MS on file at the North Central Information Center, California State University, Sacramento.

Andrews, W. F. 1972. *Soil Survey of Yolo County, California*. USDA Soil Conservation Service in cooperation with the University of California Agricultural Experiment Station. U.S. Government Printing Office. Washington, D.C.

Association of Bay Area Governments. 2001. *The real dirt on liquefaction: a guide to the liquefaction hazard in future earthquakes affecting the San Francisco Bay area*. Oakland, CA.

Bennyhoff, J. A. 1977. *Ethnogeography of the Plains Miwok.* Center for Archaeological Research at Davis Publication 5. University of California, Davis.

Benson, P. E. 1989. CALINE4---a dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA.

Borcalli & Associates, Inc. 2001. *Southport Drainage Master Plan.* Sacramento, CA. Prepared for City of West Sacramento, CA.

Bouey, P. D. and R. Herbert. 1990. *Intensive cultural resources survey and National Register evaluation: Sacramento Urban Area flood control project*. Prepared by Far Western Anthropological Research Group, Inc., Davis, CA. Prepared for the U.S. Army Corps of Engineers, Sacramento, California. Report on file, Northwest Information Center, Rohnert Park, California (Study S-12179).

California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* AprilCalifornia Air Resources Board. 2005. ARB Databases: Aerometric Data Analysis and Management System (ADAM). Last Revised: September 12, 2005. Available: http://www.arb.ca.gov/html/databases.htm. Accessed: January 11, 2006.

California Department of Conservation. 1999. *Yolo County, CA Important Farmland Map.* Available: http://www.ncgc.nrcs.usda.gov/products/cartographic/farmland/. Accessed: 28 June 2005.

———. 2004. *Yolo County Williamson Act Lands 2004.* Map printed 4 April 2005. Division of Land Resource Protection, Sacramento CA.

———. 2005. *FMMP Conversion Tables 2000-2004.* Last revised: 24 June 2005. Available: http://www.consrv.ca.gov/DLRP/fmmp/stats_reports/ county_conversion_tables.htm. Accessed: 28 June 2005.

California Department of Fish and Game. 1994. *Staff report regarding mitigation for impacts to Swainson's hawk (*Buteo swainsoni*) in the Central Valley of California.* November 1, 1994. Sacramento, CA.

———. 1995. *Staff report on burrowing owl mitigation.* September 25, 1995. Sacramento, CA: California Department of Fish and Game.

California Department of Transportation. 2003. *Officially Designated State Scenic Highways.* Available: <http://www.dot.ca.gov/hq/LandArch/scenic/schwy5.html>. Accessed: August 1, 2005.

California Department of Water Resources. 1995. *Legal Delta and Zones.* Available:< http://www.delta.ca.gov/atlas/zone.pdf>. Accessed: 27 June 2005.

———. 2003. *Bulletin 118—California's Groundwater Update*.

———. 2004. *Sacramento Valley Groundwater Basin, Yolo Subbasin*. Bulletin 118—California's Groundwater Update.

California Division of Mines and Geology. 1997. Guidelines for evaluating and mitigating seismic hazards in California. California Division of Mines and Geology Special Publication 117. Sacramento, CA.

California Energy Commission. 2004. *Integrated Energy Policy Report.* 2004 Update. 100-04-006CTF. Sacramento, CA.

California Geologic Survey. 2003. Seismic Shaking Hazards in California. Updated: July 15, 2005. Available: <http://www.consrv.ca.gov/CGS/rghm/pshamap/pshamain.html >. Accessed: July 15, 2005.

California Integrated Waste Management Board. 2005a. *Active Landfills Profile for Yolo County Central Landfill.* Last revised: 2005. Available: <http://www.ciwmb.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=57&FACID=57-AA-0001>. Accessed: 27 June 2005.

California Native Plant Society. 2002. *Inventory of rare and endangered plants of California.* 6th edition. Rare Plant Scientific Advisory Committee, David P. Tibor (convening editor). Sacramento, CA.

California Natural Diversity Database. 2005. Records search of the Sacramento West, Sacramento East, Davis, Gray's Bend, Taylor Monument, Rio Linda, Saxon, Clarksburg, and Florin 7.5-minute quadrangles. RareFind 2, Version 3.0.5 (May 2005 update). Sacramento, CA: California Department of Fish and Game. California Department of Fish and Game. Sacramento, CA.

Cao, T., W.A. Bryant, B. Rowshandel, D. Branum, and C. J. Wills. 2003. The Revised 2002 California Probabilistic Seismic Hazard Maps. Updated: July 15, 2005. Available: http://www.consrv.ca.gov/CGS/rghm/psha/fault_parameters/pdf/2002_CA_Hazard_Maps.pdf. Accessed: July 15, 2005.

City of West Sacramento. 1990. *General Plan Background Document*. Adopted May 3.

———. 1994. Updated 2005. *Water Master Plan*. West Sacramento, CA.

———. 1995. *West Sacramento Bicycle and Pedestrian Path Master Plan: 1991, 1995 Addendum, latest maps.* City of West Sacramento, CA.

———. 1998. *Southport Framework Plan*. Adopted: May 1995. Amended: August 5, 1998. West Sacramento, CA.

———. 2001. *Southport Architectural Handbook.*

———. 2002. *Standard Specifications.* West Sacramento, CA: Community Development Department, Engineering Division.

———. 2003. *Southport Sanitary Sewer Master Plan*. West Sacramento, CA.

———. 2004a. *Tree Preservation Ordinance, Municipal Code, Title 8, Health and Safety, Chapter 24, Tree Preservation*. Available: municipalcodes.lexisnexis.com/codes/wsacramento.

———. 2004b. *West Sacramento Municipal Code.* Last posted or revised: 2005. Available: http://municipalcodes.lexisnexis.com/codes/wsacramento/. Accessed: July 15, 2005.

———. 2005a. *Performance Standards*. Available: http://www.cityofwestsacramento.org/cityhall/departments/comdev/zoning/1732.pdf

———. 2005b. *City Departments.* Available: <www.ci.west-sacramento.ca.us/cityhall/departments/default.cfm>. Accessed: August 9, 2005.

———. 2005c. *Traffic Impact Analysis Guidelines.* Prepared by the Transportation Section, Engineering Division, Community Development Department.

———. 2005d. *West Sacramento Fire Department.* Available:<http://www.ci.west-sacramento.ca.us/cityhall/departments/fire/default.cfm>. Accessed: 23 June 2005.

———. 2005e. *West Sacramento Police Department.* Available:<http://www.ci.west-sacramento.ca.us/cityhall/departments/police/default.cfm>. Accessed: 23 June 2005.

———. 2005f. *West Sacramento Department of Finance, Recycling and Refuse*. Available: http://www.cityofwestsacramento.org/cityhall/departments/finance/recycling/curbside.cfm. Accessed June 23, 2005.

City of West Sacramento and PBR. 1998. Amended 2005. *Southport Design Guidelines*.

City of West Sacramento Department of Community Development. 1990a. *City of West Sacramento General Plan.* Amended, 2000. City of West Sacramento, CA.

———. 1990b. *City of West Sacramento General Plan Policy Document.* Amended, 2004. City of West Sacramento, CA.———. 1990c. *City of West Sacramento zoning map.* Amended 2003. West Sacramento, CA.

———. 2004. *West Sacramento Major Developments.* Last revised: August 2004. Available: www.ci.west-sacramento.ca.us/cityhall/departments/comdev/news/major_Projects_map.pdf. Accessed: August 2, 2005.

Citygate Associates, Inc. 2006. *Southport Fire Response, Second Draft Report*. Folsom, CA. Prepared for the City of West Sacramento. April 2006.

Corbett, M. R. 1993. *Historic Architectural Survey Report, Jefferson Boulevard, Marshall Road to Route 50, West Sacramento, California*. 03-YOL-84 P.M. 18.2-21.8. Final. Prepared by Dames & Moore, San Francisco. Submitted to City of West Sacramento Department of Public Works.

Coy, O. C., Ph.D. 1973. *California County Boundaries.* Valley Publishers, Fresno, California.

Davis, W. J. 1890. An Illustrated History of Sacramento County, California. Chicago: The Lewis Publishing Company.

Dietz, F. 1999. *Cultural Resources Assessment within Reclamation District 900, Yolo County, California (SAC10), Cultural Resources Inventory and Evaluation for the U.S. Army Corps of Engineers, Sacramento District PL 84-99.* MS on file: North Central Information Center, California State University, Sacramento.DKS Associates. 2005. *Draft super cumulative traffic study: analysis of six combined development projects in Southport Area.* Prepared for City of West Sacramento, CA. October.

ECORP Consulting Inc. 2004a. *Rare plant survey for River Park (Yolo County, California).* Prepared for Richland Planned Communities.

———. 2004b. *Wetland delineation for River Park (Yolo County, California*). Prepared for Richland Planned Communities.

———. 2005a. Letter to Mr. Bill Guthrie, Delta Office Chief, U.S. Army Corps of Engineers, RE: River Park Revised Wetland Delineation. June 17, 2005.

———. 2005b. *Special-Status Species Assessment for River Park, Yolo County, California*. Prepared for Richland Communities, Inc. June 15.

———. 2005c. *Valley Longhorn Beetle Habitat Survey for River Park, City of West Sacramento, Yolo County, California*. Prepared for Richland Planned Communities. June 15.

ENGEO Inc. 2002. *Phase One Environmental Site Assessment – Pacific Terrace LLC & Payne Properties.* File No. 5628.5.001.01, 5629.5.001.01. Roseville, CA. Prepared for Richland Communities, Inc. Roseville, CA

———. 2003. *Phase One Environmental Site Assessment – Kubo Property, APN Number 046-260-06-1.* Project 6050.5.001.01. Roseville, CA. Prepared for Baybrook Properties, Inc. Roseville, CA

———. 2004a. *Phase One Environmental Site Assessment – Palamidessi Property. APN Number 046-250-003-1.* Project 6175.5.001.01. Roseville, CA. Prepared for Baybrook Properties, Roseville, CA.

———. 2004b. *Phase One Environmental Site Assessment – Rahimian Property, 4310, 4320, and 4350 South River Road.* Project 6176.5.001.01. Roseville, CA. Prepared for Baybrook Properties, Roseville, CA.

———. 2004c. *Phase One Environmental Site Assessment – Freeman Property, Yolo County, CA.* Project 5735.5.002.01. Roseville, CA. Prepared for Baybrook Properties, Inc. Roseville, CA.

———. 2004d. *Phase One Environmental Site Assessment – Vendley Property, West Sacramento, CA.* Project 6463.5.001.01. Roseville, CA Prepared for Richland Planned Communities, Inc. Roseville, CA.

Federal Highway Administration. 1983. *Visual Impact Assessment for Highway Projects.* (Contract DOT-FH-11-9694.) Washington, DC.

Federal Transit Administration. 1995. *Transit Noise and Vibration Impact Assessment.* (DOT-T-95-16.) Office of Planning. Washington, DC. Prepared by Harris Miller Miller & Hanson, Inc., Burlington, MA.

Fehr & Peers Associates. 2003. *Traffic Report for the Cosumnes River.* Boulevard/I-5 Interchange Project. Sacramento, CA. July. Roseville, CA

———. 2005. *River Park Transportation Impact Study, Administrative Draft Report.* Sacramento, CA. December. Roseville, CA.

———. 2006. *Transportation Study-River Park Project.* Draft. April 3. Prepared for City of West Sacramento.

Flood Insurance Rate Map (FIRM). 2005. Accessed on May 10th, 2005. Yolo County. City of West Sacramento. Panel 10 of 10. http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=83906781&IFIT=1

Fredrickson, D. A. 1973. Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation. Department of Anthropology, University of California, Davis.

Garza et al. 1997. *Transportation Project-Level Carbon Monoxide Protocol.* Davis, CA: Institute of Transportation Studies, University of California, Davis.

Gudde, E. G. 1969. *California Place Names: The Origin and Etymology of Current Geographical Names*. Berkeley: University of California Press.

Hackel, O. 1966. Summary of the geology of the Great Valley. In: Bailey, E. G. (Ed.), Geology of Northern California. California Division of Mines and Geology Bulletin 190. San Francisco, CA, pp. 217-238.

Hart, E.W. and W.A. Bryant. 1997. Fault-Rupture Hazard Zones in California: Alquist-Priolo Earthquake Fault Zoning Act with index to Earthquake Fault Zone Maps. Special Publication 42. California Division of Mines and Geology. Sacramento, CA.

Hickman, J., ed. 1993. *The Jepson manual: higher plants of California*. University of California Press. Berkeley.

International Code Council. 1997. Uniform Building Code. Delmar Publishers, Albany, NY.

International Conference of Building Officials. 1997. Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada to Be Used with 1997 Uniform Building Code. Whittier, CA: International Conference of Building Officials.

Jackson, W. A. 1851. Map of the Mining District of California. Map on file at the Library of Congress, Washington D.C.

Jennings, C.W. 1994. Fault activity map of California and adjacent areas. California Geologic Data Map Series. California Division of Mines and Geology. Sacramento, CA.

Jensen, P. M. 2004. *Archaeological Inventory Survey: City of West Sacramento's Proposed Acquisition of the Sierra Railroad Right-of-Way, Eleven Mile Linear Corridor, City of West Sacramento and Unicorporated Lands of Yolo County, California*. February 10. Jensen & Associates, Chico, CA. Prepared for Analytical Environmental Services, Inc., Sacramento, CA.

Johnson, J. J. 1967. The archaeology of the Camanche Reservoir locality, California. *Sacramento Anthropological Society Paper* 6. Sacramento, California.

———. 1978. *Reconnaissance archaeological survey of 151 locations on the Sacramento River drainage from Elder Creek in the north to Rio Vista in the south.* On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA

———. n.d. Map indicating area of 1960 Sacramento State College Archaeological Survey on file at the North Central Information Center of the California Historical Resources Information System, California State University, Sacramento.

Jones & Stokes. 2004. *Biological Assessment for Valley Elderberry Longhorn Beetle, Giant Garter Snake, and Delta Smelt: Lower Northwest Interceptor Project*. March. Sacramento, CA.

———. 2005. *Section 106 Assessment for the City of West Sacramento Agreement to Acquire the Sierra Northern Railroad, "Clarksburg Branch" Right-of-Way*. September. (J&S 05493.05.) Sacramento, CA. Prepared for the City of West Sacramento, CA.

Jones, G. R., J. Jones, B. A. Gray, B. Parker, J. C. Coe, J. B. Burnham, and N. M. Geitner. 1975. A method for the quantification of aesthetic values for environmental decision making. *Nuclear Technology* 25 (4): 682–713.

Kroeber, A. L. 1925. *Handbook of the Indians of California*. Reprinted by Dover Publications, New York.

———. 1932. The Patwin and Their Neighbors. *University of California Publications in Archaeology and Ethnology* 29(4):253–423. University of California Press, Berkeley.

Kyle, D. E., M. B. Hoover, H. E. Rensch, E. G. Rensch, and W. N. Abeloe. 1990. *Historic Spots in California*. Stanford University Press, Stanford, California.

Larkey, J. L. and S. Walters. 1987. *Yolo County: Land of Changing Patterns, an Illustrated History*. Windsor Publications, Northridge, California.

Levy, R. 1978. Eastern Miwok. In *California*, edited by R. F. Heizer, pp. 398–413. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Moratto, M. J. 1984. *California Archaeology*. Academic Press, Orlando, Florida.

Nolte. 2004. *Draft Conceptual Storm Drainage Master Plan for River Park, West Sacramento, CA*. April 2004. Sacramento, CA. Prepared for Richland Communities, Roseville, CA.

Office of Historic Preservation. 2000. *Directory of properties in the historic property data file for Yolo County*. August 28, 2000. Data on file, Office of Historic Preservation, Sacramento.

Ord, E. O. C. 1843. Topographical Sketch of the Gold and Quicksilver District of California. Map on file at the Library of Congress, Washington, D.C.

Peak & Associates, Inc. 1981. Archaeological investigation of CA-Sac-370 and CA-Sac-379, the Rancho Murieta Early Man Sites in Eastern Sacramento County. Ann S. Peak and Associates, Sacramento, California.

———. 2001. *Fifteen SureWest Tower Sites in Sacramento, Placer, El Dorado, San Joaquin, Yolo, and Sutter Counties, California* (letter report). MS on file: North Central Information Center, California State University, Sacramento.

———. 2004. *Cultural Resources Assessment of the Proposed River Park Subdivision, West Sacramento, Yolo County, California*. Prepared for Richland Communities, Inc., Roseville, CA. Report on File at the Northwest Information Center, California State University, Sonoma, Rohnert Park.

———. 2005a. Letter report to Richland Communities, Inc. regarding, Additional Cultural Resources Studies, River Park Project (job # 04-010b). Addressed to Mr. Todd Chambers, Roseville, CA. Prepared by Melinda Peak, El Dorado Hills, CA.

———. 2005b. *Addendum To: Cultural Resources Assessment of the Proposed River Park Subdivision, West Sacramento, Yolo County, California.* Prepared for Richland Communities, Inc., Roseville, CA. Report on File at the Northwest Information Center, California State University, Sonoma, Rohnert Park.

Sacramento Area Council of Governments. 2001. *SACOG Regional Housing Needs Plan.* Final Draft: 20 Sept 2001. Available: <http://www.sacog.org/rhnp/rhnp.cfm>. Accessed: 30 June 2005.

———. 2004. *SACOG Projections Adopted 12-16-04 for Jurisdictions 2005-2025.* Last revised: December 16, 2004. Available: http://www.sacog.org/demographics/projections/index.cfm. Accessed: June 30, 2005.

Sacramento Business Journal. 2005. *West Sacramento Plans to Convert Old Rails to Trails*. March 11, 2005.

Sacramento County Department of Environmental Review and Assessment. 2002. *Draft Program Environmental Impact Report – Sacramento Regional County Sanitation District Interceptor System Master Plan 2000.* Draft. 99-PWE-0611. Sacramento, CA.

Sacramento Regional County Sanitation District. 2005. *Lower Northwest Interceptor*. Last revised: 2 May 2005. Available: <http://www.lowernorthwest.com/>. Accessed: 24 June 2005.

Sierra Nevada Arborists. 2004. *Richland Communities West Sacramento properties (City of West Sacramento, California) initial arborists' report and inventory summary*. Roseville, CA.

———. 2005. *Richland Communities, Inc., River Park project, City of West Sacramento, California, supplemental arborist report and inventory summary*. Loomis, CA.

SmithGroup JJR. 2003. *City of West Sacramento Parks Master Plan.* Madison, WI. Prepared for City of West Sacramento, CA.

State of California, Department of Finance. 2000. *City/County Population and Housing Estimates, 1991-2000, with 1990 Census Counts*. Available: http://www.dof.ca.gov/HTML/DEMOGRAP/E-5text.htm. Sacramento, California.

———. 2005a. *E-1 City / County Population Estimates, with Annual percent Change, January 1, 2004 and 2005.* Available: http://www.dof.ca.gov/HTML/DEMOGRAP/E-1text.htm. Sacramento, California, May 2005.

———. 2005b. *E-5 City / County Population and Housing Estimates, 2005, Revised 2001-2004, with 2000 DRU Benchmark.* Available: http://www.dof.ca.gov/HTML/DEMOGRAP/E-5text2.htm. Sacramento, California, May 2005.

Tokimatsu, K. and H. B. Seed. 1984. Simplified procedures for the evaluation of settlements in clean sands. Report No. UCB/BT-84/16. Earthquake Engineering Research Center. University of California, Berkeley, CA.

Transportation Research Board. 2000. *Highway Capacity Manual (HCM2000)*. Transportation Research Board, National Research Council. Washington D.C.

———. 1980. *Circular 212.* Transportation Research Board, National Research Council. Washington D. C.

Treganza, A. E., and R. F. Heizer. 1953. Additional data on the Farmington Complex: A Stone Implement Assemblage of Probably Early Post-Glacial Date from Central California. *University of California Archaeological Survey Report* 22:28–38.

U.S. Bureau of Land Management. 1980. *Visual resource management program* (Stock No. 024-001-00116-6.) Washington, DC: U.S. Government Printing Office.

U.S. Census Bureau. 2005a. *West Sacramento (city) QuickFacts from the US Census Bureau.* Last revised: 1 Feb 2005. Available: <http://quickfacts.census.gov/qfd/states/06/0684816.html>. Accessed: 29 June 2005.

———. 2005b. *Yolo County QuickFacts from the US Census Bureau.* Last revised: 1 Feb 2005. Available: <http://quickfacts.census.gov/qfd/states/06/06113.html>. Accessed: 29 June 2005.

U.S. Department of Transportation, Federal Highway Administration. 2003. *Manual on Uniform Traffic Control Devices*. Baton Rouge, LA: Claitor's Publishing Division.

U.S. Fish and Wildlife Service. 1999a. *Conservation guidelines for the valley elderberry longhorn beetle.* July 9, 1999. Sacramento, CA.

———. 2005. *Biological Opinion for the Proposed Lower Northwest Interceptor Project (Corps Regulatory No. 200100495) Sacramento and Yolo Counties, California.* Issued September 10, 2004. Reference No. 1-1-04-F-0029.

———. 2005. Species list obtained from website. Available at <http://www.sacramento.fws.gov/es/spp_list>.

U.S. Forest Service. 1974. *National forest landscape management*, vol. 2., *chapter 1: The visual management system*. (Agriculture Handbook Number 462). Washington, DC.

U.S. Soil Conservation Service. 1972. *Soil survey of Yolo County, California*. Prepared in cooperation with University of California Agricultural Experiment Station. U.S. Government Printing Office, Washington, D.C.Wagner, D. L., Jennings, C. W., Bedrossian, T. L., and E. J. Bortugno. 1987. Geologic map of the Sacramento Quadrangle. California Division of Mines and Geology. Sacramento, CA.

Wallace-Kuhl & Associates. 2004. Geotechnical Engineering Report, Southport Property. February 13, 2004.

———. 2005. Geotechnical Engineering Letter Report, Rodgers/Vendley Property. June 20, 2005.

Walters, S. 1987. *West Sacramento, the Roots of a New City*. Woodland, CA: Yolo County Historical Society.

Washington Unified School District. n.d. *Washington Unified School District.* Last revised: n.d.. Available:< http://www.wusd.k12.ca.us/>. Accessed: 23 June 2005.

West Yost and Associates. 2003. Treated Water Storage Analysis Technical Memorandum. October 24, 2003.

Wiant, W. 1976. *An archaeological Impact Study of the Proposed Wastewater Treatment Pipeline, Between West Sacramento and the Sacramento River Near Clarksburg.* MS on File: North Central Information Center, California State University, Sacramento.

Willdan Associates. 1994. *Southport Framework Plan Master Development Plan Final EIR*. October. SCH #91063032. Prepared for the City of West Sacramento.

Wilson, N. L. and A. H. Towne. 1978. Nisenan. In *California*, edited by R. F. Heizer, pp. 387–397. Handbook of North American Indians, vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Wyld, J. 1849. Map of the Gold Regions of California. Map on file at the Library of Congress, Washington, D.C.

Yolo-Solano Air Quality Management District. 2002. Air Quality Handbook: Guidelines for Determining Air Quality Thresholds of Significance and Mitigation Measures for Proposed Development Projects that Generate Emissions from Motor Vehicles. Davis, CA.

Personal Communications

Chambers, Todd. Senior Entitlement Manager, Richland Planned Communities. August 24, 2005—email communication with Monique Briard of Jones & Stokes. Notes of interview between Albert “Buck” Rodgers and Richland Planned Communities on August 10, 2005.

O’Brien, Dan. Air Quality Planner. Yolo-Solano AQMD. November 14, 2003—Telephone conversation with Shannon Hatcher regarding Construction Diesel HRA analysis.

Powderly, John. Planning intern. August 22, 2002—telephone conversation with Shannon Hatcher.

Rice, Brian. President. Sacramento Area Fire Fighters, Local 522. July 22, 2005—email.

Seyfried, Bob. August 11, 2005— personal communication.Tilley, David. Senior Planner. City of West Sacramento Community Development Department. 3 August 2005. Comments on Draft EIR Chapter via e-mail.

Chapter 7
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Appendix A

Notice of Preparation and Initial Study for the River Park General Plan Amendment & Rezoning Project

Notice of Preparation and Initial Study for the River Park General Plan Amendment & Rezoning Project

Prepared for:

City of West Sacramento
Community Development Department
1110 West Capitol Avenue, Second Floor
West Sacramento, CA 95691
Contact: David Tilley, Senior Planner
916/617-4645

Prepared by:

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June 2005

Jones & Stokes. 2005. *Notice of preparation and initial study for the River Park General Plan Amendment & Rezoning Project.* June. (J&S 05304.04) Sacramento, CA. Prepared for City of West Sacramento Community Development, West Sacramento, CA.

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Acronyms and Abbreviations

C-1	Neighborhood Commercial
CBSC	California Building Standards Code
CEQA	California Environmental Quality Act
City	City of West Sacramento
Corps	U.S. Army Corps of Engineers
CP	Community Park
DFG	California Department of Fish and Game
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
ES	Elementary School
General Plan	City of West Sacramento General Plan
HR	High Density Residential
IS	initial study
LR	Low Density Residential
MR	Medium Density Residential
NC	Neighborhood Commercial
NOX	oxides of nitrogen
NP	Neighborhood Park
NPDES	National Pollutant Discharge Elimination System
OS	Open Space
POS	Public Open Space
PQP	Public-Quasi Public
R-1B	Residential-One Family
R-2	Residential - One Family or Multi Family
R-3	Multiple-Family Residential
RE	Rural Estate
ROG	reactive organic gases
RP	Recreation-Parks
RR	Rural Residential
RRA	Rural Residential
RWQCB	Regional Water Quality Control Board
SWPPP	Storm Water Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service

Notice of Preparation

To: State Clearinghouse, Responsible Agencies, Trustee Agencies, Interested Parties
(Agency)
See Distribution List
(Address)

From: City of West Sacramento Community Development Department
(Agency)
1110 West Capitol Avenue, Second Floor
(Address)
West Sacramento, CA 95691

Subject: Notice of Preparation of a Draft Environmental Impact Report

The City of West Sacramento Community Development Department will be the lead agency and will prepare an environmental impact report (EIR) for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval of the project.

The project description, location, and the potential environmental effects are contained in the attached materials. Due to the time limits mandated by state law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice (i.e., no later than July 5, 2005).

Please send your response to David Tilley, Senior Planner, at the address shown above. Please provide a name for a contact person in your agency.

Project Title: River Park General Plan Amendment and Rezoning

Project Applicant, if any:
Richland Planned Communities, Inc.
2220 Douglas Blvd, Suite 290
Roseville, CA 95661

Public/Agency Scoping Meeting: The City will hold a scoping meeting for key agencies at 3:00 p.m. on June 21, 2005 and a public scoping meeting at 6:30 p.m. on June 21, 2005, to solicit comments/concerns on the scope of the EIR. The scoping meetings will be held in the Galleria at the West Sacramento City Hall, located at 1110 West Capitol Avenue in West Sacramento.

Date: June 3, 2005

Signature:

Title: Senior Planner

Telephone: 916/617-4645

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Chapter 1
Introduction

Purpose and Organization of the NOP

The City of West Sacramento (City) will prepare a program/project environmental impact report (EIR) that addresses the potential impacts of the River Park Project (proposed project) in the Southport area of West Sacramento. The project involves the creation of a residential “village” on 495.6 acres in the Southport area’s Southeast Village. The “project” elements of the project include a proposed general plan amendment and rezoning for development of the River Park project and all land uses on the landward side of the levees along the Sacramento River (see CEQA Guidelines, § 15161). The “program” element of the project (see CEQA Guidelines, § 15168) consists of the water-related land uses associated with the project.

Additional, site-specific CEQA analysis will be required when the applicant submits specific water-related proposals in the future.

This notice of preparation (NOP) has been prepared pursuant to the California Environmental Quality Act (CEQA) (14 California Code of Regulations) and State CEQA Guidelines Sections 15082(a), 15103, and 15375 to inform agencies and the public that the program/project EIR is being prepared, and to invite comments and input on the scope and content of the EIR.

Section 1 of this NOP presents general background information on the EIR, the anticipated use of the EIR, and the scoping process. Section 2 describes the proposed project. Section 3 summarizes the environmental issues and potential environmental impacts to be addressed in the EIR.

The City of West Sacramento (the City), as lead agency under CEQA, must evaluate the potential environmental impacts of the project when considering whether to approve the project. If the City finds substantial evidence that any aspect of the proposed project, either individually or cumulatively, may have a significant impact on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the City is required to prepare an environmental impact report (EIR), supplement a previously prepared EIR, or prepare a subsequent EIR to a previously prepared EIR to analyze the proposed project.

In reviewing the preliminary information provided for the proposed project, the City has analyzed the potential environmental impacts of the proposed project in this initial study and has determined that preparation of an EIR is required to comply with CEQA.

Purpose of the EIR

The State CEQA Guidelines encourage agencies to use a program EIR in certain circumstances involving the implementation of a series of related projects. A program EIR serves as the first-tier analysis for subsequent, more-detailed project-specific environmental review. In this instance, the EIR will be prepared to serve a dual purpose; it will function as a program EIR for consideration of the future water-related uses, such as a marina, associated with the project, and as a project EIR for consideration of the River Park applications and development. The EIR will be used by the City in conjunction with its review and consideration of the River Park development.

Scope of the EIR

As stated, the EIR will concentrate on the short- and long-term cumulative impacts of the River Park project elements on the landward side of the levee, and will contain sufficient detail and analysis to provide program-level CEQA compliance for the future water-related uses. The following topics will be addressed in the EIR:

- aesthetics and visual resources;
- air quality;
- biological resources and wetlands;
- cultural resources;
- farmland/agricultural resources;
- geology and soils;
- hazards and hazardous materials;
- hydrology, water quality, and water supply;
- land use and planning;
- noise;
- population and housing;
- public services and utilities;
- recreation; and
- transportation/traffic.

Potential cumulative impacts associated with these issues will also be addressed. Subsequent environmental documentation that may be necessary to support development of the water-related uses may incorporate the EIR by reference, as appropriate, to address secondary effects, cumulative impacts, broad alternatives, and other factors. Subsequent environmental analysis may focus on site-specific issues that were not previously considered in the EIR.

Public Involvement for the EIR

The City will ensure that adequate public review and input will be available for the EIR. Public input will be solicited at the following points in the process:

- **Scoping comment period:** The City will hold a meeting for key agencies at 3:00 p.m. on June 21, 2005 and a public scoping meeting at 6:30 p.m. on June 21, 2005, to solicit comments/concerns on the scope of the EIR. The scoping meetings will be held in the Galleria at the West Sacramento City Hall, located at 1110 West Capitol Avenue in West Sacramento.
- **Draft EIR comment period:** The public will be notified of the opportunity to submit written comments on the Draft EIR during the Draft EIR public review period.
- **Final EIR comment period:** The City will hold a public hearing before certifying the final EIR, during which the public and agencies can provide additional comments.

In addition to holding meetings, the City will provide regular updates on its web site about the process and provide newspaper notices for the meetings and public review periods.

Impact Terminology

The following terminology is used in this document to describe the levels of significance of potential impacts that could result from the proposed project.

- The proposed project is considered to have *no impact* if the analysis concludes that the proposed project would not affect a particular resource. Additional analysis will not be included in the EIR.
- An impact is considered *less than significant* if the analysis concludes that the proposed project would cause no substantial adverse change to the environment and that impacts would not require mitigation. Additional analysis of these impacts will not be included in the EIR.
- An impact is considered *potentially significant* if the analysis concludes that the proposed project could potentially cause a substantial adverse change to the environment. Potentially significant impacts will be analyzed in the EIR

and mitigation measures will be identified, where potentially feasible, to reduce the significance of these impacts.

Organization of this Document

The content and format of this document, described below, are designed to meet the requirements of CEQA.

- Chapter 1, “Introduction,” identifies the purpose, scope, terminology, and organization of this document.
- Chapter 2, “Project Description,” identifies the project location, existing setting information, project purpose and objective, project characteristics, and required permits and approvals.
- Chapter 3, “Environmental Checklist,” presents the checklist and the information that supports the responses for each resource topic.

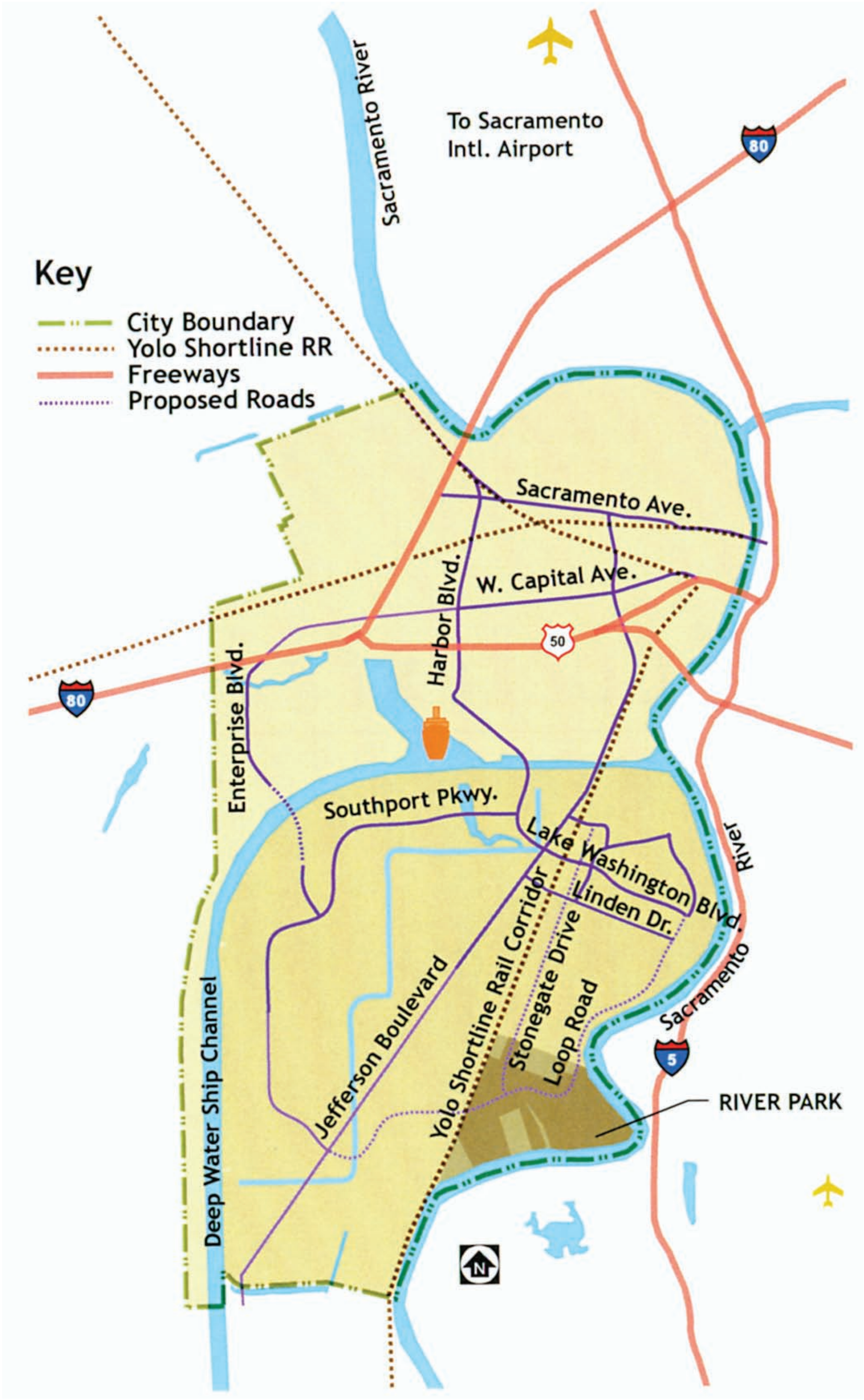
Chapter 2
Project Description

Project Background

The City of West Sacramento (City) is considering a proposed general plan amendment and rezoning for the River Park Project (proposed project) in the Southport area of West Sacramento. The project involves the creation of a residential “village” on 495.6 acres in the Southport area’s Southeast Village (Figures 2-1 and 2-2).

The Southport area is the focus of the *Southport Framework Plan* (Framework Plan) (City of West Sacramento 1998), a community plan that refines the *City of West Sacramento General Plan* (General Plan) (City of West Sacramento 2004) policies and land use designations for the Southport area. The existing Framework Plan provides for approximately 16,109 residential units, 1.72 million square feet of commercial uses, 2.11 million square feet of office/business park uses, 7.66 million square feet of industrial uses, 544 acres of public/quasi-public uses, and 915 acres of parks and open space.

The Framework Plan divides the Southport areas into four “villages.” The plan’s intent is that each village will be a distinct, pedestrian-oriented part of the city, with its own character and activity centers. The project site is located within, and comprises a majority of, the Southeast Village. The Southeast Village was originally envisioned as a small “village core” surrounded by low-density residential uses, with medium- and high-density residential land uses concentrated around the village core that included a small neighborhood commercial site. A total of 22 Rural Estate (RE), 52 Rural Residential (RR), 1,215 Low Density Residential (LR), 193 Medium Density Residential (MR), and 414 High Density Residential (HR) units, for a total of 1,896 residential units were anticipated for buildout of the 648.6 acre Southeast Village under the Framework Plan. A regional park was proposed to be located at the eastern edge of the village, with an adjacent water-related commercial site. Additional neighborhood parks and an elementary school site were included as part of the “village core.”



Source: EDAW 2004

Figure 2-1
Regional Map

Source: EDAW 2004

05304.05-002

Jones & Stokes

Figure 2-2
Southeast Village Aerial

Project Location

The 495.6-acre project site is located in the Southport area of West Sacramento. The site is generally bound to the east and south by the Sacramento River and South River Road, to the north by Davis Road and existing residences, and to the west by the former Yolo Shortline Railroad corridor. The site is currently being used for agricultural production and grazing. Existing structures on the site include single-family residences and agriculture-related buildings.

The Sacramento River forms a natural buffer between the project site and the Greenhaven and Pocket area neighborhoods in the City of Sacramento to the east. To the west and south, land uses generally include agricultural land and single-family residences. Lands north of the site are currently undergoing urbanization as part of the Northeast Village of the Framework Plan.

Project Description

The project would modify the planned development of the Southeast Village. The area is currently planned for residential development ranging from low to high densities, neighborhood commercial, water-related commercial, elementary school, open space, and parkland uses. The project would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential, low-, medium-, and high-density offerings), a 44-acre regional park, and community open-space areas (Figure 2-3).

The project would represent an increase of approximately 1,100 residential units compared to what was considered by the Framework Plan EIR (Tables 2-1 and 2-2). The project also includes changes to the General Plan and the Zoning Map (West Sacramento Municipal Code, Title 17) to generally increase residential densities and add recreational opportunities. The existing and proposed zoning designations are shown in Tables 2-1 and 2-2.

River Park Prototypical Housing Product Selection		
General Plan Designation	Residential Product Type	Average Units/Acre
Rural Residential (RR)	Single-Family Detached - Large	1
Low Density Residential (LR)	Single-Family Detached - Medium	5
Medium Density Residential (MR)	Single-Family Detached - Small Lot Single-Family Detached - Alley-loaded Single-Family Detached - Conventional Cluster Single-Family Attached - Duet Single-Family Attached - Green Court Townhomes Single-Family Attached - Tuck-Under Townhomes	10
High Density Residential (HR)	Multi-Family Attached - Tandem Townhomes Multi-Family Attached - Green Court Condominiums Multi-Family Attached - Motorcourt Condominiums	22

Source: EDAW 2004

Figure 2-3
River Park Key Map

Table 2-1. Acreage by Zoning Designation under Existing Southport Framework Plan

Existing Zoning	Gross Acres
RRA	10.4
RE	39.9
R1-B	270.9
R-2	32.0
R-3	20.0
C-1	6.3
CW	0.1
RP	86.6
PQP	9.6
POS	16.4
Roadway	3.4
Total	**495.6**

Table 2-2. Acreage by Zoning Designation under Southport Framework Plan as Modified by Proposed Project

Proposed Zoning	Gross Acres
RRA	25.7
R1-B	145.6
R-2	135.2
R-3	31.0
C-1	5.0
Parkway	29.7
CW	2.4
RP	49.5
PQP	9.6
POS	22.0
Roadway	39.9
Total	**495.6**

Project Purpose and Objectives

The purpose and objectives of the project include the following:

- preserve the site's unique natural resources,
- create a community that captures the most current practice in environmental stewardship and physically connects the project site with city and regional recreational opportunities, and
- provide a range of housing choices for current and future generations of West Sacramento residents.

Applicant's Objectives

The overall objective of the proposed project is the orderly and systematic development of an integrated, mixed-use community in the Southport Framework Plan's Southeast Village that is compatible with site characteristics and generally consistent with goals and policies of the City's General Plan and Southport Framework Plan.

In support of this overall objective, the proposed project is designed to achieve the following more specific objectives:

Objective #1: Establish a mixed-use community that implements the general intent of the City General Plan and Southport Framework Plan that the Southeast Village be developed with urban land uses that complement existing development in the City.

1. Establish a comprehensive land use plan that will guide development of the Southeast Village area in a way that is compatible with and complements existing and planned land uses in other portions of Southport and the City.
2. Update the City's long term vision for the Southeast Village as a mixed-use community, as set forth in the City's General Plan (as amended), by incorporating refinements designed to reflect evolving innovation in land use planning concepts such as those envisioned in the SACOG Blueprint project.
3. Provide a balanced mix of land uses, including residential neighborhoods; service related commercial/retail and other non-residential, employment generating land uses; and public/quasi public land uses such as schools, parks and civic oriented facilities.
4. Provide roadway improvements and other needed infrastructure that benefits existing and future residents that will tie the proposed project together with existing development in other Southport villages.

Objective #2: Provide a variety of housing types that will serve residents of varying household incomes.

1. Create opportunities for a variety and range of housing types and densities that are designed to provide more efficient land use, more attainable housing without reducing quality or amenities, more efficient use of public infrastructure, and more environmentally sensitive development patterns.
2. Contribute to the efforts to provide for the growing housing needs of the City and the region by encouraging the production of a broad mix of housing types and densities.

Objective #3: Create integrated neighborhoods that link with the commercial/retail and public/quasi-public uses.

1. Create a distinctive focal point for the plan area and a social centerpiece for the surrounding neighborhoods by anchoring the plan with a pedestrian oriented, centrally located village center that will include neighborhood serving retail, an elementary school, and an open space greenway that provides connectivity with surrounding neighborhoods.
2. Incorporate a mix of neighborhoods organized around interior parks and the open space greenway.
3. Provide retail services, entertainment and recreation uses such that those who live and work within the plan area will not have to travel elsewhere for most routine or daily needs and residents who live outside the plan area will be able to address more of their needs without traveling outside the Southport community.

Objective #4: Provide economic and planning benefits for the City as a whole through residential and commercial/retail development, availability of civic and public/quasi-public space, and increased tax revenues.

1. Establish a commercial/retail village center that provides neighborhood services and dining opportunities for the local community.
2. Generate positive fiscal benefits for the City where the municipal revenues generated by the project are greater than the costs of providing municipal services to the project.
3. Create a village that integrates neighborhoods, an open space greenway corridor, retail uses and public recreation facilities that support increased land values associated with sustainable development for both the existing and future residents.

Objective #5: Provide opportunities for improved integration of transportation modes and increased transportation efficiency.

1. Encourage non-vehicular travel by linking village neighborhoods to the open space greenway, village center, parks, and school as well as to each other through an interconnected system of pedestrian and bicycle pathways.

2. Establish higher density residential land uses in proximity to public transit to minimize vehicular trip lengths, automobile usage and provide related air quality benefits.
3. Provide an integrated, efficient, and safe circulation system for pedestrians, bicyclists, transit and vehicles.

Objective #6: Provide recreational benefits to the Southeast Village area and City residents through a comprehensive public parks program (including, in particular, the riverside parklands) and the marina use.

1. Maximize active and passive recreational opportunities through the creation of a comprehensive public parks program that includes a linear open space greenway system bisecting the village and connecting the Sacramento River, marina and large community park with the future Southport-wide trail system proposed by the City to be located along the former Yolo Shortline railroad.
2. Enrich the relationship between the City and the Sacramento River by incorporating the river's edge as a component of the plan area parks program and water related commercial uses (i.e. marina).

Project Characteristics

The proposed project maintains the village core near the center of the site, as envisioned by the Framework Plan, but aligns it with a proposed parkway and regional trail system. The elementary school, most neighborhood park sites, the regional park, and water-related commercial areas would be maintained in their respective locations as identified in the Framework Plan.

The project involves the creation of a residential village and would include an increase in the proportion of medium- and high-density residential uses at the site, concentrating these uses toward the center of the site. The project includes the development of a residential component, elementary school, open space framework, commercial center, water-related commercial area, circulation plan, and infrastructure plan.

Residential Component

The residential component includes the development of 2,788 residences in a range of sizes and types, as described below:

- 26 rural residential units (1 dwelling unit per acre),
- 728 low-density units (5 units per acre),
- 1,352 medium-density units (10 units per acre), and
- 682 high-density units (22 units per acre).

Elementary School

The Southport Framework Plan land use diagram shows a ±10 acre elementary school site within in the core of the Southeast Village. This site will be maintained as part of the River Park project but will be rezoned to residential use (R-2). An elementary school may still be developed on the site although it would not be zoned Public Quasi-Public (PQP). Should the Washington Unified School District determine that a different school site is preferable or that an elementary school is unnecessary within the project boundaries, the existing school site would be developed with R-2 residential uses.

Open Space Plan

The open space plan includes development of approximately 101.2 acres of parks and open space: 49.5 acres of parklands (including development of a regional park and three neighborhood parks), 22.0 acres of open space along the Sacramento River, and a 29.7-acre parkway feature (Figure 2-4). The primary feature of the open space plan is the use of an existing agricultural irrigation ditch at the site, which would be expanded and redesigned as an open water/emergent marsh habitat amenity. This wetland feature would serve as the centerpiece of the planned parkway. Native and naturalized plantings along the parkway would be encouraged. In addition, the enhanced parkway would be used to continue to convey irrigation flows, collect storm and surface water drainage from River Park and would act as a detention basin for storm water runoff. The parkway would extend from the former Yolo Shortline Railroad corridor at the western boundary of the site easterly to the regional park proposed at the project's southeastern boundary. The parkway would provide bicycle, equestrian and pedestrian opportunities and facilities.

Within this interconnected park system, four distinct sections have been defined: (east to west) a regional park, urban park, oak preserve park, and residential park. The regional park would be located in the southeastern portion of the site at the bend in the Sacramento River. Amenities at the regional park may include a small community center, an outdoor amphitheater, multi-use sports fields, lighted basketball and tennis courts, lighted baseball diamonds, a community playground, restroom facilities, and parking areas. The urban park would be constructed along the proposed water feature and would connect the regional park and oak preserve park. The oak preserve park would include preservation of an existing oak woodland area at the site and the development of a picnic area, pedestrian and bicycle paths, and nature trails. The residential park would connect the oak preserve park and the former Yolo Shortline Railroad corridor that will be developed by the City as a "rails-to-trails" open space system along the western boundary of the project site. The western end of the residential park would include construction of a detention basin/water feature with year-round open water.

Source: EDAW 2004

05304.05-002

Jones & Stokes

Figure 2-4
Open Space Framework

Commercial Center

The commercial center would include development of a 5-acre area supporting approximately 45,000–65,000 square feet of commercial and retail uses. The potential mix of commercial and retail uses may include small restaurants, such as a café and coffee shop, and other local serving commercial land uses such as a hair salon, dry cleaner, professional offices, a branch bank, and a daycare center. The commercial center would also be linked to public transportation by providing a centrally located retail/service center that can be reached by various means of transportation, including the planned development of a mass-transit stop adjacent to the commercial center and the creation of a park-and-ride area near the transit stop. The commercial center has been designed to also include a public plaza that fronts onto the oak preserve park.

Water-Related Commercial Area

The project includes the ultimate development of 2.4 acres of water-related commercial uses along the Sacramento River, which may include a marina, a restaurant, a boating equipment shop, and parking areas. Pedestrians and bicyclists would be able to access the area via a trail from the regional park. Although the EIR to be prepared for the project is a “project EIR” for all land uses on the landward side of the levees along the Sacramento River (see CEQA Guidelines, § 15161), the water-related land uses associated with the project are analyzed herein at only a “programmatic” level (see CEQA Guidelines, § 15168). Additional, site-specific CEQA analysis will be required when the applicant submits specific water-related proposals in the future.

Circulation Plan

The site would be accessed through a combination of improving or extending existing roadways and the construction of new roadways. Access along the southern and eastern boundaries of the site would be through new roadway connections onto South River Road. Access from the north (Northeast Village) would be from two locations including the extension of Village Parkway from Linden Road across Davis Road and the extension of Stonegate Drive southerly from Linden Road across Davis Road to Village Parkway. The offsite portion of these roadways from the north would be improved in collaboration with the City and adjacent development. Access from the west (Southwest Village) would be from an extension of Village Parkway from or near the existing terminus of Bevan Road and extending easterly to the village center and eventually connecting to Davis Road west of the intersection with South River Road. An alternative alignment for Village Parkway would commence from an offsite realignment west of the project boundary, intersecting the westerly project boundary approximately 700 feet south of Bevan Road. The offsite portion of this alignment would be coordinated with proposed developments in the Southwest Village. A series of residential collectors and local roads would provide access within River Park. The project would include an amendment to the circulation diagram of the Southport Framework plan to implement the above changes.

Infrastructure Plan

The infrastructure plan would consist of three plans: a drainage concept plan, water concept plan, and sanitary sewer concept plan. The drainage concept plan is based on the use of the parkway for stormwater conveyance, detention and stormwater quality management. Stormwater discharge and surface runoff would be channeled toward the parkway, where it would be collected and re-used in the water feature. The water channels and open water areas of the parkway would be designed to serve as detention basins and stormwater quality management facilities.

The water concept plan would be designed in accordance with the City's *Water Master Plan* (City of West Sacramento updated 2005), the City's *Standard Specifications* (City of West Sacramento 2002), and the technical memorandum on treated water storage analysis (West Yost and Associates 2003), unless superseded by the 2005 Water Master Plan update. The River Park water system would connect to the City's existing system at two points: the Marshall Road/Jefferson Boulevard and Southport Parkway/Jefferson Boulevard intersections. Water would also be provided through a proposed extension of the Bridgeway Lakes project, with multiple extensions along Jefferson Boulevard to Bevan Road and Davis Road. Water main extensions from the north along Village Parkway would also provide additional connections. A proposed three million gallon water storage tank would be situated in the northeasterly corner of the regional park, serving the Southeast Village and lands to the north.

The sanitary sewer concept plan would be designed in accordance with the *Southport Sanitary Sewer Master Plan* (City of West Sacramento 2003), which is based on an agreement between the City and the Sacramento Regional County Sanitation District to connect to the Lower Northwest Interceptor, which would then convey wastewater south to the Sacramento Regional Wastewater Treatment Plant. The Lower Northwest Interceptor sewer line will be constructed across the westerly portions of the River Park project as a separate project, which will include the construction of a manhole on the River Park project specifically designed as a connection point for a local sewer system.

Required Approvals and Permits

This initial study will be used by the City of West Sacramento to determine whether there is substantial evidence that the project may create significant environmental impacts, to document the potential impacts, and to determine whether the impacts could be mitigated to less-than-significant levels. The City is the lead agency for the proposed project. This initial study may also be used by regulatory and responsible agencies such as state and federal agencies. Such agencies are responsible for issuing permits and approvals that may be needed to proceed with the proposed project or that regulate the implementation of best management practices. Potential permits and approvals required by the City are identified below:

- approval by the City of West Sacramento City Council of a general plan amendment to generally increase residential densities and add recreational opportunities;
- approval by the City Council of amendments to the Framework Plan land use designations to increase residential densities, and to provide more recreational opportunities
- approval by the City Council of rezoning the site consistent with the proposed General Plan and Framework Plan changes discussed above;
- approval by the City Council of a Planned Unit Development
- approval by the Planning Commission of a subdivision map dividing the property into residential, commercial, open space, recreational, and other large lots;
- approval by the City Council of a development agreement between the applicant and the City and
- approval of building and grading permits and final maps.

Other project approvals would include:

- a Section 404 permit from the U.S. Army Corps of Engineers (Corps);
- a Section 401 certification from the Regional Water Quality Control Board (RWQCB);
- a construction activity stormwater permit from the RWQCB;
- a Section 1602 Streambed Alteration Agreement from the California Department of Fish and Game (DFG);
- a Biological Opinion from the U.S. Fish and Wildlife Service (USFWS) for project impacts on special-status species;
- a National Pollutant Discharge Elimination System (NPDES) permit from the RWQCB;
- Department of Toxic Substances Control (DTSC) clearance; and
- California Department of Education approval of site acquisition and construction plans for proposed school facilities
- Washington Unified School District review and approval of site acquisition and construction plans for proposed school facilities.
- a permit from the Reclamation District 900, Bureau Of Reclamation/State Water Resources Department for any levee work

Other approvals for the proposed project may be required as the proposed project is implemented; the EIR to be prepared for this project will serve as the environmental review document for other approvals that may be necessary or desirable for project implementation.

References Cited

City of West Sacramento. 1994. Water Master Plan. West Sacramento, CA.

———. 1998. Southport Framework Plan. Adopted: May 1995. Amended: August 5, 1998. West Sacramento, CA.

———. 2002. Standard Specifications. West Sacramento, CA: Community Development Department, Engineering Division.

———. 2003. Southport Sanitary Sewer Master Plan. West Sacramento, CA.

———. 2004. City of West Sacramento General Plan. Adopted: May 3, 1990. Last Amended: December 8, 2004. West Sacramento, CA.

West Yost and Associates. 2003. Treated Water Storage Analysis Technical Memorandum. October 24, 2003.

Chapter 3

Environmental Checklist

1. **Project Title:** River Park General Plan Amendment & Rezoning

2. **Lead Agency Name and Address:**
City of West Sacramento
Community Development Department
1110 West Capitol Avenue, Second Floor
West Sacramento, CA 95691

3. **Contact Person and Phone Number:**
David Tilley, Senior Planner
916/617-4645
david.tilley@ci.west-sacramento.ca.us

4. **Project Location:** The 495.6-acre proposed project site is located in the Southport section of the City of West Sacramento. The eastern and southern boundaries of the project site are generally defined by the Sacramento River and South River Road, and the site is bounded to the north by Davis Road and existing residences, and to the west by the former Yolo Shortline Rail Corridor.

5. **Project Sponsor's Name and Address:**
Richland Planned Communities, Inc.
2220 Douglas Blvd, Suite 290
Roseville, CA 95661

6. **General Plan Designation:** Low Density Residential (LR), Rural Residential (RR), Rural Estates (RE), Medium Density Residential (MR), High Density Residential (HR), Neighborhood Commercial (NC), Community Park (CP), Open Space (OS), Elementary School (ES), Neighborhood Park (NP)., Water Related Commercial (WRC).

7. **Current Zoning Ordinance Designations:** Residential-One Family (R-1B), Rural Residential (RRA), Rural Estates (RE), Residential - One Family or Multi Family (R-2), Multiple-Family Residential (R-3), Neighborhood Commercial (C-1), Recreation-Parks (RP), Public-Quasi Public (PQP), and Public Open Space (POS), Water Related Commercial (WRC).

8. **Description of Project:** See Chapter 2 Project Description.

9. **Surrounding Land Uses and Setting:** See Chapter 2 Project Description

10. **Other Public Agencies whose Approval Is Required:** See Chapter 2 Project Description

Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☒ Aesthetics
☒ Biological Resources
☒ Hazards and Hazardous Materials
☐ Mineral Resources
☒ Public Services
☒ Utilities/Service Systems
☒ Agricultural Resources
☒ Cultural Resources
☒ Hydrology/Water Quality
☒ Noise
☒ Recreation
☒ Mandatory Findings of Significance
☒ Air Quality
☒ Geology/Soils
☒ Land Use/Planning
☒ Population/Housing
☒ Transportation/Traffic

Determination:
On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature

6-3-05
Date

Printed Name: David W. Tilley

For: City of West Sacramento

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	■	☐	☐	☐
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	■	☐	☐	☐
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	■	☐	☐	☐
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	■	☐	☐	☐

Impact Discussion

a.-c. There are no designated scenic highways in Yolo County and no scenic highways exist within the vicinity of the project in nearby Sacramento County. Therefore, the proposed project would not impact scenic resources within a state scenic highway because no resources of these types exist in the project vicinity. However, the proposed project has the potential to significantly permanently affect the existing visual character or quality of certain portions of the study area because some alternatives permanently alter existing viewsheds, including removal of mature trees. Potentially significant short-term effects could also occur (e.g., as a result of temporary construction staging areas). This impact is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

d. The proposed project would create new sources of nighttime lighting and daytime glare. Therefore, while the project would contribute light to the area, the increase would not be considered substantial or highly noticeable. Even so, this impact is conservatively considered to be potentially significant, and therefore this issue will be addressed further in the draft EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II.	**AGRICULTURAL RESOURCES.** In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	■	☐	☐	☐
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	■
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use?	■	☐	☐	☐

Impact Discussion

a. According to the City of West Sacramento General Plan, the project site is identified as Prime Farmland on the Important Farmlands map prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Because the proposal would convert Prime Farmland to a non-agricultural (urbanized) use this impact is considered potentially significant. The project’s impacts related to the conversion of Prime Farmland will be discussed in the EIR.

b. The project site is not zoned for agricultural uses, nor are properties within the project site enrolled in Williamson Act contracts. There would be no impact.

c. Although the project site is located in area planned for urbanization under the Southport Framework Plan, because much of the lands south and west of the site are currently used for agricultural purposes, the project’s potential to contribute to the conversion of surrounding farmlands to non-agricultural uses will be discussed in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III.	**AIR QUALITY.** When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a.	Conflict with or obstruct implementation of the applicable air quality plan?	■	☐	☐	☐
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	■	☐	☐	☐
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	■	☐	☐	☐
d.	Expose sensitive receptors to substantial pollutant concentrations?	■	☐	☐	☐
e.	Create objectionable odors affecting a substantial number of people?	☐	☐	■	☐

Impact Discussion

a. Construction and operation of the proposed project would result in increased emissions from passenger motor vehicles and from construction equipment. Criteria air pollutant emissions could exceed adopted Yolo-Solano County Air Quality Management District criteria, which could affect attainment of adopted regional air quality goals. This impact is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan. Because the air quality plans are typically based on the amount of development envisioned in a local agency’s general plan, projects that will increase density beyond what is currently assumed in adopted land use plans will also generally exceed the assumed levels of development included in the air quality plan. Therefore, the project will be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans. Stationary source and construction related emissions associated with the proposed project would be subject to the rules and regulations of the Yolo-Solano County Air Quality Management District. This impact is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

b. Proposed construction activities may generate temporary increases in reactive organic gases (ROG), oxides of nitrogen (NO_X), and PM10. ROG and NO_X are pollutants that react in the atmosphere to form ozone. These emission increases could result in short term, temporary violations of relevant air quality standards and regulations and would be considered potentially significant. This impact will be discussed further in the EIR. The analysis undertaken in the EIR will determine the level of significance of this impact.

c. The project would result in an increase in traffic in the area. This additional traffic and any land-use-based sources such as unregulated wood stoves and natural gas combustion could increase criteria air pollutant emissions above adopted Yolo-Solano County Air Quality Management District criteria, which would be a potentially significant impact. This impact is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

d. Residential populations in the vicinity of the project site would be considered sensitive receptors. Construction of the proposed project could temporarily expose these sensitive receptors to air pollution. This impact is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

e. Because the proposed project consists of residential, commercial, and recreational uses, it is not anticipated to generate any objectionable odors affecting a substantial number of people. Consequently, this impact is considered less-than-significant.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	■	☐	☐	☐
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	■	☐	☐	☐
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	■	☐	☐	☐
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	■	☐	☐	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	■	☐	☐	☐
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

Impact Discussion

a–c. Given the existing agricultural nature of the project site, the proposal may result in potentially significant impact to special-status species and riparian or wetland habitat areas that may be present at the site. The City of West Sacramento and Yolo County have entered into an MOU on mitigation of loss of Swainson's hawk habitat. The MOU is intended to help avoid and/or minimize potential impacts to the Swainson's hawk. Impacts to sensitive species or their habitat are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

d. Development of the proposed project may interfere with the movement of wildlife species or migratory wildlife corridors through the introduction of urbanized uses in an agricultural area. Impacts to sensitive species or their habitat are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

e. Development of the proposed project would involve grading, excavation and removal of vegetation. While the project includes development of an Oak Preserve Park intended to preserve portions of the existing oak woodlands at the site, the project would result in disturbance and removal of oak woodlands and existing vegetation. The project potential to conflict with the City of West Sacramento's General Plan and tree preservation ordinance is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

f. The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan because the project site is not within an area covered by any of these types of plans. Therefore, there would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines?	■	☐	☐	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	■	☐	☐	☐
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	■	☐	☐	☐
d.	Disturb any human remains, including those interred outside of formal cemeteries?	■	☐	☐	☐

Impact Discussion

a. The proposed project may require the demolition of structures, some of which may qualify as historical resources as defined in Section 15064.5 of the State CEQA Guidelines. The loss of these resources is a potentially significant impact. The analysis undertaken in the EIR will determine the level of significance of this impact.

b–d. A cultural resources survey has been conducted for the project site. The findings and recommendations of this report will be summarized in the EIR except for information that under the law must be treated as confidential (e.g., specific information about the location of artifacts or other features that, if disclosed, could lead to vandalism). Although a field survey has been conducted, the project site may contain previously undiscovered archaeological, paleontological, or geological resources below the ground surface. These resources may be discovered during project construction. This is a potentially significant impact. The analysis undertaken in the EIR will determine the level of significance of this impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI.	**GEOLOGY AND SOILS.** Would the project:				
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	■
	2. Strong seismic groundshaking?	☐	☐	☐	■
	3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	■
	4. Landslides?	☐	☐	☐	■
b.	Result in substantial soil erosion or the loss of topsoil?	■	☐	☐	☐
c.	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	■	☐	☐	☐
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	■	☐	☐	☐
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	■

Impact Discussion

a. The project area is located in a region of California characterized by low seismic activity. The study area is not subject to significant seismic hazards associated with potentially active or active faults in the general vicinity of the study area (City of West Sacramento 1990). Furthermore, construction of new facilities and structures would be constructed using the current California Building Standards

Code (CBSC) (California Code of Regulations, Title 24) standards, which establish requirements for the seismic and structural safety of all structures. The proposed project would not expose people to an active fault zone. No impacts would occur.

b. Grading, excavation and removal of vegetation cover associated with construction activities could temporarily increase erosion and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas. However, a Storm Water Pollution Prevention Plan (SWPPP) would be developed by a qualified engineer or erosion control specialist and implemented prior to project construction. The SWPPP would be kept onsite during construction activity and shall be made available upon request to representatives of the Regional Water Quality Control Board. The objectives of the SWPPP would be to (1) identify pollutant sources that may affect the quality of stormwater associated with construction activity, and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. Therefore, the SWPPP would include a description of potential pollutants, management of dredged sediments, and hazardous materials present onsite during construction (including vehicle and equipment fuels). The SWPPP would also include details of how the sediment and erosion control practices, referred to as BMPs, would be implemented. Implementation of the SWPPP would comply with state and federal water quality regulations.

Furthermore, compliance with Title 15 of the West Sacramento Municipal Code (City of West Sacramento 2004) would minimize any negative effects associated with erosion and sedimentation. While implementation of a SWPPP and compliance with West Sacramento's Municipal Code are anticipated to reduce potential impacts to less than significant levels, the construction-related impacts of the project are nevertheless conservatively considered potentially significant for purposes of this initial study. The analysis undertaken in the EIR will determine the level of significance of this impact.

c. The project site is essentially flat and seismic shaking may cause the soil or strata to become unstable, resulting in structural damage. The structures that would be built on site would be required to comply with CSBC and Title 24 standards. These standards are intended to minimize damage from seismic shaking. However, due to the unknown geotechnical constraints of the project area, this impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

d. If grading or excavation activities are conducted in areas with expansive and/or weak soils, structural damage caused by constructing new facilities on expansive soils could occur. Expansive soils could cause a risk for post-construction heave and cracking of concrete slabs, as well as lightly loaded foundations and pavements. Due to the unknown geotechnical constraints of the project area, this impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

e. No septic tanks or alternative wastewater disposal systems are proposed. The project would be connected to City's wastewater system that would then convey wastewater to the Sacramento Regional Wastewater Treatment Plant. There would therefore be no impact related to septic tanks or alternative wastewater disposal systems.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	■	☐	☐	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	■	☐	☐	☐
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	■	☐	☐	☐
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	■	☐	☐	☐
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	■	☐
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	■	☐
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	■	☐	☐	☐
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	■	☐

Impact Discussion

a–c. Hazardous materials would be used, transported, and disposed of in varying amounts during construction and operation of the proposed project. Oil, hydraulic fluid, diesel fuel, gasoline, and other liquid hazardous materials would be used in small quantities during construction of the proposed project, and could pose a risk to the environment and human health through reasonably foreseeable upset and accidental release or spill conditions. Operation of the project would include uses that could present a significant hazard to humans and the environment, including automobile repair and other automobile-oriented businesses. These impacts are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

d. If hazardous materials sites are present in the area, the project could result in a potentially significant hazard to the public and environment during construction and operation of the project. This impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

e, f. Several airports are located in the general vicinity of the City of West Sacramento; Mather Field is located approximately 12 miles to the east, Sacramento International Airport is located approximately 6 miles north, Executive Airport is located approximately 2 miles to the east, and the Yolo County Airport is located approximately 16 miles to the west. Although the project site is situated near these existing airports, the project site is not located within any of the airport land use planning areas (SACOG website <http://www.sacog.org/airport/clups.cfm>). Therefore no impacts related to potential safety hazards for people residing or working in the project area are anticipated.

g. The proposed project would modify the existing and planned circulation system within the Southport area of the City. Provisions for emergency access would be incorporated into the project design. Short-term lane closures or detours may be required during project construction, but are not anticipated interfere with the implementation of emergency response or evacuation plans. The potential for the project to impair implementation of with an emergency response plan will be discussed in the EIR.

h. The project site is not located in an area of the City considered to be a high wildfire hazard area (City of West Sacramento EIR). The urban/rural interface is an area of concern, as these areas tend to have a greater amount of vegetation. The project site is primarily agricultural land, which would be converted to non-agricultural uses. The risk of wildfire in the urban/rural interface spreading to future residents and businesses at the site and in the surrounding area is considered minimal because the project site bounded by the Sacramento River on the east and south, and properties to the north and west of the site are currently undergoing or are planning for urbanization. Potential impacts related to wildfire hazards are considered less than significant.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VIII.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a.	Violate any water quality standards or waste discharge requirements?	■	☐	☐	☐
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	■	☐	☐	☐
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?	■	☐	☐	☐
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?	■	☐	☐	☐
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	■	☐	☐	☐
f.	Otherwise substantially degrade water quality?	■	☐	☐	☐
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	■	☐	☐
h.	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	■	☐	☐
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	■	☐	☐

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
j.	Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	■	☐

Impact Discussion

a, c,d,f. Construction-related earth disturbing activities will occur during construction of the proposed project altering the existing drainage pattern of the site. These construction activities could potentially result in an increase in erosion and sedimentation on- or off-site, which could impact water quality and cause or contribute to a violation of water quality standards and/or waste discharge requirements. These impacts are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

b. Given the amount of development proposed at the project and within the Southport area, the project could contribute to depletion of groundwater supplies and could interfere with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level. This is considered a potentially significant impact. The analysis undertaken in the EIR will determine the level of significance of this impact.

e. Development of the proposed project could create or contribute runoff water that could exceed the capacity of existing or planned stormwater drainage systems in the area. In order to accommodate runoff from the site, the project includes the development of a Drainage Concept Plan, which is based on the utilization of the proposed Parkway water feature for stormwater detention. Stormwater discharge and surface runoff would be channeled toward the Parkway where it would be collected and reutilized in the water feature. The water channels and open water areas of the Parkway would be designed to serve as detention basins. While implementation of the Drainage Concept Plan is anticipated to reduce potential impacts to less than significant levels, the potential impacts of increased runoff from the site are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

g–i. Flooding of West Sacramento could result from a 100-year flood, localized drainage problems, or from dam or levee failure. The project site is located in an area designated as Zone X on the Federal Emergency Management Agency Flood Insurance Rate Map (City of West Sacramento 2004). Zone X is defined as an area protected from 100-year flood by levees. In order to accommodate localized drainage, the project includes the development of a Drainage Concept Plan, which is based on the utilization of the proposed Parkway water feature for stormwater detention. Stormwater discharge and surface runoff would be channeled toward the Parkway where it would be collected and reutilized in the water feature. The water channels and open water areas of the Parkway would be designed to serve as detention basins. According to the City of West Sacramento General Plan EIR, failure of Folsom Dam would lead to inundation of West Sacramento and the greater Sacramento area. However, the General Plan notes that the risk of dam failure affecting the project area is remote and could occur under three general conditions: earthquake; structural instability; and intense rainfall in excess of a dam's holding capacity. Potential flooding or inundation of the project site, though very unlikely, is nevertheless conservatively considered to be potentially significant for purposes of this initial study. The analysis undertaken in the EIR will determine the level of significance of this impact.

j. The proposed project would not cause exposure to risks involving seiche, tsunami, or mudflow given the relative distant location of the site from an ocean and its flat topography. Potential impacts associated with seiches, tsunamis, or volcanic hazards are considered less than significant.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IX.	**LAND USE AND PLANNING.** Would the project:				
a.	Physically divide an established community?	☐	☐	☐	■
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	■	☐	☐	☐
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	■

Impact Discussion

a. The project site is located in the Southport Framework Plan area south of the downtown area West Sacramento. The Southport area is generally bounded by the Sacramento River to the east, the Deep Water Ship Channel to the west and north, and the City limits to the south. The proposed project includes development of an integrated trail system connecting the project via a system of trails and bike paths. The project also includes development of a multi-modal circulation plan linking the project site to the other “villages” in Southport and to the City of West Sacramento and would be a benefit to the community. It is anticipated that the project would facilitate movement through and around the area and the project would not result in the division of an established community. There would be no impact.

b. As discussed in the project description, the proposed project includes amendment to the City’s General Plan, the Southport Framework Plan, and changes in the zoning designations of the site. The impacts of the general plan and zoning changes and potential conflicts with city code and policies, including those in the Housing Element, will be addressed in the EIR.

c. The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, as the project site is not within an area covered by any of these types of plans. There would be no impact.

However, the City of West Sacramento and Yolo County have entered into an MOU on mitigation of loss of Swainson’s hawk habitat. The MOU is intended to help avoid and/or minimize potential impacts to the Swainson’s hawk. Although the existing MOU is not a habitat conservation plan or natural community conservation plan, it is a mechanism implemented to mitigate impacts to sensitive species and their habitat. A discussion of the MOU will be included in the Biological Resources chapter of the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
X.	**MINERAL RESOURCES.** Would the project:				
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	■

Impact Discussion

a, b. The California Geological Survey classifies most of West Sacramento as MRZ-1, which indicates that significant mineral deposits are not known to occur in the area (California Division of Mines and Geology 1988). The portion of the city that borders the Sacramento River (including the project site) is classified MRZ-3, which indicates the presence of aggregate resources of undetermined value (California Division of Mines and Geology 1988).

The project area is not reported to have abundant mineral resources nor does it include any known important mineral resources. Further, the project area does not include any known important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. There would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI.	**NOISE.** Would the project:				
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	■	☐	☐	☐
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	■	☐	☐	☐
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	■	☐	☐	☐
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	■	☐	☐	☐
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	■	☐
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	■	☐

Impact Discussion

a. Traffic-related activities may result in an increased noise level. Sound levels associated with traffic-related activities are subject to standards in the city’s general plan noise element. This impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

b. Construction activities associated with the proposed project may result in some minor amount of ground vibration. Vibration from construction activity is typically below the threshold of perception when the activity is more than about 50 feet from receiver. Additionally, vibration from these activities will be short-term and will end when construction is completed. Groundborne vibration could potentially have an adverse effect on structures or people. This impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

c. Traffic-related activities may result in increases in ambient noise level. Sound levels associated with traffic-related activities are subject to standards in the city’s general plan noise element and performance standards in the zoning ordinance. This impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

d. Project-related construction activities will result in temporary or periodic increases in ambient noise levels. However, construction-related increases in noise are anticipated to be short-term, due to the temporary nature of construction. Even so, this impact is conservatively assumed to be potentially significant for purposes of this initial study. The analysis undertaken in the EIR will determine the level of significance of this impact.

e–f. Several airports are located in the general vicinity of the City of West Sacramento; Mather Field is located approximately 12 miles to the east, Sacramento International Airport is located approximately 6 miles north, Executive Airport is located approximately 2 miles to the east, and the Yolo County Airport is located approximately 16 miles to the west. An evaluation of the potential noise impacts resulting from aircraft over-flights will be included in the analysis undertaken in the EIR to determine the level of significance of this impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII.	**POPULATION AND HOUSING.** Would the project:				
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	■	☐	☐	☐
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	■	☐	☐	☐
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	■	☐	☐	☐

Impact Discussion

a. The proposed project would modify the planned development of the Southeast Village of the Southport Framework Plan. This area, at the southern end of the City, is currently planned for residential development ranging from low to high densities, neighborhood commercial, water-related commercial, open space, and parkland uses. The proposal would amend the current land use designations to support development of approximately 2,485 residential units (including low-, medium-, and high-density offerings), a 44-acre regional park, and community open-space areas (Figure 2-3). The proposed development would represent an increase of approximately 1,000 residential units more than would be allowed under the existing Framework Plan. The proposal also includes changes to the City General Plan and zoning ordinance to generally increase residential densities and add recreational opportunities.

Because the proposal would result in an increase in the residential development planned for the area, the project has the potential to induce population growth because the proposal would create housing opportunities in excess of what is currently available. The growth attributed to increased housing in the area is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

As described in the project description, the project includes development of a Commercial Center and a Water-Related Commercial area. Development of these commercial areas would increase the number of available jobs in the area, which may result in an indirect impact on housing demand elsewhere, as the employees would need housing. It is assumed that some portion of this demand would be met by existing units outside the study area, assuming that those jobs would be filled by existing residents of West Sacramento and surrounding cities, or by new residents of the River Park Project. The remaining units would be provided by new development in the region. Given the mobility of workers within the region and the location of the site within the Sacramento Metropolitan Area, there is no way to accurately estimate the number of houses that might be added to demand within specific cities. Therefore, the EIR will not speculate about the locations or numbers of houses in those locations.

b, c. The proposed project may involve the demolition or relocation of existing residences and other structures at the project site. The demolition or displacement of existing residences and structures at the site is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII. PUBLIC SERVICES. Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
1. Fire protection?	■	☐	☐	☐
2. Police protection?	■	☐	☐	☐
3. Schools?	■	☐	☐	☐
4. Parks?	■	☐	☐	☐
5. Other public facilities?	■	☐	☐	☐

Impact Discussion

a1, a2. The proposed project would increase the population within the project area. As a result, current levels of fire protection and police services for the project area may be inadequate to meet the needs created by the proposed project. This impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

a3. The proposed project would increase the population within the project area and within the City of West Sacramento. As a result, the increased population associated with the project would result in increased demands on area schools. This impact is potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

a4. The proposed project includes the development of approximately 96.2 acres of parks and open space. The project includes the development of an open space system incorporating 44-acres of parklands—including development of a regional park and two neighborhood parks, 21 acres of open space along the Sacramento River, and a 29-acre parkway feature (Figure 2-4). The development of the system of parks has the potential to result in significant physical impacts. These impacts are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

a5. The proposed project would increase the population within the project area. As a result of this increased population, the project would increase the demands placed on other public facilities, such as roads, libraries, city government buildings and facilities. The increased demands are considered to be potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV.	**RECREATION.** Would the project:				
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	■	☐	☐	☐
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	■	☐	☐	☐

Impact Discussion

a, b. The population growth associated with the proposed project would increase the use of existing and planned park facilities in the area. To offset the demands placed on existing recreational facilities, the project includes the development of approximately of 96.2 acres of parks and open space, including the development of a regional park and two neighborhood parks, open space areas along the Sacramento River, and the development of a 29.8-acre parkway feature (Figure 2-4). Because the project includes the construction of recreational facilities that might have an adverse physical effect on the environment, the construction-related impacts are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of this impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV.	**TRANSPORTATION/TRAFFIC.** Would the project:				
a.	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	■	☐	☐	☐
b.	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	■	☐	☐	☐
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	■
d.	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	■	☐	☐	☐
e.	Result in inadequate emergency access?	■	☐	☐	☐
f.	Result in inadequate parking capacity?	■	☐	☐	☐
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	■	☐	☐	☐

Impact Discussion

a,b,d–g. The proposed project would increase the amount of traffic in the area and could potentially exceed the existing traffic load and capacity of the street system in the Southport area, causing or contributing to the exceedance of an adopted level-of-service standard. Further, the increased traffic resulting from the project could potentially result in the creation of transportation hazards, reduce levels of service, and impact emergency services and area parking. The project and others being proposed and underdevelopment within the Southport area will contribute to cumulative impact on levels of service and roadway capacities. Traffic-related impacts are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of these impacts.

c. The proposed project is not anticipated to result in an increase in air traffic levels or a change in air traffic patterns resulting in substantial safety risks because the project does not include the introduction of land uses to the area that would in themselves generate a substantial amount of air traffic. There would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI.	**UTILITIES AND SERVICE SYSTEMS.** Would the project:				
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	■	☐	☐	☐
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	■	☐	☐	☐
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	■	☐	☐	☐
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	■	☐	☐	☐
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	■	☐	☐	☐
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	■	☐	☐	☐
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	■	☐	☐	☐

Impact Discussion

a–g. The proposed project will require the extension of utilities and service systems to serve the planned development of the site. The extension of these services result in potential impacts related to wastewater treatment requirements, the expansion of existing water or wastewater facilities, the construction of new stormwater drainage facilities, impact the capacity of existing landfills, or result in solid waste impacts. The physical impacts from the extension of these services to the site are considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of these impacts.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Impact Discussion

a. The proposed project is anticipated to result in potentially significant impacts in several resource topic areas. As discussed herein, the potentially significant impacts of the project will be further discussed in the draft EIR along with mitigation measures to be incorporated into the project, if determined to be feasible to implement. The residual significance of impacts after the application of feasible mitigation will be determined as part of the draft EIR. A mitigation monitoring and reporting program will also be developed. If necessary, a statement of overriding considerations will be drafted for consideration by the City Council should significant and unavoidable impacts be identified in the final EIR.

b. The proposed project has the potential to result in cumulatively considerable impacts (e.g., air quality, noise, and traffic impacts). The project’s contribution to temporary and long-term impacts resulting from construction and operational improvements may exceed the applicable cumulatively considerable thresholds.

Therefore, the project's contribution to overall cumulative impacts is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of these impacts.

c. The proposed project may result in impacts that could potentially cause substantial adverse effects on human beings, either directly or indirectly. This is considered potentially significant. The analysis undertaken in the EIR will determine the level of significance of these impacts.

Form A

Notice of Completion and Environmental Document Transmittal

SCH #

For U.S. Mail: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

Project Title: River Park General Plan Amendment & Rezoning
Lead Agency: City of West Sacramento Community Development Department
Contact Person: David Tilley, Senior Planner
Street Address: 1110 West Capitol Avenue, Second Floor
Telephone: 916/617-4645
City: West Sacramento
Zip Code: 95691
County: Yolo

Project Location:
County: Yolo
City/Nearest Community: West Sacramento
Cross Streets: South River Road and Davis Road
Zip Code: 95691
Assessor's Parcel No.
Section:
Twp.
Range:
Base:
Within 2 Miles: State Hwy #: I-5, I-80, and US 50
Waterways: Sacramento River
Airports:
Railways: Yolo Shortline
Schools: Evergreen Elementary School; River City High School; and California Christian College

RECEIVED
JUN 03 2005
STATE CLEARING HOUSE

Document Type:

CEQA:
☒ NOP
☐ Early Cons
☐ Neg Dec
☐ Mit Neg Dec
☐ Draft EIR
☐ Supplement to EIR
☐ Subsequent EIR
☐ Other:

NEPA:
☐ NOI
☐ EA
☐ Draft EIS
☐ FONSI

Other:
☐ Joint Document
☐ Final Document
☐ Other:

Local Action Type:
☐ General Plan Update
☒ General Plan Amendment
☐ General Plan Element
☒ Community Plan
☐ Specific Plan
☐ Master Plan
☒ Planned Unit Development
☐ Site Plan
☒ Rezone
☐ Prezone
☐ Use Permit
☒ Land Division (Subdivision, etc.)
☐ Annexation
☐ Redevelopment
☐ Coastal Permit
☒ Other: Development Agreement

Development Type:
☒ Residential: *Units* 2,788 *Acres*
☐ Office: *Sq.ft.* *Acres* *Employees*
☒ Commercial: *Sq.ft.* 45,000–65,000 *Acres* 5 acres *Employees*
☐ Industrial: *Sq.ft.* *Acres* *Employees*
☒ Educational: 10-acre elementary School Site
☒ Recreational: 44-acre Regional Park, 22.0 acres of open space along the Sacramento River, and a 29.7-acre parkway feature
☒ Water Facilities: *Type* City Water *MGD*
☒ Transportation: *Type* Improving/extending existing roadways and the construction of new roadways
☐ Mining: *Mineral*
☐ Power: *Type* *MW*
☒ Waste Treatment: *Type* Connection to Northwest Interceptor *MGD*
☐ Hazardous Waste: *Type*
☐ Other:

Total Acres (approximate): 495.6

Project Issues That May Have a Significant or Potentially Significant Impact:
☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☐ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☐ Forest Land/Fire Hazard
☒ Geologic/Seismic
☐ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☒ Recreation/Parks
☒ Schools/Universities
☐ Septic Systems
☒ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☒ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☒ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☒ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☐ Other:

NOTE: *Clearinghouse will assign identification numbers for all new projects. If an SCH number already exists for a project (e.g., Notice of Preparation or previous draft document), please fill in.*

Revised 2004

Notice of Completion and Environmental Document Transmittal

Present Land Use/Zoning/General Plan Designation:

Present land use is agricultural and rural residential

General Plan designations include: Low Density Residential (LR), Rural Residential (RR), Rural Estates (RE), Medium Density Residential (MR), High Density Residential (HR), Neighborhood Commercial (NC), Community Park (CP), Open Space (OS), Elementary School (ES), Neighborhood Park (NP), Water-Related Commercial (WRC)

Zoning Designations include: Residential-One Family (R-1B), Rural Residential (RRA), Rural Estates (RE), Residential - One Family or Multi Family (R-2), Multiple-Family Residential (R-3), Neighborhood Commercial (C-1), Recreation-Parks (RP), Public-Quasi Public (PQP), Public Open Space (POS), and Water-Related Commercial (WRC).

Project Description: (please use a separate page if necessary)

The project includes the development of a residential component, elementary school, open space framework, commercial center, water-related commercial area, circulation plan, and infrastructure plan. The project would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential, low-, medium-, and high-density offerings), a 44-acre regional park, and community open-space areas. The project also includes changes to the General Plan and the Zoning Map to generally increase residential densities and add recreational opportunities.

Form A, continued

Notice of Completion and Environmental Document Transmittal

Key
S = Document sent by lead agency
X = Document sent by SCH
D = Suggested distribution

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below.

____ Air Resources Board
____ Boating and Waterways, Department of
____ California Highway Patrol
____ Caltrans District # ____________
____ Caltrans Division of Aeronautics
____ Caltrans Planning
____ Coachella Valley Mountains Conservancy
____ Coastal Commission
____ Colorado River Board Commission
____ Conservation, Department of
____ Corrections, Department of
____ Delta Protection Commission
____ Education, Department of
Office of Public School Construction
____ Energy Commission
____ Fish and Game Region # ____________
____ Food and Agriculture, Department of
____ Forestry and Fire Protection
____ General Services, Department of
____ Health Services, Department of
____ Housing and Community Development
____ Integrated Waste Management Board
____ Native American Heritage Commission
____ Office of Emergency Services
____ Office of Historic Preservation
____ Parks and Recreation
____ Pesticide Regulation, Department of
____ Public Utilities Commission
____ Reclamation Board
____ Regional WQCB # ____________
____ Resources Agency
____ S.F. Bay Conservation and Development Commission
____ San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy
____ San Joaquin River Conservancy
____ Santa Monica Mountains Conservancy
____ State Lands Commission
____ SWRCB: Clean Water Grants
____ SWRCB: Water Quality
____ SWRCB: Water Rights
____ Tahoe Regional Planning Agency
____ Toxic Substances Control, Department of
____ Water Resources, Department of
____ Other: ____________
____ Other: ____________

Local Public Review Period (to be filled in by lead agency):

Starting Date: June 3, 2005
Ending Date: July 5, 2005

Lead Agency (complete if applicable):

Consulting Firm: Jones & Stokes
Address: 2600 V Street
City/State/Zip: Sacramento, CA 95818
Contact: Sally Zeff
Telephone: (916) 737-3000

Applicant:

Name: Richland Planned Communities, Inc
Address: 2220 Douglas Blvd, Suite 290
City/State/Zip: Roseville, CA 95661
Telephone: ____________

Signature of Lead Agency Representative ____________ Date: 6/3/05

Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21161, Public Resources Code.

WASHINGTON UNIFIED SCHOOL DISTRICT

930 Westacre Road • West Sacramento, CA 95691
(916) 375-7601 • FAX (916) 375-7629
www.wusd.k12.ca.us

RECEIVED
JUL 07 2005
DEPARTMENT OF
COMMUNITY DEVELOPMENT

June 30, 2005

David Tilley, Senior Planner
City of West Sacramento
1110 West Capitol Avenue
West Sacramento, CA 95691

Subject: Notice of Preparation of Draft Environmental Impact Report
River Park GPA and Rezoning Project

Dear Mr. Tilley:

Thank you for the opportunity to respond to the proposed project. The proposed project has the potential to adversely impact the Washington Unified School District. Based on current student yield rates, the project is expected to generate approximately 580 students in grades K-6, 110 students in grades 7 and 8, and 187 students in grades 9-12. Existing schools are impacted and the district is unable to adequately house students to be generated from the proposed project.

The district is currently planning for construction of a new high school that may accommodate students from this development. In addition, the district is negotiating for acquisition of a middle school site within the Harbor Pointe development that, if constructed, may accommodate students from this development. However, due to the number of students anticipated to be generated at the K-6 level, the district is requesting that a future 10 net acre school site be reserved as part of this project. It is further requested that the zoning for this site be established as "PQP". The district should be consulted prior to identifying the specific elementary school site within this development.

The District has initiated a new Facilities Master Plan, which is anticipated to be complete in September. Information presented in this response is subject to change as related to the future needs of the district.

School site approval processes are principally defined in Title 5, California Code of Regulations. The district requests that the environmental impact report be sufficiently comprehensive to be of use to the district for site approval processes with the State Department of Education, certain statutory requirements contained in the Public

Resources Code, Education Code, and CEQA Guidelines must be adequately addressed in the EIR.

Section 15802(b) of the CEQA Guidelines states that upon receiving a Notice of Preparation, a responsible agency "shall provide the lead agency with specific detail about the scope and content of the environmental information related to the responsible agency's area of statutory responsibility which must be included in the draft EIR." The Washington Unified School District is a Responsible Agency, as defined in Public Resources Code §21069 and CEQA Guidelines §§15096, 15381. In *Save San Francisco Bay Assn. V. San Francisco Bay Conservation etc. Com* (1992) 10 Cal.App.4th 908, the court ruled that "CEQA mandates a lead agency to conduct a thorough review of the project in question even though additional review might later be undertaken by other agencies". The court held that a lead agency has a duty to produce comprehensive environmental documents that are of use to, and can be relied upon by other agencies. Accordingly, Washington Unified School District submits these comments to assure that the scope of the Environmental Impact Report includes comprehensive environmental analysis relative to the school site proposed for the Project, and to ensure that the school site may qualify as approved school sites within the meaning of CEQA and the California Education Code.

Pursuant to Cal. Pub. Resources Code section 21151.8 and CEQA Guidelines §15186, the EIR must include analysis and information needed to determine:

1. Whether the school site is a current or former hazardous waste site or solid waste disposal site, and if so, whether the wastes have been removed;

2. Whether the school site is a hazardous substance release site identified by the State Department of Health Services; and

3. Whether the school site contains one or more pipelines, above or below ground, which carry hazardous substances, acutely hazardous materials, or hazardous wastes.

Also under section 21151.8, the Lead Agency must notify in writing and consult with the administrating agency and with any air pollution control or air quality management district having jurisdiction in the area to identify any facilities within one-forth of a mile of the school site which might emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste.

Finally, in order to comply with Education Code 17215, the EIR must determine whether the school site is located within two miles, measured by air line, of that point on an airport runway or potential runway included in an airport mater plan that is nearest to the site.

The foregoing requirements are required in order to assure that the EIR will be sufficiently comprehensive to be of use to the school district in determining whether the site may be approved by the Department of Education and whether, and under what conditions, the sites should be acquired and developed.

Thank you again for the opportunity to comment on the proposed project. If you have any questions, please contact me at 375-7604, Extension 2335.

Sincerely,

Denny Jones, Director
Facilities Planning & Construction

cc: Vicky Dali
Dan Santo, California Financial Services

STATE OF CALIFORNIA THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, Governor

DELTA PROTECTION COMMISSION
14215 RIVER ROAD
P.O. BOX 530
WALNUT GROVE, CA 95690
Phone (916) 776-2290
FAX (916) 776-2293
E-Mail: dpc@citlink.net Home Page: www.delta.ca.gov

July 5, 2005

Mr. David Tilley
City of West Sacramento
1110 W. Capitol Avenue, 2nd Floor
West Sacramento, CA 95691

Subject: Notice of Preparation (NOP) for the River Park General Plan Amendment and Rezoning Draft Environmental Impact Report (DEIR); SCH #2005062027

Dear Mr. Tilley:

Thank you for forwarding the above NOP dated June 6, 2005. The proposed project includes a General Plan amendment and rezoning for a residential "village" on 495.6 acres in West Sacramento's Southport area. This proposed development on 496 acres within the boundaries of the City of West Sacramento would include approximately 2,788 residential units, a 44-acre regional park, and community and open space areas, an elementary school, and a commercial center. The site of the proposed project is

The Delta Protection Commission has appeal authority over certain local government decisions and actions within the Primary Zone of the Legal Delta, and adopted a land use plan in 1995 designed to protect the agricultural, environmental, and recreational uses of the Primary Zone. The project proposed under the NOP is located in the Secondary Zone of the Legal Delta, so these comments are advisory only. However, these comments address recommendations of the Commission's land use plan, in an attempt to identify and avoid possible impacts to the resources of the Primary Zone from the proposed development.

- **Recreation and Access Recommendation # 3** of the Commission's land use plan reads "*New projects in the Secondary Zone, adjacent to the Primary Zone, should include commercial and public recreation facilities which allow safe, supervised access to and along the Delta waterways (pedestrian and bike trails, launch ramps including small boat launch ramps, overlooks, nature observation areas, interpretive information, picnic areas, etc.).*" The proposed project includes a regional park along the eastern portion of the site, next to the Sacramento River. An ongoing study of Delta recreation opportunities and needs has indicated a shortage of day use destination facilities such as the regional park proposed in the NOP. The Commission has noted that in many development proposals in the Secondary Zone, recreational facilities are included in planning documents but never constructed as part of the final project due to lack of funding or the need for additional residential areas. I understand that the proposed regional park was envisioned in the City's Parks Master Plan, and that this development presents the opportunity to develop that area for recreational use. At this time, it is not known what mechanism if any exists to ensure that this proposed recreational area is eventually constructed as part of the project. The Commission strongly encourages the City to condition, rather than authorize, the regional park's inclusion as part of the project through its completion, and additionally encourages the City to ensure that sufficient funding is dedicated to the regional park for its construction and ongoing maintenance.

- **Levees Recommenation # 1** reads *"Levee maintenance, rehabilitation, and upgrading should be established as the first and highest priority use of the levee. No other use whether for habitat, trails, recreational facilities, or roads should be allowed to unreasonably adversely impact levee integrity or maintenance."* The City should ensure that sufficient area is dedicated on the land side of the Sacramento River levee on the east and south sides of the project for levee maintenance activities, or for potential future setbacks of the levee to maintain the flood control capacity of the river channel.

The proposed project will be added to the Commission's Pending Projects Memo and updated as new information is available, and Commission staff will continue to monitor and provide feedback on this project. Please keep the Delta Protection Commission on the interested party mailing list for your planning process, and mail or email any staff reports and meeting agendas. Additional information about the Commission and its adopted land use plan are available on the Commission's web site: www.delta.ca.gov.

Please feel free to call if you have any questions regarding the Commission and its interests in the Delta Primary Zone.

Sincerely,

Margit Aramburu
LC

Margit Aramburu
Executive Director

Cc: Chairman Mike McGowan
Christopher Cabaldon, Mayor, City of West Sacramento
State Clearinghouse

From: Edgar, Eric
Sent: Tuesday, July 05, 2005 2:54 PM
To: Tilley, David
Subject: EIR River park project

To determine the impact on fire response, a fire response study is requested. The study should be conducted using the following performance standards. One engine company will arrive at the scene of an emergency within the City limits five minutes, 95% of the time from the time of fire crew notification. (1 minute turnout time, 4 minute travel time). The second performance measurement is an effective response force of at least 15 firefighters plus one chief officer shall arrive within 10 minutes of the receipt of the call, 90 percent of the time. (1 minute turnout time, 9 minute travel time)

-----Original Message-----
From: Judith Bruno [mailto:judith@acsquantum.com]
Sent: Wednesday, July 27, 2005 8:18 AM
To: Todd Chambers
Subject: An Update from the West Sacramento Fire Fighters Association

Several months have gone by since last communicating with you about our number-one priority...public safety for West Sacramento residents. Following is a brief update on the issues affecting fire protection in West Sacramento.

West Sacramento City Manager, Toby Ross, put together a fire service committee, which includes members of the West Sacramento Fire Association, Chief Postel, other Chiefs and finance personnel. The committee's goal is to understand and facilitate increased fire protection within fiscal realities. We have had several meetings and made substantial progress. Thus far, stations and staffing have been the two main topics resulting in the following:

- ➢ The new living quarters on the Station 42 property have been completed, and the fire fighters moved in earlier this month. These new quarters provide vastly improved working conditions for those stationed there.
- ➢ Demolition is complete on Station 41. We have had the opportunity to meet with the city on several occasions to review the design of Station 41. The city has taken some of our suggestions and continues to work toward the rebuilding.
- ➢ Additionally, the city is moving forward with plans to build a station closer to the Southport area, Station 45. With the increased growth in both residences and businesses, it is imperative the station be built and completed by January 2007.

West Sacramento has some of the finest fire fighters in the area. And, as the West Sacramento community continues to grow, recruitment and retention will remain a focus for us. According to our discussions with the city, the plans include:

- As of July 2005, increased staffing on fire trucks from two fire fighters to three;
- As of January 2006, increasing the number of division chiefs from four to five; and
- As of July 2006, admitting nine new fire fighters to the academy, which means they would be online by January 2007. Some of these recruits may attend earlier academies, and, therefore, be online earlier.

We are grateful for the support shown to us from West Sacramento residents! We also are grateful to City Manager Ross and Chief Postel for their spirit of collaboration. As always, if you have any questions or need any additional information, please feel free to contact us at **WestSacFF@yahoo.com**.

Brian Rice, President
Sacramento Area Fire Fighters, Local 522

If you feel you have received this message in error or if you do not wish to receive further updates about the West Sacramento Fire Fighters, please reply to this message with the word "UNSUBSCRIBE" and your FULL NAME and E-MAIL ADDRESS in the subject field.

STATE OF CALIFORNIA, RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814
PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov

July 5, 2005

Mr. David Tilley, Senior Planner
City of West Sacramento
1110 West Capitol Avenue, Second Floor
West Sacramento, CA 95691

Subject: River Park General Plan Amendment & Rezoning Project Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) - SCH# 2005062027, Yolo County

Dear Mr. Tilley:

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

Project Description

The project is a proposed general plan amendment and rezoning for the creation of a residential "village" on 495.6 acres of Prime Farmland in the Southport area's Southeast Village. The Southport area is the focus of the Southport Framework Plan that divides the area into four "villages." The project would amend current land use designations to support development of residential units, a park and open space areas. An elementary school may be included. The project site is bound on the east and south by the Sacramento River, on the north by Davis Road and on the west by the Yolo Shortline Railroad corridor. The Sacramento City neighborhoods of Greenhaven and Pocket Area lie to the east, agricultural land and residences to the west and south and the Northeast Village to the north.

The project site is currently used for agriculture and grazing. The Initial Study (IS) has determined that the project may have significant agricultural impacts due to conversion

Agricultural Setting of the Project

The DEIR should describe the project setting in terms of the actual and potential agricultural productivity of the land. The IFM should be utilized to identify agricultural land within the project site and in the surrounding area that may be impacted. Acreages for each land use designation should be identified for both areas. Maps of the Important Farmland and Williamson Act land should be included in the DEIR.

In addition, we recommend including the following items of information to characterize the agricultural land resource setting of the project.

- Current and past agricultural use of the project area. Include data on the types of crops grown, crop yields and farm gate sales values.
- To help describe the full agricultural resource value of the soils of the site, we recommend the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and state economies. State and Federal agencies such as the UC Cooperative Extension Service and USDA are sources of economic multipliers.

Project Impacts on Agricultural Land

The Department recommends that the following be included in the DEIR in the analysis of project impacts.

- Type, amount, and location of farmland lost to project implementation. The conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance is considered a potentially significant adverse impact.
- A discussion of conflicts with Williamson Act contracts on nearby properties; i.e., growth-inducing impacts from the perspective that the conversion of agricultural land removes a barrier to development and results in an incentive to shift to a more intensive land use such as urban development. The termination of a Williamson Act contract is considered a potentially significant adverse impact.
- Indirect impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, population, traffic, water availability, etc.
- Growth-inducing impacts, including whether leapfrog development is involved.
- Incremental project impacts leading to cumulatively considerable impacts on agricultural land. These impacts would include impacts from the proposed project as well as impacts from past, current and probable future projects. The Division's farmland conversion tables may provide useful historical data.
- Although the impact of converting nearly 500 acres of Prime Farmland appears significant on its face, impacts on agricultural resources may also be quantified and qualified by use of established thresholds of significance (CEQA Guidelines

§15064.7). The Division has developed a California version of the USDA Land Evaluation and Site Assessment (LESA) Model, a semi-quantitative rating system for establishing the environmental significance of project-specific impacts on farmland. The model may also be used to rate the relative value of alternative project sites. The LESA Model is recommended by CEQA and is available from the Division at the contact listed below.

Mitigation Measures

The Department encourages the use of agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land. If a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved, we recommend that this ratio be increased. We highlight this measure because of its acceptance and use by lead agencies as mitigation under CEQA. It follows a rationale similar to that of wildlife habitat mitigation. The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. Agricultural conservation easements will protect a portion of those remaining resources and lessen project impacts in accordance with CEQA Guideline §15370. Agricultural easement mitigation is used successfully by Yolo County and the City of Davis.

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

Other forms of mitigation may be appropriate for this project, including the following:

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

Although the direct conversion of agricultural land and other agricultural impacts are often deemed to be unavoidable by an agency's CEQA analysis, mitigation measures must nevertheless be considered. The adoption of a Statement of Overriding Consideration does not absolve the agency of the requirement to implement feasible mitigation that lessens a project's impacts. A principal purpose of an EIR is to present a discussion of mitigation measures in order to fully inform decision-makers and the public about ways to lessen a project's impacts. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and, therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation. Rather, the criterion is feasible mitigation that lessens a project's impacts. Pursuant to CEQA Guideline 15370, mitigation includes measures that "avoid, minimize, rectify, reduce or eliminate, or compensate" for the impact. For example, mitigation includes *"Minimizing impacts by limiting the degree or magnitude of the action and its implementation (§15370(b))"* or *"Compensating for the impact by replacing or providing substitute resources or environments (§15370(e))."*

All measures ostensibly feasible should be included in the DEIR. Each measure should be discussed, as well as the reasoning for selection or rejection. A measure brought to the attention of the Lead Agency should not be left out unless it is infeasible on its face.

Finally, when presenting mitigation measures in the DEIR, it is important to note that mitigation should be specific, measurable actions that allow monitoring to ensure their implementation and evaluation of success. A mitigation consisting only of a statement of intention or an unspecified future action may not be adequate pursuant to CEQA.

Information about agricultural conservation easements available on the Department's website or by contacting the Division at the address and phone number listed below. The Department's website address is:

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

Thank you for the opportunity to comment on this NOP. The Department looks forward to receiving a copy of the DEIR. If you have questions on our comments or require technical assistance or information on agricultural land conservation, please contact Bob Blanford at 801 K Street, MS 18-01, Sacramento, California 95814; or, phone (916) 327-2145.

Sincerely,

Dennis J. O'Bryant
Acting Assistant Director

cc: Scott Morgan, Project Analyst
State Clearinghouse

State of California—Health and Human Services Agency
Department of Health Services

California
Department of
Health Services

SANDRA SHEWRY
Director

ARNOLD SCHWARZENEGGER
Governor

RECEIVED
JUN 21 2005
DEPARTMENT OF
COMMUNITY DEVELOPMENT

June 16, 2005

City of West Sacramento
Mr. David Tilley
1110 W. Capitol Avenue, 2nd Floor
West Sacramento, CA 95691

RE: River Park General Plan Amendment and Rezoning – SCH2005062027

The California Department of Health Services (CDHS) is in receipt of the Notice of Preparation for the above project.

If the City of West Sacramento plans to develop a new water supply well or make modifications to the existing domestic water treatment system to serve the River Park project site, an application to amend the water system permit must be reviewed and approved by the CDHS Sacramento District Office. These future developments may be subject to separate environmental review.

Please contact Terry Macaulay at (916) 449-5600 for further information.

Sincerely,

Bridget Binning
California Department of Health Services
Environmental Review Unit

Division of Drinking Water and Environmental Management
Environmental Review Unit/State Revolving Fund/Prop 50
1616 Capitol Avenue, MS 7418, P.O. Box 997413, Sacramento CA 95899-7413
(916) 449-5600 Fax: (916) 446-5656
Internet Address: www.dhs.ca.gov/ps/ddwem

cc:

Terry Macaulay, District Engineer
CDHS Sacramento
1616 Capitol Avenue, MS 7407
Sacramento, CA 95899

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

Department of Toxic Substances Control

Alan C. Lloyd, Ph.D.
Agency Secretary
Cal/EPA

8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

June 23, 2005

RECEIVED
JUN 2 7 2005
DEPARTMENT OF
COMMUNITY DEVELOPMENT

Mr. David Tilley
Senior Planner
City of West Sacramento
1110 West Capitol Avenue
West Sacramento, California 95691

NOTICE OF PREPARATION AND INITIAL STUDY FOR THE RIVER PARK GENERAL PLAN AMENDMENT AND REZONING PROJECT (SCH# 2005062027)

Dear Mr. Tilley:

The Department of Toxic Substances Control (DTSC) has reviewed the document described above that proposes rezoning agricultural property to residential and building residential properties on the land. The Initial Study states that the draft Environmental Impact Report will address the level of significance of any hazardous materials sites that may exist in the project area. DTSC recommends that the discussion include whether pesticides were used on the proposed development site. Although DTSC does not regulate legally applied pesticides, if pesticides have historically been used on the property, we strongly recommend that these areas be tested for environmentally persistent pesticides such as DDT and metals prior to development. The results of any testing should be evaluated to determine if concentrations present in soils will pose a threat to residents and workers.

If you have any questions, please contact me at email <u>tmiles@dtsc.ca.gov</u> or by telephone at (916) 255-3710.

Sincerely,

Tim Miles

Tim Miles
Hazardous Substances Scientist

cc: See next page.

Printed on Recycled Paper

cc: State Clearinghouse
Office of Planning and Research
1400 10th Street, Room 121
Sacramento, California 95814-0613

Planning & Environmental Analysis Section
CEQA Tracking Center
Department of Toxic Substances Control
1001 I Street
P.O. Box 806
Sacramento, California 95812-0806

From: Dani Langford [mailto:danamites@earthlink.net]
Sent: Tuesday, July 05, 2005 12:15 AM
To: Tilley, David
Subject: Imput on EIR Report for the Southport River Park Project

Dear Mr. Tilley,
I am writing this in response to the possible "Amendment and Rezoning Project" of Southport's River Park Plan. Saying that our family and neighbor's are appalled at the proposal is an understatement! The "potential" impact to those of us who bought our rural homes and enjoy our life "in the country", is huge. When we purchased our home 7 years ago, we knew the "General Plan" called for growth. We weren't happy with the "General Plan" but were content with the fact it provided low-density housing and kept the "rural" atmosphere with a minimum of 1 acre lots. The proposal by Richland Developers to add an additional 1,100 homes and rezone the original plan is unacceptable! Have we not learned from the growth we've already experienced? Have we not learned from communities all around us who have over built and are now paying the price? Of course the environmental impact would be enormous!

1) The current traffic situation in Southport is a nightmare! Heaven help us if an emergency hit and we needed to evacuate the area, especially in a timely manner! How can we even consider adding anymore homes when we don't have the roads completed?

2) Have we not learned that high-density housing has brought more crime to our community? The low-income housing apartments in Bridgeway have huge crime issues. Drive-by shootings, burglaries, violence, drug related crimes, car thefts and gang activity but yet we have less police to cover the entire city than in the past years. I know people who live in the apartments and are very frustrated because they are stuck with a lease agreement so have no choice but to stay. They are also paying more than most tenants because they work. The housing developments have also brought more crime into our area. I have spoken to policemen who are very frustrated because they are stretched so thin. Heaven help us if we have an emergency out in this area that we would need a quick response.

3) Air quality in the Sacramento Valley is some of the worst in the nation. Of course more traffic in Southport will only add to the pollution and make West Sacramento even worse than normal, especially on "bad air" days!

4) The Farmland you are planning on building on off Davis Road is the site of migrating Canadian Geese every year as well as serves as home to pheasants, hawks, owls, cranes, red foxes and other wildlife. Also, because you have disturbed the natural homes of the coyotes, they are coming onto neighboring homes/farms to hunt domestic and farm animals.

5) What will happen when you put urban housing in the middle of farmland and places where people raise animals? Some of us chose to live in the rural area to raise animals for income, food, 4-H or enjoyment. Some of us like the smell of a farm and the peace the quiet life brings. That's why we paid more for our homes and property to be able to enjoy the tranquility of the country.

6) You threaten damage to our water wells and the structure of our homes with the de-watering and other construction problems caused with the extensive development. You may tell the newspapers and talk at your meetings that no one has been affected but we know people who had to get new wells and we've seen the cracks in their concrete and homes.

7) Some of us resent the removal of the established trees, especially the oaks that have given this community character and beauty. You can plant new trees but they will take many years to provide the benefits that an established tree has to offer.

8) How can you justify taking peoples homes/land, some of which have been in their family for 50+ years? The impact this has on some of the lives involved is devastating!

9) Although another elementary school is within this plan, we do not have a Jr. High or High School to support the current growth this community has already experienced. Maybe resources would be better spent working with Washington Unified School District to get our secondary schools up to capacity for our new growth before we add anymore.

These are just a few things that would be impacted by this proposed "Amendment & Rezoning Project". We know that growth is inevitable. How we do it is what will make our community a distinguishing one set apart from other communities that did not take notice to over growth. We must stick to the original plan. That is what our ***Community*** originally agreed upon. Many of those, directly impacted by these proposed changes, are unaware of any of this at all. Many of those impacted have lived here their entire life, as well as their children. We need to be responsible and not just let these developers come into our community, overgrow it and walk away leaving the mess behind while making millions of dollars at our expense! Please consider the negative impact changing the original plan would have on those of us who trusted you to do the right thing.

Sincerely,
Dani and Larry Langford
Davis Road Resident
West Sacramento
(916) 372-3384

From: M.L. Woy [mailto:ml_woy@midtown.net]
Sent: Tuesday, July 05, 2005 12:56 PM
To: Tilley, David
Subject: FW: Comments on NOP and Initial Study for River Park General Plan Amendment and Rezoning

Dear Mr. Tilley,

After a brief review of the above titled EIR it appears to be a balanced report on the project and its many significant impacts on the Southport community and the entire city. As a West Sacramento resident I am very concerned about the increased numbers of units proposed by the developer. It is obvious that with the recently released Traffic Demand Model Update showing our improved infrastructure will not be able to handle even the current buildout numbers; that it is sheer folly to increase one developers plan by a fifty percent increase in residential units! Any density increases belong much closer to the urban hub of downtown Sacramento if they are done at all.

I was dismayed to see that all of the RE units were removed from the rezoning plan and that 1000 additional units are planned for 150 less acres than laid out in the current General Plan and the Southport Framework Plan. This proposal will effectively double the number of units per acre of land. And in addition, the mention that with 1000 more units the elementary school site will possibly be eliminated and made into even more residential units is absurd! It seems that would force all children out of the village to go to school elsewhere; hence more traffic, not of the pedestrian nature and negates the village concept of the development. The reduction in parks and the increase in roadway acreage was another blow to any quality of life being maintained in the Southport area.

All of the items noted above call for our planning commission and city council to make the developers RESUBMIT their plans to fit within the guidelines of the CURRENT General and Framework Plans. These are NOT items that should be mitigated.

Respectfully submitted,

Joyce Glass
3960 Gregory Avenue
West Sacramento, Ca 95691
916.371.7401

Cc: City Council Members

Appendix B

Air Quality Technical Data and Model Runs

TABLE AIR-A2.

Unmitigated Construction Source Air Emissions during Construction Phase (lbs/day)

Phase1	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	1589.15	730.47	804.79	285.62
Unmitigated Subtotal	**1589.15**	**730.47**	**804.79**	**285.62**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2A	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	768.46	593.89	730.11	194.05
Unmitigated Subtotal	**768.46**	**593.89**	**730.11**	**194.05**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Mitigated Construction Source Air Emissions during Construction Phase (lbs/day)

Phase1	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	1589.15	730.47	804.79	119.75
Mitigated Subtotal	**1589.15**	**730.47**	**804.79**	**119.75**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2A	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	768.46	408.99	730.11	80
Mitigated Subtotal	**768.46**	**408.99**	**730.11**	**80**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2B	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	0	0	0	0
Unmitigated Subtotal	**0**	**0**	**0**	**0**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2B	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	0	0	0	0
Mitigated Subtotal	**0**	**0**	**0**	**0**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3A	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	1870.95	1060.97	1407.37	464.2
Unmitigated Subtotal	**1870.95**	**1060.97**	**1407.37**	**464.2**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3A	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	1870.95	735.6	1407.37	198.93
Mitigated Subtotal	**1870.95**	**735.6**	**1407.37**	**198.93**
Yolo-Solano Air Quality Management District Construction	82	82	-	150

Phase 3B	ROG	NO$_X$	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	2805.38	1634.94	2168.51	672.97
Unmitigated Subtotal	**2805.38**	**1634.94**	**2168.51**	**672.97**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150
w/ Bridge Already Completed Phase 1	ROG	NO$_X$	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	880.21	730.47	831.26	285.62
Unmitigated Subtotal	**880.21**	**730.47**	**831.26**	**285.62**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3B	ROG	NO$_X$	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	2805.38	1133.03	2168.51	286.95
Mitigated Subtotal	**2805.38**	**1133.03**	**2168.51**	**286.95**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150
w/ Bridge Already Completed Phase 1	ROG	NO$_X$	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	880.21	502.91	831.26	119.75
Mitigated Subtotal	**880.21**	**502.91**	**831.26**	**119.75**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

w/ Bridge Already Completed Phase 2	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	2198.43	1691.64	2167.31	679.5
Unmitigated Subtotal	**2198.43**	**1691.64**	**2167.31**	**679.5**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

w/ Bridge Already Completed Phase 2	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (mitigated)				
Residential Construction	2198.43	1164.6	2167.31	287.43
Mitigated Subtotal	**2198.43**	**1164.6**	**2167.31**	**287.43**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

TABLE AIR-A-1. Operational Stationary and Mobile Source Air Emissions during Project Operation (tons/year)

	ROG	NO_X	CO	PM10
Phase 2A	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Area source emissions				
Natural gas	0.15	1.93	0.82	0
Hearth	3.88	0.61	31.09	5.07
Landscaping	0.03	0	0.2	0
Consumer products	12.45	-	-	-
Architectural Coatings	2.99	-	-	-
Vehicular Emissions	14.33	16.25	159.88	16.98
Subtotal	**33.83**	**18.79**	**191.99**	**22.05**
	ROG	NO_X	CO	PM10
Phase 2B	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Area source emissions				
Natural gas	0.9	1.16	0.49	0
Hearth	2.33	0.37	18.65	3.04
Landscaping	0.03	0	0.19	0
Consumer products	7.47	-	-	-
Architectural Coatings	1.79	-	-	-
Vehicular Emissions	8.26	8.75	87.21	8.92
Subtotal	**20.78**	**10.28**	**106.54**	**11.96**

TABLE AIR-X. Operational Stationary and Mobile Source Air Emissions during Project Operation (lbs/day)

	ROG	NO_X	CO	PM10
Phase 2A	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Area source emissions				
Natural gas	0.82	10.57	4.49	0.00
Hearth	21.26	3.34	170.34	27.78
Landscaping	0.16	0.00	1.10	0.00
Consumer	68.21	-	-	-
Architectural Coatings	16.38	-	-	-
Vehicular Emissions	78.51	89.03	875.98	93.03
Subtotal	**185.35**	**102.95**	**1051.91**	**120.81**
	ROG	NO_X	CO	PM10
Phase 2B	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Area source emissions				
Natural gas	4.93	6.36	2.68	0.00
Hearth	12.77	2.03	102.18	16.66
Landscaping	0.16	0.00	1.04	0.00
Consumer	40.93	-	-	-
Architectural Coatings	9.81	-	-	-
Vehicular Emissions	45.26	47.94	477.82	48.87
Subtotal	**113.85**	**56.32**	**583.73**	**65.53**

	ROG	NO_X	CO	PM10
Phase 3A	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Area source emissions				
Natural gas	0.3	3.86	1.64	0.01
Hearth	7.76	1.22	62.17	10.14
Landscaping	0.03	0	0.23	0
Consumer products	24.89	-	-	-
Architectural Coatings	5.97	-	-	-
Vehicular Emissions	27.54	29.15	290.69	29.75
Subtotal	**66.49**	**34.23**	**354.73**	**39.9**

	ROG	NO_X	CO	PM10
Phase 3B	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Area source emissions				
Natural gas	0.32	4.12	1.86	0.01
Hearth	7.76	1.22	62.17	10.14
Landscaping	0.08	0.01	0.57	0
Consumer products	24.89	-	-	-
Architectural Coatings	6.26	-	-	-
Vehicular Emissions	34.07	34.83	346.44	34.88
Subtotal	**73.38**	**40.18**	**411.04**	**45.03**

	ROG	NO_X	CO	PM10
Phase 3A	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Area source emissions				
Natural gas	1.64	21.15	8.99	0.05
Hearth	42.52	6.68	340.63	55.56
Landscaping	0.16	0.00	1.26	0.00
Consumer	136.37	-	-	-
Architectural Coatings	32.71	-	-	-
Vehicular Emissions	150.89	159.71	1592.69	163.00
Subtotal	**364.30**	**187.55**	**1943.57**	**218.61**

	ROG	NO_X	CO	PM10
Phase 3B	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Area source emissions				
Natural gas	1.75	22.57	10.19	0.05
Hearth	42.52	6.68	340.63	55.56
Landscaping	0.44	0.05	3.12	0.00
Consumer	136.37	-	-	-
Architectural Coatings	34.30	-	-	-
Vehicular Emissions	186.67	190.83	1898.14	191.11
Subtotal	**402.05**	**220.15**	**2252.09**	**246.72**

w/ Bridge Already Completed Phase 2	ROG	NO_X	CO	PM10
	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Area source emissions				
Natural gas	0.32	4.12	1.86	0.01
Hearth	7.76	1.22	62.17	10.14
Landscaping	0.08	0.01	0.57	0
Consumer products	24.89	-	-	-
Architectural Coatings	6.26	-	-	-
Vehicular Emissions	34.07	34.83	346.44	34.88
Subtotal	**73.38**	**40.18**	**411.04**	**45.03**
Full Buildout Projected Emmission Total	**73.38**	**40.18**	**411.04**	**45.03**

w/ Bridge Already Completed Phase 2	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Area source emissions				
Natural gas	1.75	22.57	10.19	0.05
Hearth	42.52	6.68	340.63	55.56
Landscaping	0.44	0.05	3.12	0.00
Consumer	136.37	-	-	-
Architectural Coatings	34.30	-	-	-
Vehicular Emissions	186.67	190.83	1898.14	191.11
Subtotal	**402.05**	**220.15**	**2252.09**	**246.72**
	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Full Buildout Projected Emmission Total	402.05	220.15	2252.09	246.72
Quality Management District Operation Thresholds	82	82	550	150

Note:Original calculations were run in Urbemis as Tons/Year and then converted to Pounds/Day.
The tons/Year calcualtion is mor conservative as it includes Winter Hearth usage.

TABLE AIR-A2.

Unmitigated Construction Source Air Emissions during Construction Phase (lbs/day)

Phase1	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	1589.15	730.47	804.79	285.62
Unmitigated Subtotal	**1589.15**	**730.47**	**804.79**	**285.62**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Mitigated Construction Source Air Emissions during Construction Phase (lbs/day)

Phase1	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (mitigated)				
Residential Construction	1589.15	730.47	804.79	119.75
Mitigated Subtotal	**1589.15**	**730.47**	**804.79**	**119.75**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2A	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	768.46	593.89	730.11	194.05
Unmitigated Subtotal	**768.46**	**593.89**	**730.11**	**194.05**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2A	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (mitigated)				
Residential Construction	768.46	408.99	730.11	80
Mitigated Subtotal	**768.46**	**408.99**	**730.11**	**80**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2B	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	0	0	0	0
Unmitigated Subtotal	**0**	**0**	**0**	**0**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3A	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	1870.95	1060.97	1407.37	464.2
Unmitigated Subtotal	**1870.95**	**1060.97**	**1407.37**	**464.2**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 2B	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	0	0	0	0
Mitigated Subtotal	**0**	**0**	**0**	**0**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3A	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	1870.95	735.6	1407.37	198.93
Mitigated Subtotal	**1870.95**	**735.6**	**1407.37**	**198.93**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3B	ROG (lbs/day)	NO$_X$ (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	2805.38	1634.94	2168.51	672.97
Unmitigated Subtotal	**2805.38**	**1634.94**	**2168.51**	**672.97**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

w/ Bridge Already Completed Phase 1	ROG (lbs/day)	NO$_X$ (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	880.21	730.47	831.26	285.62
Unmitigated Subtotal	**880.21**	**730.47**	**831.26**	**285.62**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Phase 3B	ROG (lbs/day)	NO$_X$ (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (mitigated)				
Residential Construction	2805.38	1133.03	2168.51	286.95
Mitigated Subtotal	**2805.38**	**1133.03**	**2168.51**	**286.95**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

w/ Bridge Already Completed Phase 1	ROG (lbs/day)	NO$_X$ (lbs/day)	CO (lbs/day)	PM10 (lbs/day)
Construction Emissions (mitigated)				
Residential Construction	880.21	502.91	831.26	119.75
Mitigated Subtotal	**880.21**	**502.91**	**831.26**	**119.75**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

w/ Bridge Already Completed Phase 2	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (unmitigated)				
Residential Construction	2198.43	1691.64	2167.31	679.5
Unmitigated Subtotal	**2198.43**	**1691.64**	**2167.31**	**679.5**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

w/ Bridge Already Completed Phase 2	ROG	NO_X	CO	PM10
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
Construction Emissions (mitigated)				
Residential Construction	2198.43	1164.6	2167.31	287.43
Mitigated Subtotal	**2198.43**	**1164.6**	**2167.31**	**287.43**
Yolo-Solano Air Quality Management District Construction Thresholds	82	82	-	150

Table AIR-3.3-4. Anticipated Project Construction Equipment

Construction Phase and Equipment	Number of Equipment Pieces
Phase 1 - Site Grading	
Rubber Tired Dozer	20
Tractors/Loaders/Backhoes	20
Phase 1 - Building Construction	
Concrete/Industrial Saw	16
Rough Terrain Forklift	16
Other Equipment	33
Phase 1 Total Equipment Pieces	**105**
Phase 2A - Site Grading	
Rubber Tired Dozer	20
Tractors/Loaders/Backhoes	20
Phase 2A - Building Construction	
Concrete/Industrial Saw	11
Rough Terrain Forklift	11
Other Equipment	22
Graders	2
Off Highway Trucks	2
Pavers	2
Paving Equipment	2
Rollers	4
Phase 2A Total Equipment Pieces	**96**
Phase 2B Total Equipment Pieces *	**0**
Phase 3A - Site Grading	
Rubber Tired Dozer	20
Tractors/Loaders/Backhoes	20
Phase 3A - Building Construction	
Concrete/Industrial Saw	27
Rough Terrain Forklift	27
Other Equipment	54
Phase 3A Total Equipment Pieces	**108**
Phase 3B - Site Grading	
Rubber Tired Dozer	20
Tractors/Loaders/Backhoes	20

Table AIR-4. Anticipated Project Construction Equipment (cont.)

Construction Phase and Equipment	Number of Equipment Pieces
Phase 3B- Building Construction	
Concrete/Industrial Saw	42
Rough Terrain Forklift	42
Other Equipment	83
Phase 3B Total Equipment Pieces	**207**
w/ Bridge Already Completed Phase 1 - Site Grading	
Rubber Tired Dozer	20
Tractors/Loaders/Backhoes	20
w/ Bridge Already Completed Phase 1 - Building Construction	
Concrete/Industrial Saw	16
Rough Terrain Forklift	16
Other Equipment	33
w/ Bridge Already Completed Phase 1 Total Equipment Pieces	**105**
w/ Bridge Already Completed Phase 2 - Site Grading	
Rubber Tired Dozer	20
Tractors/Loaders/Backhoes	20
w/ Bridge Already Completed Phase 2 - Building Construction	
Concrete/Industrial Saw	42
Rough Terrain Forklift	42
Other Equipment	83
w/ Bridge Already Completed Phase 2 Total Equipment Pieces	**207**

* Phase 2B does not include any additional residences. Only out of project infrastructure improvements

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               URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 1 (c
Project Name:                       River Park E+P Phase 1 (construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                       SUMMARY REPORT
                    (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                         PM10      PM10      PM10
 *** 2007 ***                         ROG       NOx        CO       SO2    TOTAL   EXHAUST      DUST
 TOTALS (lbs/day,unmitigated)      100.22    730.47    765.56      0.01   285.62     31.58    254.04
 TOTALS (lbs/day, mitigated)       100.22    502.91    765.56      0.01   119.75      2.36    117.39

                                                                         PM10      PM10      PM10
 *** 2008 ***                         ROG       NOx        CO       SO2    TOTAL   EXHAUST      DUST
 TOTALS (lbs/day,unmitigated)    1,589.15    712.46    804.79      0.04    29.61     29.05      0.56
 TOTALS (lbs/day, mitigated)     1,589.15    495.36    804.79      0.04     3.12      2.56      0.56


AREA SOURCE EMISSION ESTIMATES
                                      ROG       NOx        CO       SO2     PM10
 TOTALS (lbs/day,unmitigated)       55.27      6.37      4.79      0.00     0.02


OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                      ROG       NOx        CO       SO2     PM10

 TOTALS (lbs/day,unmitigated)       15.72     11.88    140.71      0.33    48.85

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                      ROG       NOx        CO       SO2     PM10
 TOTALS (lbs/day,unmitigated)       71.00     18.25    145.50      0.33    48.86
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              URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 1 (c
Project Name:                       River Park E+P Phase 1 (construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                           DETAIL REPORT
                       (Pounds/Day - Summer)

Construction Start Month and Year: June, 2007
Construction Duration: 12
Total Land Use Area to be Developed: 101.73 acres
Maximum Acreage Disturbed Per Day: 25.4 acres
Single Family Units: 6.6 Multi-Family Units: 829.8
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)
                                                                      PM10      PM10        PM10
    Source                       ROG        NOx         CO        SO2     TOTAL   EXHAUST        DUST
 *** 2007***
Phase 1 - Demolition Emissions
Fugitive Dust                      -          -          -          -      0.00         -        0.00
Off-Road Diesel                 0.00       0.00       0.00          -      0.00      0.00        0.00
On-Road Diesel                  0.00       0.00       0.00       0.00      0.00      0.00        0.00
Worker Trips                    0.00       0.00       0.00       0.00      0.00      0.00        0.00
  Maximum lbs/day               0.00       0.00       0.00       0.00      0.00      0.00        0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -          -          -          -    254.00         -      254.00
Off-Road Diesel                86.14     657.23     637.42          -     29.29     29.29        0.00
On-Road Diesel                  0.00       0.00       0.00       0.00      0.00      0.00        0.00
Worker Trips                    0.79       0.93      17.12       0.01      0.07      0.03        0.04
  Maximum lbs/day              86.93     658.16     654.54       0.01    283.36     29.32      254.04

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     98.38     729.35     741.84          -     31.56     31.56        0.00
Bldg Const Worker Trips         1.85       1.12      23.72       0.00      0.29      0.02        0.27
Arch Coatings Off-Gas           0.00          -          -          -         -         -           -
Arch Coatings Worker Trips      0.00       0.00       0.00       0.00      0.00      0.00        0.00
Asphalt Off-Gas                 0.00          -          -          -         -         -           -
Asphalt Off-Road Diesel         0.00       0.00       0.00          -      0.00      0.00        0.00
Asphalt On-Road Diesel          0.00       0.00       0.00       0.00      0.00      0.00        0.00
Asphalt Worker Trips            0.00       0.00       0.00       0.00      0.00      0.00        0.00
  Maximum lbs/day             100.22     730.47     765.56       0.00     31.85     31.58        0.27

  Max lbs/day all phases      100.22     730.47     765.56       0.01    285.62     31.58      254.04


 *** 2008***
Phase 1 - Demolition Emissions
Fugitive Dust                      -          -          -          -      0.00         -        0.00
Off-Road Diesel                 0.00       0.00       0.00          -      0.00      0.00        0.00
On-Road Diesel                  0.00       0.00       0.00       0.00      0.00      0.00        0.00
Worker Trips                    0.00       0.00       0.00       0.00      0.00      0.00        0.00
  Maximum lbs/day               0.00       0.00       0.00       0.00      0.00      0.00        0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -          -          -          -      0.00         -        0.00
Off-Road Diesel                 0.00       0.00       0.00          -      0.00      0.00        0.00
On-Road Diesel                  0.00       0.00       0.00       0.00      0.00      0.00        0.00
Worker Trips                    0.00       0.00       0.00       0.00      0.00      0.00        0.00
  Maximum lbs/day               0.00       0.00       0.00       0.00      0.00      0.00        0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     98.38     695.84     765.00          -     28.61     28.61        0.00
Bldg Const Worker Trips         1.70       1.05      22.11       0.00      0.29      0.02        0.27
Arch Coatings Off-Gas       1,480.36          -          -          -         -         -           -
Arch Coatings Worker Trips      1.53       0.72      18.16       0.00      0.29      0.02        0.27
Asphalt Off-Gas                 6.43          -          -          -         -         -           -
Asphalt Off-Road Diesel         0.00       0.00       0.00          -      0.00      0.00        0.00
Asphalt On-Road Diesel          0.94      15.18       3.47       0.04      0.42      0.40        0.02
Asphalt Worker Trips            0.00       0.00       0.00       0.00      0.00      0.00        0.00
  Maximum lbs/day           1,589.15     712.46     804.79       0.04     29.61     29.05        0.56

  Max lbs/day all phases    1,589.15     712.46     804.79       0.04     29.61     29.05        0.56
```

```
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                  352          0.590            8.0
    20    Tractor/Loaders/Backhoes              79          0.465            8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Jul '07
Phase 3 Duration: 10.7 months
  Start Month/Year for SubPhase Building: Jul '07
  SubPhase Building Duration: 10.7 months
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    16    Concrete/Industrial saws              84          0.730            8.0
    33    Other Equipment                      190          0.620            8.0
    16    Rough Terrain Forklifts               94          0.475            8.0
  Start Month/Year for SubPhase Architectural Coatings: Apr '08
  SubPhase Architectural Coatings Duration: 1.1 months
  Start Month/Year for SubPhase Asphalt: May '08
  SubPhase Asphalt Duration: 0.5 months
  Acres to be Paved: 27
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day


CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)
                                                                          PM10     PM10        PM10
    Source                         ROG        NOx         CO        SO2    TOTAL  EXHAUST        DUST
 *** 2007***
Phase 1 - Demolition Emissions
Fugitive Dust                        -          -          -          -     0.00        -        0.00
Off-Road Diesel                   0.00       0.00       0.00          -     0.00     0.00        0.00
On-Road Diesel                    0.00       0.00       0.00       0.00     0.00     0.00        0.00
Worker Trips                      0.00       0.00       0.00       0.00     0.00     0.00        0.00
  Maximum lbs/day                 0.00       0.00       0.00       0.00     0.00     0.00        0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                        -          -          -          -   117.35        -      117.35
Off-Road Diesel                  86.14     452.17     637.42          -     2.17     2.17        0.00
On-Road Diesel                    0.00       0.00       0.00       0.00     0.00     0.00        0.00
Worker Trips                      0.79       0.93      17.12       0.01     0.07     0.03        0.04
  Maximum lbs/day                86.93     453.10     654.54       0.01   119.59     2.20      117.39

Phase 3 - Building Construction
Bldg Const Off-Road Diesel       98.38     501.79     741.84          -     2.34     2.34        0.00
Bldg Const Worker Trips           1.85       1.12      23.72       0.00     0.29     0.02        0.27
Arch Coatings Off-Gas             0.00          -          -          -        -        -           -
Arch Coatings Worker Trips        0.00       0.00       0.00       0.00     0.00     0.00        0.00
Asphalt Off-Gas                   0.00          -          -          -        -        -           -
Asphalt Off-Road Diesel           0.00       0.00       0.00          -     0.00     0.00        0.00
Asphalt On-Road Diesel            0.00       0.00       0.00       0.00     0.00     0.00        0.00
Asphalt Worker Trips              0.00       0.00       0.00       0.00     0.00     0.00        0.00
  Maximum lbs/day               100.22     502.91     765.56       0.00     2.63     2.36        0.27

  Max lbs/day all phases        100.22     502.91     765.56       0.01   119.75     2.36      117.39


 *** 2008***
Phase 1 - Demolition Emissions
Fugitive Dust                        -          -          -          -     0.00        -        0.00
Off-Road Diesel                   0.00       0.00       0.00          -     0.00     0.00        0.00
On-Road Diesel                    0.00       0.00       0.00       0.00     0.00     0.00        0.00
Worker Trips                      0.00       0.00       0.00       0.00     0.00     0.00        0.00
  Maximum lbs/day                 0.00       0.00       0.00       0.00     0.00     0.00        0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                        -          -          -          -     0.00        -        0.00
Off-Road Diesel                   0.00       0.00       0.00          -     0.00     0.00        0.00
On-Road Diesel                    0.00       0.00       0.00       0.00     0.00     0.00        0.00
Worker Trips                      0.00       0.00       0.00       0.00     0.00     0.00        0.00
  Maximum lbs/day                 0.00       0.00       0.00       0.00     0.00     0.00        0.00

Phase 3 - Building Construction
```

```
Bldg Const Off-Road Diesel     98.38     478.74    765.00        -       2.12      2.12      0.00
Bldg Const Worker Trips         1.70       1.05     22.11      0.00      0.29      0.02      0.27
Arch Coatings Off-Gas       1,480.36        -         -          -         -         -         -
Arch Coatings Worker Trips      1.53       0.72     18.16      0.00      0.29      0.02      0.27
Asphalt Off-Gas                 6.43        -         -          -         -         -         -
Asphalt Off-Road Diesel         0.00       0.00      0.00        -       0.00      0.00      0.00
Asphalt On-Road Diesel          0.94      15.18      3.47      0.04      0.42      0.40      0.02
Asphalt Worker Trips            0.00       0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day           1,589.15     495.36    804.79      0.04      3.12      2.56      0.56

  Max lbs/day all phases    1,589.15     495.36    804.79      0.04      3.12      2.56      0.56


Construction-Related Mitigation Measures

 Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
 Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
 Phase 2: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 2: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    20     Rubber Tired Dozers                  352          0.590            8.0
    20     Tractor/Loaders/Backhoes              79          0.465            8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Jul '07
Phase 3 Duration: 10.7 months
  Start Month/Year for SubPhase Building: Jul '07
  SubPhase Building Duration: 10.7 months
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    16     Concrete/Industrial saws              84          0.730            8.0
    33     Other Equipment                      190          0.620            8.0
    16     Rough Terrain Forklifts               94          0.475            8.0
  Start Month/Year for SubPhase Architectural Coatings: Apr '08
  SubPhase Architectural Coatings Duration: 1.1 months
  Start Month/Year for SubPhase Asphalt: May '08
  SubPhase Asphalt Duration: 0.5 months
  Acres to be Paved: 27
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
```

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.49	6.34	2.70	0	0.01
Hearth - No summer emissions					
Landscaping	0.29	0.03	2.09	0.00	0.00
Consumer Prdcts	40.92	-	-	-	-
Architectural Coatings	13.57	-	-	-	-
TOTALS(lbs/day,unmitigated)	55.27	6.37	4.79	0.00	0.02

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/2.2 to 11.73/6.6
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/13.65 to 8.87/43.68
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/11.42 to 6.35/43.38
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.28/2.86 to 8.72/8.072727

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area

The landscape year changed from 2005 to 2020.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The operational emission year changed from 2005 to 2025.
The home based work selection item changed from  8 to 7.
The home based shopping selection item changed from  8 to 7.
The home based other selection item changed from  8 to 7.
The commercial based commute selection item changed from  8 to 7.
The commercial based non-work selection item changed from  8 to 7.
The commercial based customer selection item changed from  8 to 7.
```

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               URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 2A (
Project Name:                       River Park E+P Phase 2A (construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                       SUMMARY REPORT
                    (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                            PM10      PM10      PM10
 *** 2009 ***                        ROG       NOx        CO       SO2     TOTAL   EXHAUST      DUST
 TOTALS (lbs/day,unmitigated)      86.82    593.89    699.00      0.01    194.05     25.01    169.04
 TOTALS (lbs/day, mitigated)       86.82    408.99    699.00      0.01     80.00      1.88     78.12

                                                                            PM10      PM10      PM10
 *** 2010 ***                        ROG       NOx        CO       SO2     TOTAL   EXHAUST      DUST
 TOTALS (lbs/day,unmitigated)     768.46    542.42    730.11      0.02     20.13     19.75      0.38
 TOTALS (lbs/day, mitigated)      768.46    375.02    730.11      0.02      1.99      1.61      0.38


AREA SOURCE EMISSION ESTIMATES
                                     ROG       NOx        CO       SO2      PM10
 TOTALS (lbs/day,unmitigated)      37.05      4.24      4.31      0.00      0.02


OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                     ROG       NOx        CO       SO2      PM10

 TOTALS (lbs/day,unmitigated)      43.27     46.79    484.48      0.39     38.09

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                     ROG       NOx        CO       SO2      PM10
 TOTALS (lbs/day,unmitigated)      80.32     51.03    488.78      0.40     38.10
```

```
               URBEMIS 2002 For Windows   8.7.0

File Name:                      G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 2A (
Project Name:                   River Park E+P Phase 2A (construction)
Project Location:               Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        DETAIL REPORT
                    (Pounds/Day - Summer)

Construction Start Month and Year: January, 2009
Construction Duration: 18
Total Land Use Area to be Developed: 67.8 acres
Maximum Acreage Disturbed Per Day: 16.9 acres
Single Family Units: 4.4 Multi-Family Units: 553.2
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)
                                                                        PM10      PM10      PM10
    Source                       ROG       NOx        CO       SO2     TOTAL   EXHAUST      DUST
 *** 2009***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -    169.00         -    169.00
Off-Road Diesel                86.14    592.63    684.79         -     24.98     24.98      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.68      1.26     14.21      0.01      0.07      0.03      0.04
  Maximum lbs/day              86.82    593.89    699.00      0.01    194.05     25.01    169.04

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     66.21    446.16    531.11         -     18.08     18.08      0.00
Bldg Const Worker Trips         1.03      0.64     13.59      0.00      0.19      0.01      0.18
Arch Coatings Off-Gas           0.00         -         -         -         -         -         -
Arch Coatings Worker Trips      0.00      0.00      0.00      0.00      0.00      0.00      0.00
Asphalt Off-Gas                 0.00         -         -         -         -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -      0.00      0.00      0.00
Asphalt On-Road Diesel          0.00      0.00      0.00      0.00      0.00      0.00      0.00
Asphalt Worker Trips            0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day              67.24    446.80    544.70      0.00     18.27     18.09      0.18

  Max lbs/day all phases       86.82    593.89    699.00      0.01    194.05     25.01    169.04


 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     66.21    424.87    546.65         -     16.35     16.35      0.00
Bldg Const Worker Trips         0.93      0.59     12.51      0.00      0.19      0.01      0.18
Arch Coatings Off-Gas         678.50         -         -         -         -         -         -
Arch Coatings Worker Trips      0.84      0.40     10.28      0.00      0.19      0.01      0.18
Asphalt Off-Gas                 2.68         -         -         -         -         -         -
Asphalt Off-Road Diesel        19.00    111.67    160.92         -      3.25      3.25      0.00
Asphalt On-Road Diesel          0.33      5.05      1.22      0.01      0.15      0.14      0.01
Asphalt Worker Trips            0.06      0.03      0.76      0.00      0.01      0.00      0.01
  Maximum lbs/day             768.46    542.42    730.11      0.02     20.13     19.75      0.38

  Max lbs/day all phases      768.46    542.42    730.11      0.02     20.13     19.75      0.38
```

```
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '09
Phase 2 Duration: 2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                  352           0.590           8.0
    20    Tractor/Loaders/Backhoes              79           0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Mar '09
Phase 3 Duration: 16 months
  Start Month/Year for SubPhase Building: Mar '09
  SubPhase Building Duration: 16 months
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    11    Concrete/Industrial saws              84           0.730           8.0
    22    Other Equipment                      190           0.620           8.0
    11    Rough Terrain Forklifts               94           0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: May '10
  SubPhase Architectural Coatings Duration: 1.6 months
  Start Month/Year for SubPhase Asphalt: Jun '10
  SubPhase Asphalt Duration: 0.8 months
  Acres to be Paved: 18
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
     2    Graders                              174           0.575           8.0
     2    Off Highway Trucks                   417           0.490           8.0
     2    Pavers                               132           0.590           8.0
     2    Paving Equipment                     111           0.530           8.0
     4    Rollers                              114           0.430           8.0


CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)
                                                                     PM10      PM10        PM10
    Source                         ROG       NOx        CO       SO2    TOTAL   EXHAUST        DUST
 *** 2009***
Phase 1 - Demolition Emissions
Fugitive Dust                        -         -         -         -     0.00         -        0.00
Off-Road Diesel                   0.00      0.00      0.00         -     0.00      0.00        0.00
On-Road Diesel                    0.00      0.00      0.00      0.00     0.00      0.00        0.00
Worker Trips                      0.00      0.00      0.00      0.00     0.00      0.00        0.00
  Maximum lbs/day                 0.00      0.00      0.00      0.00     0.00      0.00        0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                        -         -         -         -    78.08         -       78.08
Off-Road Diesel                  86.14    407.73    684.79         -     1.85      1.85        0.00
On-Road Diesel                    0.00      0.00      0.00      0.00     0.00      0.00        0.00
Worker Trips                      0.68      1.26     14.21      0.01     0.07      0.03        0.04
  Maximum lbs/day                86.82    408.99    699.00      0.01    80.00      1.88       78.12

Phase 3 - Building Construction
Bldg Const Off-Road Diesel       66.21    306.96    531.11         -     1.34      1.34        0.00
Bldg Const Worker Trips           1.03      0.64     13.59      0.00     0.19      0.01        0.18
Arch Coatings Off-Gas             0.00         -         -         -        -         -           -
Arch Coatings Worker Trips        0.00      0.00      0.00      0.00     0.00      0.00        0.00
Asphalt Off-Gas                   0.00         -         -         -        -         -           -
Asphalt Off-Road Diesel           0.00      0.00      0.00         -     0.00      0.00        0.00
Asphalt On-Road Diesel            0.00      0.00      0.00      0.00     0.00      0.00        0.00
Asphalt Worker Trips              0.00      0.00      0.00      0.00     0.00      0.00        0.00
  Maximum lbs/day                67.24    307.60    544.70      0.00     1.53      1.35        0.18

  Max lbs/day all phases         86.82    408.99    699.00      0.01    80.00      1.88       78.12


 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                        -         -         -         -     0.00         -        0.00
Off-Road Diesel                   0.00      0.00      0.00         -     0.00      0.00        0.00
On-Road Diesel                    0.00      0.00      0.00      0.00     0.00      0.00        0.00
Worker Trips                      0.00      0.00      0.00      0.00     0.00      0.00        0.00
  Maximum lbs/day                 0.00      0.00      0.00      0.00     0.00      0.00        0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                        -         -         -         -     0.00         -        0.00
Off-Road Diesel                   0.00      0.00      0.00         -     0.00      0.00        0.00
```

```
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     66.21    292.31    546.65         -      1.21      1.21      0.00
Bldg Const Worker Trips         0.93      0.59     12.51      0.00      0.19      0.01      0.18
Arch Coatings Off-Gas         678.50         -         -         -         -         -         -
Arch Coatings Worker Trips      0.84      0.40     10.28      0.00      0.19      0.01      0.18
Asphalt Off-Gas                 2.68         -         -         -         -         -         -
Asphalt Off-Road Diesel        19.00     76.83    160.92         -      0.24      0.24      0.00
Asphalt On-Road Diesel          0.33      5.05      1.22      0.01      0.15      0.14      0.01
Asphalt Worker Trips            0.06      0.03      0.76      0.00      0.01      0.00      0.01
  Maximum lbs/day             768.46    375.02    730.11      0.02      1.99      1.61      0.38

  Max lbs/day all phases      768.46    375.02    730.11      0.02      1.99      1.61      0.38


Construction-Related Mitigation Measures

 Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
 Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
 Phase 2: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 2: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '09
Phase 2 Duration: 2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                               Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                   352          0.590            8.0
    20    Tractor/Loaders/Backhoes               79          0.465            8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Mar '09
Phase 3 Duration: 16 months
  Start Month/Year for SubPhase Building: Mar '09
  SubPhase Building Duration: 16 months
  Off-Road Equipment
  No.     Type                               Horsepower    Load Factor     Hours/Day
    11    Concrete/Industrial saws               84          0.730            8.0
    22    Other Equipment                       190          0.620            8.0
    11    Rough Terrain Forklifts                94          0.475            8.0
  Start Month/Year for SubPhase Architectural Coatings: May '10
  SubPhase Architectural Coatings Duration: 1.6 months
  Start Month/Year for SubPhase Asphalt: Jun '10
  SubPhase Asphalt Duration: 0.8 months
  Acres to be Paved: 18
  Off-Road Equipment
  No.     Type                               Horsepower    Load Factor     Hours/Day
     2    Graders                               174          0.575            8.0
     2    Off Highway Trucks                    417          0.490            8.0
     2    Pavers                                132          0.590            8.0
     2    Paving Equipment                      111          0.530            8.0
     4    Rollers                               114          0.430            8.0
```

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/1.47 to 10.76/4.4
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/9.1 to 8.79/29.12
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/7.61 to 7.64/28.9
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.29/1.91 to 6.44/5.38

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area


Changes made to the default values for Operations
```

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               URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 3A (
Project Name:                       River Park E+P Phase 3A (construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                       SUMMARY REPORT
                    (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                               PM10       PM10       PM10
 *** 2010 ***                          ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)       164.85   1,044.32   1,373.05       0.01    464.20      40.16     424.04
 TOTALS (lbs/day, mitigated)        164.85     718.95   1,373.05       0.01    198.93       3.00     195.93

                                                                               PM10       PM10       PM10
 *** 2011 ***                          ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)     1,870.95   1,060.97   1,407.37       0.04     41.45      40.53       0.92
 TOTALS (lbs/day, mitigated)      1,870.95     735.60   1,407.37       0.04      4.29       3.37       0.92


AREA SOURCE EMISSION ESTIMATES
                                       ROG        NOx         CO        SO2      PM10
 TOTALS (lbs/day,unmitigated)        92.07      10.58       7.25       0.01      0.03


OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                       ROG        NOx         CO        SO2      PM10

 TOTALS (lbs/day,unmitigated)       108.17     116.97   1,211.19       0.99     95.21

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                       ROG        NOx         CO        SO2      PM10
 TOTALS (lbs/day,unmitigated)       200.24     127.56   1,218.44       0.99     95.24
```

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               URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 3A (
Project Name:                       River Park E+P Phase 3A (construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                           DETAIL REPORT
                       (Pounds/Day - Summer)

Construction Start Month and Year: June, 2010
Construction Duration: 18
Total Land Use Area to be Developed: 169.55 acres
Maximum Acreage Disturbed Per Day: 42.4 acres
Single Family Units: 11 Multi-Family Units: 1383
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)
                                                                        PM10      PM10       PM10
    Source                      ROG        NOx         CO        SO2    TOTAL   EXHAUST      DUST
 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                     -          -          -          -     0.00         -      0.00
Off-Road Diesel                0.00       0.00       0.00          -     0.00      0.00      0.00
On-Road Diesel                 0.00       0.00       0.00       0.00     0.00      0.00      0.00
Worker Trips                   0.00       0.00       0.00       0.00     0.00      0.00      0.00
  Maximum lbs/day              0.00       0.00       0.00       0.00     0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                     -          -          -          -   424.00         -    424.00
Off-Road Diesel               86.14     560.75     708.05          -    22.40     22.40      0.00
On-Road Diesel                 0.00       0.00       0.00       0.00     0.00      0.00      0.00
Worker Trips                   0.59       0.69      13.25       0.01     0.07      0.03      0.04
  Maximum lbs/day             86.73     561.44     721.30       0.01   446.47     22.43    424.04

Phase 3 - Building Construction
Bldg Const Off-Road Diesel   162.51   1,042.85   1,341.77          -    40.13     40.13      0.00
Bldg Const Worker Trips        2.34       1.46      31.27       0.00     0.48      0.03      0.45
Arch Coatings Off-Gas          0.00          -          -          -        -         -         -
Arch Coatings Worker Trips     0.00       0.00       0.00       0.00     0.00      0.00      0.00
Asphalt Off-Gas                0.00          -          -          -        -         -         -
Asphalt Off-Road Diesel        0.00       0.00       0.00          -     0.00      0.00      0.00
Asphalt On-Road Diesel         0.00       0.00       0.00       0.00     0.00      0.00      0.00
Asphalt Worker Trips           0.00       0.00       0.00       0.00     0.00      0.00      0.00
  Maximum lbs/day            164.85   1,044.32   1,373.05       0.00    40.61     40.16      0.45

  Max lbs/day all phases     164.85   1,044.32   1,373.05       0.01   464.20     40.16    424.04


 *** 2011***
Phase 1 - Demolition Emissions
Fugitive Dust                     -          -          -          -     0.00         -      0.00
Off-Road Diesel                0.00       0.00       0.00          -     0.00      0.00      0.00
On-Road Diesel                 0.00       0.00       0.00       0.00     0.00      0.00      0.00
Worker Trips                   0.00       0.00       0.00       0.00     0.00      0.00      0.00
  Maximum lbs/day              0.00       0.00       0.00       0.00     0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                     -          -          -          -     0.00         -      0.00
Off-Road Diesel                0.00       0.00       0.00          -     0.00      0.00      0.00
On-Road Diesel                 0.00       0.00       0.00       0.00     0.00      0.00      0.00
Worker Trips                   0.00       0.00       0.00       0.00     0.00      0.00      0.00
  Maximum lbs/day              0.00       0.00       0.00       0.00     0.00      0.00      0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel   162.51   1,042.85   1,341.77          -    40.13     40.13      0.00
Bldg Const Worker Trips        2.34       1.46      31.27       0.00     0.48      0.03      0.45
Arch Coatings Off-Gas      1,696.24          -          -          -        -         -         -
Arch Coatings Worker Trips     2.34       1.46      31.27       0.00     0.48      0.03      0.45
Asphalt Off-Gas                6.70          -          -          -        -         -         -
Asphalt Off-Road Diesel        0.00       0.00       0.00          -     0.00      0.00      0.00
Asphalt On-Road Diesel         0.82      15.19       3.05       0.04     0.36      0.34      0.02
Asphalt Worker Trips           0.00       0.00       0.00       0.00     0.00      0.00      0.00
  Maximum lbs/day          1,870.95   1,060.97   1,407.37       0.04    41.45     40.53      0.92

  Max lbs/day all phases   1,870.95   1,060.97   1,407.37       0.04    41.45     40.53      0.92
```

```
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '10
Phase 2 Duration: 2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                             Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                 352           0.590           8.0
    20    Tractor/Loaders/Backhoes             79           0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Aug '10
Phase 3 Duration: 16 months
  Start Month/Year for SubPhase Building: Aug '10
  SubPhase Building Duration: 16 months
  Off-Road Equipment
  No.     Type                             Horsepower    Load Factor     Hours/Day
    27    Concrete/Industrial saws             84           0.730           8.0
    54    Other Equipment                     190           0.620           8.0
    27    Rough Terrain Forklifts              94           0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: Oct '11
  SubPhase Architectural Coatings Duration: 1.6 months
  Start Month/Year for SubPhase Asphalt: Nov '11
  SubPhase Asphalt Duration: 0.8 months
  Acres to be Paved: 45
  Off-Road Equipment
  No.     Type                             Horsepower    Load Factor     Hours/Day


CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)
                                                                      PM10      PM10        PM10
    Source                    ROG        NOx         CO       SO2    TOTAL    EXHAUST       DUST
 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                   -          -          -         -     0.00          -       0.00
Off-Road Diesel              0.00       0.00       0.00         -     0.00       0.00       0.00
On-Road Diesel               0.00       0.00       0.00      0.00     0.00       0.00       0.00
Worker Trips                 0.00       0.00       0.00      0.00     0.00       0.00       0.00
  Maximum lbs/day            0.00       0.00       0.00      0.00     0.00       0.00       0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                   -          -          -         -   195.89          -     195.89
Off-Road Diesel             86.14     385.80     708.05         -     1.66       1.66       0.00
On-Road Diesel               0.00       0.00       0.00      0.00     0.00       0.00       0.00
Worker Trips                 0.59       0.69      13.25      0.01     0.07       0.03       0.04
  Maximum lbs/day           86.73     386.49     721.30      0.01   197.62       1.69     195.93

Phase 3 - Building Construction
Bldg Const Off-Road Diesel 162.51     717.48   1,341.77         -     2.97       2.97       0.00
Bldg Const Worker Trips      2.34       1.46      31.27      0.00     0.48       0.03       0.45
Arch Coatings Off-Gas        0.00          -          -         -        -          -          -
Arch Coatings Worker Trips   0.00       0.00       0.00      0.00     0.00       0.00       0.00
Asphalt Off-Gas              0.00          -          -         -        -          -          -
Asphalt Off-Road Diesel      0.00       0.00       0.00         -     0.00       0.00       0.00
Asphalt On-Road Diesel       0.00       0.00       0.00      0.00     0.00       0.00       0.00
Asphalt Worker Trips         0.00       0.00       0.00      0.00     0.00       0.00       0.00
  Maximum lbs/day          164.85     718.95   1,373.05      0.00     3.45       3.00       0.45

  Max lbs/day all phases   164.85     718.95   1,373.05      0.01   198.93       3.00     195.93


 *** 2011***
Phase 1 - Demolition Emissions
Fugitive Dust                   -          -          -         -     0.00          -       0.00
Off-Road Diesel              0.00       0.00       0.00         -     0.00       0.00       0.00
On-Road Diesel               0.00       0.00       0.00      0.00     0.00       0.00       0.00
Worker Trips                 0.00       0.00       0.00      0.00     0.00       0.00       0.00
  Maximum lbs/day            0.00       0.00       0.00      0.00     0.00       0.00       0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                   -          -          -         -     0.00          -       0.00
Off-Road Diesel              0.00       0.00       0.00         -     0.00       0.00       0.00
On-Road Diesel               0.00       0.00       0.00      0.00     0.00       0.00       0.00
Worker Trips                 0.00       0.00       0.00      0.00     0.00       0.00       0.00
  Maximum lbs/day            0.00       0.00       0.00      0.00     0.00       0.00       0.00

Phase 3 - Building Construction
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Bldg Const Off-Road Diesel    162.51     717.48  1,341.77         -       2.97       2.97       0.00
Bldg Const Worker Trips         2.34       1.46     31.27      0.00       0.48       0.03       0.45
Arch Coatings Off-Gas       1,696.24          -         -         -          -          -          -
Arch Coatings Worker Trips      2.34       1.46     31.27      0.00       0.48       0.03       0.45
Asphalt Off-Gas                 6.70          -         -         -          -          -          -
Asphalt Off-Road Diesel         0.00       0.00      0.00         -       0.00       0.00       0.00
Asphalt On-Road Diesel          0.82      15.19      3.05      0.04       0.36       0.34       0.02
Asphalt Worker Trips            0.00       0.00      0.00      0.00       0.00       0.00       0.00
  Maximum lbs/day           1,870.95     735.60  1,407.37      0.04       4.29       3.37       0.92

  Max lbs/day all phases    1,870.95     735.60  1,407.37      0.04       4.29       3.37       0.92


Construction-Related Mitigation Measures

 Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
 Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
 Phase 2: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 2: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '10
Phase 2 Duration: 2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                  352           0.590           8.0
    20    Tractor/Loaders/Backhoes              79           0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Aug '10
Phase 3 Duration: 16 months
  Start Month/Year for SubPhase Building: Aug '10
  SubPhase Building Duration: 16 months
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    27    Concrete/Industrial saws              84           0.730           8.0
    54    Other Equipment                      190           0.620           8.0
    27    Rough Terrain Forklifts               94           0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: Oct '11
  SubPhase Architectural Coatings Duration: 1.6 months
  Start Month/Year for SubPhase Asphalt: Nov '11
  SubPhase Asphalt Duration: 0.8 months
  Acres to be Paved: 45
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
```

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/3.67 to 10.76/11
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/22.75 to 8.79/72.8
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/19.03 to 7.64/72.3
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.28/4.77 to 6.44/13.45

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area


Changes made to the default values for Operations
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               URBEMIS 2002 For Windows   8.7.0

File Name:                         G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 3B (
Project Name:                      River Park E+P Phase 3B (construction)
Project Location:                  Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                         SUMMARY REPORT
                       (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                          PM10       PM10       PM10
 *** 2010 ***                        ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)     254.23   1,610.90   2,117.13       0.01    672.97      61.93     611.04
 TOTALS (lbs/day, mitigated)      254.23   1,440.76   2,117.13       0.01    286.95       4.63     282.32

                                                                          PM10       PM10       PM10
 *** 2011 ***                        ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)   2,805.38   1,634.94   2,168.51       0.07     63.86      62.47       1.39
 TOTALS (lbs/day, mitigated)    2,805.38   1,464.80   2,168.51       0.07      6.56       5.17       1.39


AREA SOURCE EMISSION ESTIMATES
                                     ROG        NOx         CO        SO2      PM10
 TOTALS (lbs/day,unmitigated)     131.76      16.25      15.09       0.01      0.06


OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                     ROG        NOx         CO        SO2      PM10

 TOTALS (lbs/day,unmitigated)     205.94     223.58   2,281.66       1.87    181.01

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                     ROG        NOx         CO        SO2      PM10
 TOTALS (lbs/day,unmitigated)     337.70     239.83   2,296.75       1.88    181.07
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               URBEMIS 2002 For Windows   8.7.0

File Name:                      G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 3B (
Project Name:                   River Park E+P Phase 3B (construction)
Project Location:               Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                           DETAIL REPORT
                       (Pounds/Day - Summer)

Construction Start Month and Year: June, 2010
Construction Duration: 18
Total Land Use Area to be Developed: 244.48 acres
Maximum Acreage Disturbed Per Day: 61.1 acres
Single Family Units: 15.4 Multi-Family Units: 1936.2
Retail/Office/Institutional/Industrial Square Footage: 154200

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)
                                                                        PM10    PM10        PM10
    Source                       ROG       NOx        CO       SO2     TOTAL   EXHAUST      DUST
 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -    611.00         -    611.00
Off-Road Diesel                86.14    560.75    708.05         -     22.40     22.40      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.59      0.69     13.25      0.01      0.07      0.03      0.04
  Maximum lbs/day              86.73    561.44    721.30      0.01    633.47     22.43    611.04

Phase 3 - Building Construction
Bldg Const Off-Road Diesel    250.72  1,608.70  2,070.14         -     61.88     61.88      0.00
Bldg Const Worker Trips         3.51      2.20     46.99      0.01      0.73      0.05      0.68
Arch Coatings Off-Gas           0.00         -         -         -         -         -         -
Arch Coatings Worker Trips      0.00      0.00      0.00      0.00      0.00      0.00      0.00
Asphalt Off-Gas                 0.00         -         -         -         -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -      0.00      0.00      0.00
Asphalt On-Road Diesel          0.00      0.00      0.00      0.00      0.00      0.00      0.00
Asphalt Worker Trips            0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day             254.23  1,610.90  2,117.13      0.01     62.61     61.93      0.68

  Max lbs/day all phases      254.23  1,610.90  2,117.13      0.01    672.97     61.93    611.04


 *** 2011***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel    250.72  1,608.70  2,070.14         -     61.88     61.88      0.00
Bldg Const Worker Trips         3.51      2.20     46.99      0.01      0.73      0.05      0.68
Arch Coatings Off-Gas       2,536.82         -         -         -         -         -         -
Arch Coatings Worker Trips      3.51      2.20     46.99      0.01      0.73      0.05      0.68
Asphalt Off-Gas                 9.63         -         -         -         -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -      0.00      0.00      0.00
Asphalt On-Road Diesel          1.18     21.84      4.39      0.05      0.52      0.49      0.03
Asphalt Worker Trips            0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day           2,805.38  1,634.94  2,168.51      0.07     63.86     62.47      1.39

  Max lbs/day all phases    2,805.38  1,634.94  2,168.51      0.07     63.86     62.47      1.39
```

```
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '10
Phase 2 Duration: 2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                               Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                   352          0.590            8.0
    20    Tractor/Loaders/Backhoes               79          0.465            8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Aug '10
Phase 3 Duration: 16 months
  Start Month/Year for SubPhase Building: Aug '10
  SubPhase Building Duration: 16 months
  Off-Road Equipment
  No.     Type                               Horsepower    Load Factor     Hours/Day
    42    Concrete/Industrial saws               84          0.730            8.0
    83    Other Equipment                      190           0.620            8.0
    42    Rough Terrain Forklifts                94          0.475            8.0
  Start Month/Year for SubPhase Architectural Coatings: Oct '11
  SubPhase Architectural Coatings Duration: 1.6 months
  Start Month/Year for SubPhase Asphalt: Nov '11
  SubPhase Asphalt Duration: 0.8 months
  Acres to be Paved: 64.7
  Off-Road Equipment
  No.     Type                               Horsepower    Load Factor     Hours/Day


CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)
                                                                       PM10     PM10        PM10
    Source                       ROG       NOx        CO       SO2     TOTAL   EXHAUST      DUST
 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -    282.28         -    282.28
Off-Road Diesel                86.14    501.45    708.05         -      1.66      1.66      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.59      0.69     13.25      0.01      0.07      0.03      0.04
  Maximum lbs/day              86.73    502.14    721.30      0.01    284.01      1.69    282.32

Phase 3 - Building Construction
Bldg Const Off-Road Diesel    250.72  1,438.56  2,070.14         -      4.58      4.58      0.00
Bldg Const Worker Trips         3.51      2.20     46.99      0.01      0.73      0.05      0.68
Arch Coatings Off-Gas           0.00         -         -         -         -         -         -
Arch Coatings Worker Trips      0.00      0.00      0.00      0.00      0.00      0.00      0.00
Asphalt Off-Gas                 0.00         -         -         -         -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -      0.00      0.00      0.00
Asphalt On-Road Diesel          0.00      0.00      0.00      0.00      0.00      0.00      0.00
Asphalt Worker Trips            0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day             254.23  1,440.76  2,117.13      0.01      5.31      4.63      0.68

  Max lbs/day all phases      254.23  1,440.76  2,117.13      0.01    286.95      4.63    282.32


 *** 2011***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 3 - Building Construction
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Bldg Const Off-Road Diesel    250.72  1,438.56  2,070.14          -       4.58       4.58       0.00
Bldg Const Worker Trips         3.51      2.20     46.99       0.01       0.73       0.05       0.68
Arch Coatings Off-Gas       2,536.82         -         -          -          -          -          -
Arch Coatings Worker Trips      3.51      2.20     46.99       0.01       0.73       0.05       0.68
Asphalt Off-Gas                 9.63         -         -          -          -          -          -
Asphalt Off-Road Diesel         0.00      0.00      0.00          -       0.00       0.00       0.00
Asphalt On-Road Diesel          1.18     21.84      4.39       0.05       0.52       0.49       0.03
Asphalt Worker Trips            0.00      0.00      0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day           2,805.38  1,464.80  2,168.51       0.07       6.56       5.17       1.39

  Max lbs/day all phases    2,805.38  1,464.80  2,168.51       0.07       6.56       5.17       1.39


Construction-Related Mitigation Measures

 Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
 Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
 Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 2: Off-Road Diesel Exhaust: Use aqueous fuel and lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 10.576% CO 0.0% SO2 0.0% PM10 63%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel and lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 10.576% CO 0.0% SO2 0.0% PM10 63%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel and lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 10.576% CO 0.0% SO2 0.0% PM10 63%)
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '10
Phase 2 Duration: 2 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                  352           0.590           8.0
    20    Tractor/Loaders/Backhoes              79           0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Aug '10
Phase 3 Duration: 16 months
  Start Month/Year for SubPhase Building: Aug '10
  SubPhase Building Duration: 16 months
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    42    Concrete/Industrial saws              84           0.730           8.0
    83    Other Equipment                      190           0.620           8.0
    42    Rough Terrain Forklifts               94           0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: Oct '11
  SubPhase Architectural Coatings Duration: 1.6 months
  Start Month/Year for SubPhase Asphalt: Nov '11
  SubPhase Asphalt Duration: 0.8 months
  Acres to be Paved: 64.7
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
```

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Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/5.13 to 10.76/15.4
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/31.85 to 8.79/101.92
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/26.64 to 7.64/101.22
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.28/6.68 to 6.44/18.836

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous fuel and lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel and lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel and lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area


Changes made to the default values for Operations
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                URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+A+P Phase 1
Project Name:                       River Park E+A+P Phase 1 (Construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                       SUMMARY REPORT
                    (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                              PM10       PM10       PM10
 *** 2007 ***                       ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)    100.22     730.47     765.56       0.01    285.62      31.58     254.04
 TOTALS (lbs/day, mitigated)     100.22     502.91     765.56       0.01    119.75       2.36     117.39

                                                                              PM10       PM10       PM10
 *** 2008 ***                       ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)    100.08     696.89     787.11       0.00     28.90      28.63       0.27
 TOTALS (lbs/day, mitigated)     100.08     479.78     787.11       0.00      2.41       2.14       0.27

                                                                              PM10       PM10       PM10
 *** 2009 ***                       ROG        NOx         CO        SO2     TOTAL    EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)    880.21     672.70     831.26       0.02     27.65      27.10       0.55
 TOTALS (lbs/day, mitigated)     880.21     465.77     831.26       0.02      2.75       2.20       0.55

AREA SOURCE EMISSION ESTIMATES
                                    ROG        NOx         CO        SO2      PM10
 TOTALS (lbs/day,unmitigated)     55.39       6.36       5.29       0.00      0.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                    ROG        NOx         CO        SO2      PM10

 TOTALS (lbs/day,unmitigated)     63.82      68.76     711.97       0.58     55.97

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                    ROG        NOx         CO        SO2      PM10
 TOTALS (lbs/day,unmitigated)    119.21      75.12     717.26       0.58     55.99
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               URBEMIS 2002 For Windows   8.7.0

File Name:                         G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+A+P Phase 1
Project Name:                      River Park E+A+P Phase 1 (Construction)
Project Location:                  Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        DETAIL REPORT
                    (Pounds/Day - Summer)

Construction Start Month and Year: June, 2007
Construction Duration: 24
Total Land Use Area to be Developed: 101.73 acres
Maximum Acreage Disturbed Per Day: 25.4 acres
Single Family Units: 6.6 Multi-Family Units: 829.8
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)
                                                                    PM10      PM10        PM10
    Source                       ROG        NOx        CO       SO2     TOTAL   EXHAUST       DUST
 *** 2007***
Phase 1 - Demolition Emissions
Fugitive Dust                      -          -          -         -      0.00         -       0.00
Off-Road Diesel                 0.00       0.00       0.00         -      0.00      0.00       0.00
On-Road Diesel                  0.00       0.00       0.00      0.00      0.00      0.00       0.00
Worker Trips                    0.00       0.00       0.00      0.00      0.00      0.00       0.00
  Maximum lbs/day               0.00       0.00       0.00      0.00      0.00      0.00       0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -          -          -         -    254.00         -     254.00
Off-Road Diesel                86.14     657.23     637.42         -     29.29     29.29       0.00
On-Road Diesel                  0.00       0.00       0.00      0.00      0.00      0.00       0.00
Worker Trips                    0.79       0.93      17.12      0.01      0.07      0.03       0.04
  Maximum lbs/day              86.93     658.16     654.54      0.01    283.36     29.32     254.04

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     98.38     729.35     741.84         -     31.56     31.56       0.00
Bldg Const Worker Trips         1.85       1.12      23.72      0.00      0.29      0.02       0.27
Arch Coatings Off-Gas           0.00          -          -         -         -         -          -
Arch Coatings Worker Trips      0.00       0.00       0.00      0.00      0.00      0.00       0.00
Asphalt Off-Gas                 0.00          -          -         -         -         -          -
Asphalt Off-Road Diesel         0.00       0.00       0.00         -      0.00      0.00       0.00
Asphalt On-Road Diesel          0.00       0.00       0.00      0.00      0.00      0.00       0.00
Asphalt Worker Trips            0.00       0.00       0.00      0.00      0.00      0.00       0.00
  Maximum lbs/day             100.22     730.47     765.56      0.00     31.85     31.58       0.27

  Max lbs/day all phases      100.22     730.47     765.56      0.01    285.62     31.58     254.04


 *** 2008***
Phase 1 - Demolition Emissions
Fugitive Dust                      -          -          -         -      0.00         -       0.00
Off-Road Diesel                 0.00       0.00       0.00         -      0.00      0.00       0.00
On-Road Diesel                  0.00       0.00       0.00      0.00      0.00      0.00       0.00
Worker Trips                    0.00       0.00       0.00      0.00      0.00      0.00       0.00
  Maximum lbs/day               0.00       0.00       0.00      0.00      0.00      0.00       0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -          -          -         -      0.00         -       0.00
Off-Road Diesel                 0.00       0.00       0.00         -      0.00      0.00       0.00
On-Road Diesel                  0.00       0.00       0.00      0.00      0.00      0.00       0.00
Worker Trips                    0.00       0.00       0.00      0.00      0.00      0.00       0.00
  Maximum lbs/day               0.00       0.00       0.00      0.00      0.00      0.00       0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     98.38     695.84     765.00         -     28.61     28.61       0.00
Bldg Const Worker Trips         1.70       1.05      22.11      0.00      0.29      0.02       0.27
Arch Coatings Off-Gas           0.00          -          -         -         -         -          -
Arch Coatings Worker Trips      0.00       0.00       0.00      0.00      0.00      0.00       0.00
Asphalt Off-Gas                 0.00          -          -         -         -         -          -
Asphalt Off-Road Diesel         0.00       0.00       0.00         -      0.00      0.00       0.00
Asphalt On-Road Diesel          0.00       0.00       0.00      0.00      0.00      0.00       0.00
Asphalt Worker Trips            0.00       0.00       0.00      0.00      0.00      0.00       0.00
  Maximum lbs/day             100.08     696.89     787.11      0.00     28.90     28.63       0.27

  Max lbs/day all phases      100.08     696.89     787.11      0.00     28.90     28.63       0.27

 *** 2009***
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Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel     98.38    663.24    789.02         -     26.89     26.89      0.00
Bldg Const Worker Trips         1.54      0.96     20.39      0.00      0.29      0.02      0.27
Arch Coatings Off-Gas         775.43         -         -         -         -         -         -
Arch Coatings Worker Trips      1.54      0.96     20.39      0.00      0.29      0.02      0.27
Asphalt Off-Gas                 2.92         -         -         -         -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -      0.00      0.00      0.00
Asphalt On-Road Diesel          0.40      7.54      1.46      0.02      0.18      0.17      0.01
Asphalt Worker Trips            0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day             880.21    672.70    831.26      0.02     27.65     27.10      0.55

  Max lbs/day all phases      880.21    672.70    831.26      0.02     27.65     27.10      0.55


Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 2.6 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                   352          0.590           8.0
    20    Tractor/Loaders/Backhoes               79          0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Aug '07
Phase 3 Duration: 21.4 months
  Start Month/Year for SubPhase Building: Aug '07
  SubPhase Building Duration: 21.4 months
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day
    16    Concrete/Industrial saws               84          0.730           8.0
    33    Other Equipment                       190          0.620           8.0
    16    Rough Terrain Forklifts                94          0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: Mar '09
  SubPhase Architectural Coatings Duration: 2.1 months
  Start Month/Year for SubPhase Asphalt: Apr '09
  SubPhase Asphalt Duration: 1.1 months
  Acres to be Paved: 27
  Off-Road Equipment
  No.     Type                              Horsepower    Load Factor     Hours/Day


CONSTRUCTION EMISSION ESTIMATES MITIGATED (lbs/day)
                                                                        PM10      PM10      PM10
    Source                       ROG       NOx        CO       SO2     TOTAL   EXHAUST      DUST
 *** 2007***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -      0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -      0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00      0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00      0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -    117.35         -    117.35
Off-Road Diesel                86.14    452.17    637.42         -      2.17      2.17      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00      0.00      0.00      0.00
Worker Trips                    0.79      0.93     17.12      0.01      0.07      0.03      0.04
  Maximum lbs/day              86.93    453.10    654.54      0.01    119.59      2.20    117.39

Phase 3 - Building Construction
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Bldg Const Off-Road Diesel      98.38     501.79     741.84          -       2.34       2.34       0.00
Bldg Const Worker Trips          1.85       1.12      23.72       0.00       0.29       0.02       0.27
Arch Coatings Off-Gas            0.00          -          -          -          -          -          -
Arch Coatings Worker Trips       0.00       0.00       0.00       0.00       0.00       0.00       0.00
Asphalt Off-Gas                  0.00          -          -          -          -          -          -
Asphalt Off-Road Diesel          0.00       0.00       0.00          -       0.00       0.00       0.00
Asphalt On-Road Diesel           0.00       0.00       0.00       0.00       0.00       0.00       0.00
Asphalt Worker Trips             0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day              100.22     502.91     765.56       0.00       2.63       2.36       0.27

  Max lbs/day all phases       100.22     502.91     765.56       0.01     119.75       2.36     117.39


 *** 2008***
Phase 1 - Demolition Emissions
Fugitive Dust                       -          -          -          -       0.00          -       0.00
Off-Road Diesel                  0.00       0.00       0.00          -       0.00       0.00       0.00
On-Road Diesel                   0.00       0.00       0.00       0.00       0.00       0.00       0.00
Worker Trips                     0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day                0.00       0.00       0.00       0.00       0.00       0.00       0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                       -          -          -          -       0.00          -       0.00
Off-Road Diesel                  0.00       0.00       0.00          -       0.00       0.00       0.00
On-Road Diesel                   0.00       0.00       0.00       0.00       0.00       0.00       0.00
Worker Trips                     0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day                0.00       0.00       0.00       0.00       0.00       0.00       0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel      98.38     478.74     765.00          -       2.12       2.12       0.00
Bldg Const Worker Trips          1.70       1.05      22.11       0.00       0.29       0.02       0.27
Arch Coatings Off-Gas            0.00          -          -          -          -          -          -
Arch Coatings Worker Trips       0.00       0.00       0.00       0.00       0.00       0.00       0.00
Asphalt Off-Gas                  0.00          -          -          -          -          -          -
Asphalt Off-Road Diesel          0.00       0.00       0.00          -       0.00       0.00       0.00
Asphalt On-Road Diesel           0.00       0.00       0.00       0.00       0.00       0.00       0.00
Asphalt Worker Trips             0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day              100.08     479.78     787.11       0.00       2.41       2.14       0.27

  Max lbs/day all phases       100.08     479.78     787.11       0.00       2.41       2.14       0.27


 *** 2009***
Phase 1 - Demolition Emissions
Fugitive Dust                       -          -          -          -       0.00          -       0.00
Off-Road Diesel                  0.00       0.00       0.00          -       0.00       0.00       0.00
On-Road Diesel                   0.00       0.00       0.00       0.00       0.00       0.00       0.00
Worker Trips                     0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day                0.00       0.00       0.00       0.00       0.00       0.00       0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                       -          -          -          -       0.00          -       0.00
Off-Road Diesel                  0.00       0.00       0.00          -       0.00       0.00       0.00
On-Road Diesel                   0.00       0.00       0.00       0.00       0.00       0.00       0.00
Worker Trips                     0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day                0.00       0.00       0.00       0.00       0.00       0.00       0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel      98.38     456.31     789.02          -       1.99       1.99       0.00
Bldg Const Worker Trips          1.54       0.96      20.39       0.00       0.29       0.02       0.27
Arch Coatings Off-Gas          775.43          -          -          -          -          -          -
Arch Coatings Worker Trips       1.54       0.96      20.39       0.00       0.29       0.02       0.27
Asphalt Off-Gas                  2.92          -          -          -          -          -          -
Asphalt Off-Road Diesel          0.00       0.00       0.00          -       0.00       0.00       0.00
Asphalt On-Road Diesel           0.40       7.54       1.46       0.02       0.18       0.17       0.01
Asphalt Worker Trips             0.00       0.00       0.00       0.00       0.00       0.00       0.00
  Maximum lbs/day              880.21     465.77     831.26       0.02       2.75       2.20       0.55

  Max lbs/day all phases       880.21     465.77     831.26       0.02       2.75       2.20       0.55


Construction-Related Mitigation Measures

 Phase 2: Soil Disturbance: Apply soil stabilizers to inactive areas
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 30.0%)
 Phase 2: Soil Disturbance: Water exposed surfaces - 2x daily
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 34.0%)
```

```
 Phase 2: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 2: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 2: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
 Phase 3: Off-Road Diesel Exhaust: Use aqueous diesel fuel
   Percent Reduction(ROG 0.0% NOx 14.0% CO 0.0% SO2 0.0% PM10 63.0%)
 Phase 3: Off-Road Diesel Exhaust: Use diesel particulate filter
   Percent Reduction(ROG 0.0% NOx 0.0% CO 0.0% SO2 0.0% PM10 80.0%)
 Phase 3: Off-Road Diesel Exhaust: Use lean-NOx catalyst
   Percent Reduction(ROG 0.0% NOx 20.0% CO 0.0% SO2 0.0% PM10 0.0%)
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 2.6 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.    Type                                Horsepower    Load Factor    Hours/Day
    20    Rubber Tired Dozers                   352          0.590           8.0
    20    Tractor/Loaders/Backhoes               79          0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Aug '07
Phase 3 Duration: 21.4 months
  Start Month/Year for SubPhase Building: Aug '07
  SubPhase Building Duration: 21.4 months
  Off-Road Equipment
  No.    Type                                Horsepower    Load Factor    Hours/Day
    16    Concrete/Industrial saws               84          0.730           8.0
    33    Other Equipment                       190          0.620           8.0
    16    Rough Terrain Forklifts                94          0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: Mar '09
  SubPhase Architectural Coatings Duration: 2.1 months
  Start Month/Year for SubPhase Asphalt: Apr '09
  SubPhase Asphalt Duration: 1.1 months
  Acres to be Paved: 27
  Off-Road Equipment
  No.    Type                                Horsepower    Load Factor    Hours/Day
```

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/2.2 to 11.73/6.6
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/13.65 to 8.87/43.68
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/11.42 to 6.35/43.38
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.28/2.86 to 8.72/8.07

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area


Changes made to the default values for Operations
```

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                URBEMIS 2002 For Windows   8.7.0

File Name:                          G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+A+P Phase 2
Project Name:                       River Park E+A+P Phase 2 (construction)
Project Location:                   Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                         SUMMARY REPORT
                     (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                                 PM10        PM10        PM10
 *** 2009 ***                         ROG        NOx         CO          SO2     TOTAL     EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)       254.58   1,691.64   2,062.43        0.01    679.50       68.46     611.04
 TOTALS (lbs/day, mitigated)        254.58   1,164.60   2,062.43        0.01    287.43        5.11     282.32

                                                                                 PM10        PM10        PM10
 *** 2010 ***                         ROG        NOx         CO          SO2     TOTAL     EXHAUST       DUST
 TOTALS (lbs/day,unmitigated)     2,198.43   1,628.98   2,167.31        0.06     63.71       62.33       1.38
 TOTALS (lbs/day, mitigated)      2,198.43   1,127.07   2,167.31        0.06      6.41        5.03       1.38

AREA SOURCE EMISSION ESTIMATES
                                      ROG        NOx         CO          SO2      PM10
 TOTALS (lbs/day,unmitigated)       131.76      16.25      15.09        0.01      0.06

OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                      ROG        NOx         CO          SO2      PM10

 TOTALS (lbs/day,unmitigated)       203.43     220.25   2,247.27        1.84    178.31

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                      ROG        NOx         CO          SO2      PM10
 TOTALS (lbs/day,unmitigated)       335.19     236.51   2,262.35        1.85    178.37
```

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                URBEMIS 2002 For Windows   8.7.0

File Name:                        G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+A+P Phase 2
Project Name:                     River Park E+A+P Phase 2 (construction)
Project Location:                 Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                       DETAIL REPORT
                    (Pounds/Day - Summer)

Construction Start Month and Year: January, 2009
Construction Duration: 24
Total Land Use Area to be Developed: 244.48 acres
Maximum Acreage Disturbed Per Day: 61.1 acres
Single Family Units: 15.4 Multi-Family Units: 1936.2
Retail/Office/Institutional/Industrial Square Footage: 154200

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)
                                                                    PM10      PM10       PM10
    Source                       ROG       NOx        CO       SO2   TOTAL   EXHAUST      DUST
 *** 2009***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -    0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -    0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00    0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00    0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00    0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -  611.00         -    611.00
Off-Road Diesel                86.14    592.63    684.79         -   24.98     24.98      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00    0.00      0.00      0.00
Worker Trips                    0.68      1.26     14.21      0.01    0.07      0.03      0.04
  Maximum lbs/day              86.82    593.89    699.00      0.01  636.05     25.01    611.04

Phase 3 - Building Construction
Bldg Const Off-Road Diesel    250.72  1,689.24  2,011.37         -   68.41     68.41      0.00
Bldg Const Worker Trips         3.87      2.41     51.06      0.01    0.73      0.05      0.68
Arch Coatings Off-Gas           0.00         -         -         -       -         -         -
Arch Coatings Worker Trips      0.00      0.00      0.00      0.00    0.00      0.00      0.00
Asphalt Off-Gas                 0.00         -         -         -       -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -    0.00      0.00      0.00
Asphalt On-Road Diesel          0.00      0.00      0.00      0.00    0.00      0.00      0.00
Asphalt Worker Trips            0.00      0.00      0.00      0.00    0.00      0.00      0.00
  Maximum lbs/day             254.58  1,691.64  2,062.43      0.01   69.14     68.46      0.68

  Max lbs/day all phases      254.58  1,691.64  2,062.43      0.01  679.50     68.46    611.04


 *** 2010***
Phase 1 - Demolition Emissions
Fugitive Dust                      -         -         -         -    0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -    0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00    0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00    0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00    0.00      0.00      0.00

Phase 2 - Site Grading Emissions
Fugitive Dust                      -         -         -         -    0.00         -      0.00
Off-Road Diesel                 0.00      0.00      0.00         -    0.00      0.00      0.00
On-Road Diesel                  0.00      0.00      0.00      0.00    0.00      0.00      0.00
Worker Trips                    0.00      0.00      0.00      0.00    0.00      0.00      0.00
  Maximum lbs/day               0.00      0.00      0.00      0.00    0.00      0.00      0.00

Phase 3 - Building Construction
Bldg Const Off-Road Diesel    250.72  1,608.70  2,070.14         -   61.88     61.88      0.00
Bldg Const Worker Trips         3.51      2.20     46.99      0.01    0.73      0.05      0.68
Arch Coatings Off-Gas       1,932.82         -         -         -       -         -         -
Arch Coatings Worker Trips      3.51      2.20     46.99      0.01    0.73      0.05      0.68
Asphalt Off-Gas                 7.00         -         -         -       -         -         -
Asphalt Off-Road Diesel         0.00      0.00      0.00         -    0.00      0.00      0.00
Asphalt On-Road Diesel          0.86     15.88      3.19      0.04    0.37      0.35      0.02
Asphalt Worker Trips            0.00      0.00      0.00      0.00    0.00      0.00      0.00
  Maximum lbs/day           2,198.43  1,628.98  2,167.31      0.06   63.71     62.33      1.38

  Max lbs/day all phases    2,198.43  1,628.98  2,167.31      0.06   63.71     62.33      1.38
```

```
Phase 1 - Demolition Assumptions:  Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jan '09
Phase 2 Duration: 2.6 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment
  No.     Type                                Horsepower    Load Factor     Hours/Day
    20    Rubber Tired Dozers                    352           0.590           8.0
    20    Tractor/Loaders/Backhoes                79           0.465           8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Mar '09
Phase 3 Duration: 21.4 months
  Start Month/Year for SubPhase Building: Mar '09
  SubPhase Building Duration: 21.4 months
  Off-Road Equipment
  No.     Type                                Horsepower    Load Factor     Hours/Day
    42    Concrete/Industrial saws                84           0.730           8.0
    83    Other Equipment                        190           0.620           8.0
    42    Rough Terrain Forklifts                 94           0.475           8.0
  Start Month/Year for SubPhase Architectural Coatings: Oct '10
  SubPhase Architectural Coatings Duration: 2.1 months
  Start Month/Year for SubPhase Asphalt: Nov '10
  SubPhase Asphalt Duration: 1.1 months
  Acres to be Paved: 64.7
  Off-Road Equipment
  No.     Type                                Horsepower    Load Factor     Hours/Day
```

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/5.13 to 11.73/15.4
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/31.85 to 8.87/101.92
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/26.64 to 6.35/101.22
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.28/6.68 to 8.72/18.836

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area


Changes made to the default values for Operations
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               URBEMIS 2002 For Windows   8.7.0

File Name:                       G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 2A.u
Project Name:                    River Park E+P Phase 2A
Project Location:                Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        SUMMARY REPORT
                     (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES
                                                                          PM10      PM10      PM10
 *** 2009 ***                       ROG       NOx        CO       SO2    TOTAL   EXHAUST      DUST
 TOTALS (lbs/day,unmitigated)    165.08  1,096.72  1,337.61      0.01   468.44     44.40    424.04
 TOTALS (lbs/day, mitigated)     165.08    755.04  1,337.61      0.01   199.25      3.32    195.93

                                                                          PM10      PM10      PM10
 *** 2010 ***                       ROG       NOx        CO       SO2    TOTAL   EXHAUST      DUST
 TOTALS (lbs/day,unmitigated)  1,918.11  1,336.25  1,803.35      0.04    49.61     48.65      0.96
 TOTALS (lbs/day, mitigated)   1,918.11    923.78  1,803.35      0.04     4.93      3.97      0.96

AREA SOURCE EMISSION ESTIMATES
                                    ROG       NOx        CO       SO2     PM10
 TOTALS (lbs/day,unmitigated)     91.94     10.60      6.73      0.00     0.03

OPERATIONAL (VEHICLE) EMISSION ESTIMATES
                                    ROG       NOx        CO       SO2     PM10

 TOTALS (lbs/day,unmitigated)     81.07     74.99    863.20      0.62    93.05

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES
                                    ROG       NOx        CO       SO2     PM10
 TOTALS (lbs/day,unmitigated)    173.01     85.59    869.93      0.62    93.08
```

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               URBEMIS 2002 For Windows   8.7.0

File Name:                         G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 2A.u
Project Name:                      River Park E+P Phase 2A
Project Location:                  Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        DETAIL REPORT
                         (Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)
    Source                          ROG        NOx        CO        SO2       PM10
 Natural Gas                       0.15       1.93      0.82       0.00      0.00
 Hearth                            3.88       0.61     31.09       0.10      5.07
 Landscaping                       0.03       0.00      0.20       0.00      0.00
 Consumer Prdcts                  12.45          -         -          -         -
 Architectural Coatings            2.99          -         -          -         -
 TOTALS (tpy, unmitigated)        19.49       2.54     32.11       0.10      5.08
```

```
                UNMITIGATED OPERATIONAL EMISSIONS

                                  ROG       NOx        CO        SO2       PM10
Single family housing            0.17      0.20      1.96       0.00      0.21
Apartments low rise              4.28      4.98     49.02       0.03      5.21
Apartments mid rise              6.45      7.09     69.71       0.05      7.40
Apartments high rise             3.43      3.98     39.19       0.03      4.16

TOTAL EMISSIONS (tons/yr)       14.33     16.25    159.88       0.11     16.98

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010                          Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

                                                                        No.      Total
Unit Type                  Acreage    Trip Rate                        Units     Trips

Single family housing        11.00   11.73 trips/dwelling unit        11.00    129.03
Apartments low rise          72.80    8.87 trips/dwelling unit       364.00 3,228.68
Apartments mid rise          72.30    6.35 trips/dwelling unit       723.00 4,591.05
Apartments high rise         13.45    8.72 trips/dwelling unit       296.00 2,581.12

                                                 Sum of Total Trips     10,529.88
                                       Total Vehicle Miles Traveled     61,312.33

Vehicle Assumptions:

Fleet Mix:

Vehicle Type               Percent Type    Non-Catalyst      Catalyst          Diesel
Light Auto                     54.70           1.10            98.70             0.20
Light Truck < 3,750   lbs      15.20           2.00            96.00             2.00
Light Truck  3,751- 5,750      16.20           1.20            98.10             0.70
Med Truck    5,751- 8,500       7.30           1.40            95.90             2.70
Lite-Heavy   8,501-10,000       1.10           0.00            81.80            18.20
Lite-Heavy  10,001-14,000       0.30           0.00            66.70            33.30
Med-Heavy   14,001-33,000       1.00           0.00            20.00            80.00
Heavy-Heavy 33,001-60,000       0.90           0.00            11.10            88.90
Line Haul > 60,000    lbs       0.00           0.00             0.00           100.00
Urban Bus                       0.20           0.00            50.00            50.00
Motorcycle                      1.60          68.80            31.20             0.00
School Bus                      0.10           0.00             0.00           100.00
Motor Home                      1.40           7.10            85.70             7.20

Travel Conditions
                                    Residential                 Commercial
                             Home-     Home-     Home-
                             Work      Shop      Other     Commute   Non-Work Customer
Urban Trip Length (miles)    9.7       3.8       4.6       7.8       4.5       4.5
Rural Trip Length (miles)   16.8       7.1       7.9      14.7       6.6       6.6
Trip Speeds (mph)           35.0      35.0      35.0      35.0      35.0      35.0
% of Trips - Residential    27.3      21.2      51.5
```

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing have changed from the defaults 9.57/3.67 to 11.73/11
The Trip Rate and/or Acreage values for Apartments low rise have changed from the defaults 6.9/22.75 to 8.87/72.8
The Trip Rate and/or Acreage values for Apartments mid rise have changed from the defaults 5.76/19.03 to 6.35/72.3
The Trip Rate and/or Acreage values for Apartments high rise have changed from the defaults 5.28/4.77 to 8.72/13.45

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 40.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 60.
The landscape year changed from 2005 to 2010.

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2010.
The operational winter selection item changed from 2 to 1.
The operational summer temperature changed from 85 to 90.

```
               URBEMIS 2002 For Windows   8.7.0

File Name:                        G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 2B.u
Project Name:                     River Park E+P Phase 2B
Project Location:                 Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        DETAIL REPORT
                         (Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)
    Source                          ROG        NOx         CO        SO2       PM10
 Natural Gas                       0.09       1.16       0.49       0.00       0.00
 Hearth                            2.33       0.37      18.65       0.06       3.04
 Landscaping                       0.03       0.00       0.19       0.00       0.00
 Consumer Prdcts                   7.47          -          -          -          -
 Architectural Coatings            1.79          -          -          -          -
 TOTALS (tpy, unmitigated)        11.70       1.53      19.33       0.06       3.05
```

```
              UNMITIGATED OPERATIONAL EMISSIONS

                                ROG       NOx        CO       SO2      PM10
Single family housing          0.09      0.11      1.07      0.00      0.11
Apartments low rise            2.47      2.68     26.74      0.02      2.74
Apartments mid rise            3.72      3.81     38.02      0.02      3.89
Apartments high rise           1.98      2.14     21.38      0.01      2.19

TOTAL EMISSIONS (tons/yr)      8.26      8.75     87.21      0.06      8.92

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010                     Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

                                                                   No.     Total
Unit Type                 Acreage    Trip Rate                    Units    Trips

Single family housing       6.60   11.73 trips/dwelling unit       6.60    77.42
Apartments low rise        43.68    8.87 trips/dwelling unit     218.40 1,937.21
Apartments mid rise        43.38    6.35 trips/dwelling unit     433.80 2,754.63
Apartments high rise        8.07    8.72 trips/dwelling unit     177.60 1,548.67

                                                Sum of Total Trips     6,317.93
                                      Total Vehicle Miles Traveled    32,207.37

Vehicle Assumptions:

Fleet Mix:

Vehicle Type             Percent Type    Non-Catalyst      Catalyst         Diesel
Light Auto                   54.70           1.10           98.70            0.20
Light Truck < 3,750   lbs    15.20           2.00           96.00            2.00
Light Truck  3,751- 5,750    16.20           1.20           98.10            0.70
Med Truck    5,751- 8,500     7.30           1.40           95.90            2.70
Lite-Heavy   8,501-10,000     1.10           0.00           81.80           18.20
Lite-Heavy  10,001-14,000     0.30           0.00           66.70           33.30
Med-Heavy   14,001-33,000     1.00           0.00           20.00           80.00
Heavy-Heavy 33,001-60,000     0.90           0.00           11.10           88.90
Line Haul > 60,000    lbs     0.00           0.00            0.00          100.00
Urban Bus                     0.20           0.00           50.00           50.00
Motorcycle                    1.60          68.80           31.20            0.00
School Bus                    0.10           0.00            0.00          100.00
Motor Home                    1.40           7.10           85.70            7.20

Travel Conditions
                                Residential                  Commercial
                          Home-     Home-     Home-
                          Work      Shop      Other    Commute  Non-Work Customer
Urban Trip Length (miles)  9.7       3.8       4.6       7.8       4.5       4.5
Rural Trip Length (miles) 16.8       7.1       7.9      14.7       6.6       6.6
Trip Speeds (mph)         35.0      35.0      35.0      35.0      35.0      35.0
% of Trips - Residential  27.3      21.2      51.5
```

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/2.2 to 11.73/6.6
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/13.65 to 8.87/43.68
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/11.42 to 6.35/43.38
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.28/2.86 to 8.72/8.07

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 40.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 60.
The landscape year changed from 2005 to 2010.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The operational emission year changed from 2005 to 2010.
The operational winter selection item changed from  2 to 1.
The operational summer temperature changed from  85 to 90.
```

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              URBEMIS 2002 For Windows   8.7.0

File Name:                      G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 3A.u
Project Name:                   River Park E+P Phase 3A
Project Location:               Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                           DETAIL REPORT
                            (Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)
    Source                         ROG        NOx        CO        SO2       PM10
 Natural Gas                      0.30       3.86      1.64       0.00       0.01
 Hearth                           7.76       1.22     62.17       0.20      10.14
 Landscaping                      0.03       0.00      0.23       0.00       0.00
 Consumer Prdcts                 24.89          -         -          -          -
 Architectural Coatings           5.97          -         -          -          -
 TOTALS (tpy, unmitigated)       38.95       5.08     64.04       0.20      10.15
```

```
               UNMITIGATED OPERATIONAL EMISSIONS

                                  ROG       NOx        CO       SO2      PM10
Single family housing            0.32      0.36      3.56      0.00      0.36
Apartments low rise              8.22      8.94     89.13      0.06      9.12
Apartments mid rise             12.41     12.71    126.74      0.08     12.97
Apartments high rise             6.59      7.15     71.26      0.05      7.29

TOTAL EMISSIONS (tons/yr)       27.54     29.15    290.69      0.19     29.75

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010                        Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

                                                                    No.     Total
Unit Type                  Acreage    Trip Rate                    Units    Trips

Single family housing        22.00   11.73 trips/dwelling unit     22.00   258.06
Apartments low rise         145.60    8.87 trips/dwelling unit    728.00 6,457.36
Apartments mid rise         144.60    6.35 trips/dwelling unit  1,446.00 9,182.10
Apartments high rise         26.90    8.72 trips/dwelling unit    592.00 5,162.24

                                                 Sum of Total Trips    21,059.76
                                        Total Vehicle Miles Traveled  107,357.89

Vehicle Assumptions:

Fleet Mix:

Vehicle Type              Percent Type    Non-Catalyst      Catalyst          Diesel
Light Auto                   54.70             1.10           98.70             0.20
Light Truck < 3,750   lbs    15.20             2.00           96.00             2.00
Light Truck  3,751- 5,750    16.20             1.20           98.10             0.70
Med Truck    5,751- 8,500     7.30             1.40           95.90             2.70
Lite-Heavy   8,501-10,000     1.10             0.00           81.80            18.20
Lite-Heavy  10,001-14,000     0.30             0.00           66.70            33.30
Med-Heavy   14,001-33,000     1.00             0.00           20.00            80.00
Heavy-Heavy 33,001-60,000     0.90             0.00           11.10            88.90
Line Haul > 60,000    lbs     0.00             0.00            0.00           100.00
Urban Bus                     0.20             0.00           50.00            50.00
Motorcycle                    1.60            68.80           31.20             0.00
School Bus                    0.10             0.00            0.00           100.00
Motor Home                    1.40             7.10           85.70             7.20

Travel Conditions
                                 Residential                  Commercial
                          Home-      Home-      Home-
                          Work       Shop       Other    Commute  Non-Work Customer
Urban Trip Length (miles)  9.7        3.8        4.6       7.8       4.5       4.5
Rural Trip Length (miles) 16.8        7.1        7.9      14.7       6.6       6.6
Trip Speeds (mph)         35.0       35.0       35.0      35.0      35.0      35.0
% of Trips - Residential  27.3       21.2       51.5
```

```
Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
 have changed from the defaults 9.57/7.33 to 11.73/22
The Trip Rate and/or Acreage values for Apartments low rise
 have changed from the defaults 6.9/45.5 to 8.87/145.6
The Trip Rate and/or Acreage values for Apartments mid rise
 have changed from the defaults 5.76/38.05 to 6.35/144.6
The Trip Rate and/or Acreage values for Apartments high rise
 have changed from the defaults 5.29/9.55 to 8.72/26.9

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
     has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter
     has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst
     has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 40.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 60.
The landscape year changed from 2005 to 2011.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The operational emission year changed from 2005 to 2010.
The operational winter selection item changed from  2 to 1.
The operational summer temperature changed from  85 to 90.
```

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               URBEMIS 2002 For Windows   8.7.0

File Name:                      G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+P Phase 3B.u
Project Name:                   River Park E+P Phase 3B
Project Location:               Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        DETAIL REPORT
                         (Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)
    Source                          ROG        NOx         CO        SO2       PM10
 Natural Gas                       0.32       4.12       1.86       0.00       0.01
 Hearth                            7.76       1.22      62.17       0.20      10.14
 Landscaping                       0.08       0.01       0.57       0.00       0.00
 Consumer Prdcts                  24.89          -          -          -          -
 Architectural Coatings            6.26          -          -          -          -
 TOTALS (tpy, unmitigated)        39.30       5.34      64.60       0.20      10.15
```

```
                 UNMITIGATED OPERATIONAL EMISSIONS

                                    ROG        NOx        CO        SO2        PM10
Single family housing               0.32       0.36       3.56      0.00       0.36
Apartments low rise                 8.22       8.94      89.13      0.06       9.12
Apartments mid rise                12.41      12.71     126.74      0.08      12.97
Apartments high rise                6.59       7.15      71.26      0.05       7.29
School                              1.73       0.92       8.72      0.01       0.92
Park                                0.18       0.12       1.11      0.00       0.11
High turnover (sit-down)            0.37       0.33       3.37      0.00       0.27
Shopping Center                     3.96       4.05      39.93      0.02       3.59
Tackle Shop                         0.17       0.17       1.71      0.00       0.15
Marina                              0.12       0.09       0.91      0.00       0.09

TOTAL EMISSIONS (tons/yr)          34.07      34.83     346.44      0.22      34.88

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010                        Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

                                                                       No.      Total
Unit Type                  Acreage     Trip Rate                      Units     Trips

Single family housing       22.00    11.73 trips/dwelling unit        22.00    258.06
Apartments low rise        145.60     8.87 trips/dwelling unit       728.00  6,457.36
Apartments mid rise        144.60     6.35 trips/dwelling unit     1,446.00  9,182.10
Apartments high rise        26.90     8.72 trips/dwelling unit       592.00  5,162.24
School                                1.29 trips/students            600.00    774.00
Park                                  2.28 trips/acres                49.50    112.86
High turnover (sit-down)            127.25 trips/1000 sq. ft.          4.00    509.00
Shopping Center                      78.97 trips/1000 sq. ft.         65.00  5,133.05
Tackle Shop                          44.00 trips/1000 sq. ft.          5.00    220.00
Marina                                2.96 trips/Berths               25.00     74.00

                                                 Sum of Total Trips        27,882.67
                                       Total Vehicle Miles Traveled       125,871.19

Vehicle Assumptions:

Fleet Mix:

Vehicle Type              Percent Type    Non-Catalyst      Catalyst          Diesel
Light Auto                    54.70           1.10            98.70             0.20
Light Truck < 3,750   lbs     15.20           2.00            96.00             2.00
Light Truck  3,751- 5,750     16.20           1.20            98.10             0.70
Med Truck    5,751- 8,500      7.30           1.40            95.90             2.70
Lite-Heavy   8,501-10,000      1.10           0.00            81.80            18.20
Lite-Heavy  10,001-14,000      0.30           0.00            66.70            33.30
Med-Heavy   14,001-33,000      1.00           0.00            20.00            80.00
Heavy-Heavy 33,001-60,000      0.90           0.00            11.10            88.90
Line Haul > 60,000    lbs      0.00           0.00             0.00           100.00
Urban Bus                      0.20           0.00            50.00            50.00
Motorcycle                     1.60          68.80            31.20             0.00
School Bus                     0.10           0.00             0.00           100.00
Motor Home                     1.40           7.10            85.70             7.20

Travel Conditions
                                     Residential                     Commercial
                             Home-     Home-      Home-
                             Work      Shop       Other     Commute   Non-Work Customer
Urban Trip Length (miles)    9.7        3.8        4.6        7.8        4.5        4.5
Rural Trip Length (miles)   16.8        7.1        7.9       14.7        6.6        6.6
Trip Speeds (mph)           35.0       35.0       35.0       35.0       35.0       35.0
% of Trips - Residential    27.3       21.2       51.5

% of Trips - Commercial (by land use)
School                                                        5.0        2.5       92.5
Park                                                          5.0        2.5       92.5
High turnover (sit-down) rest.                                5.0        2.5       92.5
Shopping Center                                               2.0        1.0       97.0
```

Tackle Shop	2.0	1.0	97.0
Marina	35.0	17.5	47.5

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing have changed from the defaults 9.57/7.33 to 11.73/22
The Trip Rate and/or Acreage values for Apartments low rise have changed from the defaults 6.9/45.5 to 8.87/145.6
The Trip Rate and/or Acreage values for Apartments mid rise have changed from the defaults 5.76/38.05 to 6.35/144.6
The Trip Rate and/or Acreage values for Apartments high rise have changed from the defaults 5.29/9.55 to 8.72/26.9

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.
Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.
Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 40.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 60.
The landscape year changed from 2005 to 2010.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The operational emission year changed from 2005 to 2010.
The operational winter selection item changed from 2 to 1.
The operational summer temperature changed from 85 to 90.

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                URBEMIS 2002 For Windows   8.7.0

File Name:                      G:\LGT-Air&Noise\Air\River Park EIR (YSAQMD)\Urbemis 2k2 8.7.0\River Park E+A+P Phase 2.
Project Name:                   River Park E+A+P Phase 2
Project Location:               Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

                        DETAIL REPORT
                         (Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)
    Source                         ROG        NOx         CO        SO2       PM10
 Natural Gas                      0.32       4.12       1.86       0.00       0.01
 Hearth                           7.76       1.22      62.17       0.20      10.14
 Landscaping                      0.08       0.01       0.57       0.00       0.00
 Consumer Prdcts                 24.89          -          -          -          -
 Architectural Coatings           6.26          -          -          -          -
 TOTALS (tpy, unmitigated)       39.30       5.34      64.60       0.20      10.15
```

```
               UNMITIGATED OPERATIONAL EMISSIONS

                                 ROG        NOx         CO        SO2       PM10
Single family housing           0.32       0.36       3.56       0.00       0.36
Apartments low rise             8.22       8.94      89.13       0.06       9.12
Apartments mid rise            12.41      12.71     126.74       0.08      12.97
Apartments high rise            6.59       7.15      71.26       0.05       7.29
School                          1.73       0.92       8.72       0.01       0.92
Park                            0.18       0.12       1.11       0.00       0.11
High turnover (sit-down)        0.37       0.33       3.37       0.00       0.27
Shopping Center                 3.96       4.05      39.93       0.02       3.59
Tackle Shop                     0.17       0.17       1.71       0.00       0.15
Marina                          0.12       0.09       0.91       0.00       0.09

TOTAL EMISSIONS (tons/yr)      34.07      34.83     346.44       0.22      34.88

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010                         Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

                                                                 No.      Total
Unit Type                 Acreage    Trip Rate                  Units     Trips

Single family housing       22.00    11.73 trips/dwelling unit     22.00    258.06
Apartments low rise        145.60     8.87 trips/dwelling unit    728.00  6,457.36
Apartments mid rise        144.60     6.35 trips/dwelling unit  1,446.00  9,182.10
Apartments high rise        26.91     8.72 trips/dwelling unit    592.00  5,162.24
School                                1.29 trips/students         600.00    774.00
Park                                  2.28 trips/acres             49.50    112.86
High turnover (sit-down)            127.25 trips/1000 sq. ft.       4.00    509.00
Shopping Center                      78.97 trips/1000 sq. ft.      65.00  5,133.05
Tackle Shop                          44.00 trips/1000 sq. ft.       5.00    220.00
Marina                                2.96 trips/Berths            25.00     74.00

                                                 Sum of Total Trips      27,882.67
                                        Total Vehicle Miles Traveled    125,871.19

Vehicle Assumptions:

Fleet Mix:

Vehicle Type               Percent Type    Non-Catalyst     Catalyst          Diesel
Light Auto                     54.70           1.10           98.70             0.20
Light Truck < 3,750   lbs      15.20           2.00           96.00             2.00
Light Truck  3,751- 5,750      16.20           1.20           98.10             0.70
Med Truck    5,751- 8,500       7.30           1.40           95.90             2.70
Lite-Heavy   8,501-10,000       1.10           0.00           81.80            18.20
Lite-Heavy  10,001-14,000       0.30           0.00           66.70            33.30
Med-Heavy   14,001-33,000       1.00           0.00           20.00            80.00
Heavy-Heavy 33,001-60,000       0.90           0.00           11.10            88.90
Line Haul > 60,000    lbs       0.00           0.00            0.00           100.00
Urban Bus                       0.20           0.00           50.00            50.00
Motorcycle                      1.60          68.80           31.20             0.00
School Bus                      0.10           0.00            0.00           100.00
Motor Home                      1.40           7.10           85.70             7.20

Travel Conditions
                                    Residential                  Commercial
                           Home-     Home-      Home-
                           Work      Shop       Other    Commute  Non-Work Customer
Urban Trip Length (miles)  9.7        3.8        4.6       7.8       4.5       4.5
Rural Trip Length (miles) 16.8        7.1        7.9      14.7       6.6       6.6
Trip Speeds (mph)         35.0       35.0       35.0      35.0      35.0      35.0
% of Trips - Residential  27.3       21.2       51.5

% of Trips - Commercial (by land use)
School                                                     5.0       2.5      92.5
Park                                                       5.0       2.5      92.5
High turnover (sit-down) rest.                             5.0       2.5      92.5
Shopping Center                                            2.0       1.0      97.0
```

Tackle Shop	2.0	1.0	97.0
Marina	35.0	17.5	47.5

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing have changed from the defaults 9.57/7.33 to 11.73/22

The Trip Rate and/or Acreage values for Apartments low rise have changed from the defaults 6.9/45.5 to 8.87/145.6

The Trip Rate and/or Acreage values for Apartments mid rise have changed from the defaults 5.76/38.05 to 6.35/144.6

The Trip Rate and/or Acreage values for Apartments high rise have changed from the defaults 5.29/9.55 to 8.72/26.91

Changes made to the default values for Construction

Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas has been changed from off to on.

Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily has been changed from off to on.

Phase 2 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.

Phase 2 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.

Phase 2 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.

Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.

Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.

Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.

Phase 3 mitigation measure Off-Road Diesel Exhaust: Use aqueous diesel fuel has been changed from off to on.

Phase 3 mitigation measure Off-Road Diesel Exhaust: Use diesel particulate filter has been changed from off to on.

Phase 3 mitigation measure Off-Road Diesel Exhaust: Use lean-NOx catalyst has been changed from off to on.

Changes made to the default values for Area

The wood stove percentage changed from 35 to 40.
The wood fireplace percentage changed from 10 to 0.
The natural gas fireplace percentage changed from 55 to 60.
The landscape year changed from 2005 to 2010.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The operational emission year changed from 2005 to 2010.
The operational winter selection item changed from 2 to 1.
The operational summer temperature changed from 85 to 90.

Appendix C

U.S. Fish and Wildlife Service
Endangered and Threatened Species List

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
SACRAMENTO WEST (513D)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: August 8, 2005
Document Number: 050810103626

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Acipenser medirostris - green sturgeon (P)

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)

Anthicus sacramento - Sacramento anthicid beetle (SC)

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)

Lampetra tridentata - Pacific lamprey (SC)

Pogonichthys macrolepidotus - Sacramento splittail (SC)

Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)

Athene cunicularia hypugaea - western burrowing owl (SC)

Baeolophus inornatus - oak titmouse (SLC)

Branta canadensis leucopareia - Aleutian Canada goose (D)

Buteo regalis - ferruginous hawk (SC)

Buteo Swainsoni - Swainson's hawk (CA)

Carduelis lawrencei - Lawrence's goldfinch (SC)

Chaetura vauxi - Vaux's swift (SC)

Charadrius montanus - mountain plover (SC)

Elanus leucurus - white-tailed (=black shouldered) kite (SC)

Empidonax traillii brewsteri - little willow flycatcher (CA)

Falco peregrinus anatum - American peregrine falcon (D)

Grus canadensis tabida - greater sandhill crane (CA)

Lanius ludovicianus - loggerhead shrike (SC)

Melanerpes lewis - Lewis' woodpecker (SC)

Numenius americanus - long-billed curlew (SC)

Picoides nuttallii - Nuttall's woodpecker (SLC)

Plegadis chihi - white-faced ibis (SC)

Riparia riparia - bank swallow (CA)

Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)

Myotis ciliolabrum - small-footed myotis bat (SC)

Myotis volans - long-legged myotis bat (SC)

Myotis yumanensis - Yuma myotis bat (SC)

Perognathus inornatus - San Joaquin pocket mouse (SC)

Key:

(E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.

(CA) Listed by the State of California but not by the Fish & Wildlife Service.
(D) *Delisted* - Species will be monitored for 5 years.
(SC) *Species of Concern*/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game Wildlife and Habitat Data Analysis Branch for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be November 08, 2005.

Appendix D

Wildlife Species Observed in the Project Area during a July 25, 2005 Field Visit

Appendix D

Wildlife Species Observed in the Project Area during a July 25, 2005 Field Visit

Common Name	Scientific Name
Birds	
Acorn woodpecker	*Melanerpes erythrocephalus*
American crow	*Corvus brachyrhynchos*
American robin	*Turdus migratorius*
Anna’s hummingbird	*Calypte anna*
Bushtit	*Psaltriparus minimus*
House finch	*Carpodacus mexicanus*
Killdeer	*Charadrius vociferous*
Lincoln’s sparrow	*Melospiza lincolnii*
Mallard	*Anas platyrhynchos*
Mourning dove	*Zenaida macroura*
Northern harrier	*Circus cyaneus*
Northern mockingbird	*Mimus polyglottos*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Swainson’s hawk	*Buteo swainsoni*
Turkey vulture	*Cathartes aura*
Western meadowlark	*Sturnella neglecta*
Western scrub jay	*Aphelocoma californica*
Yellow-billed magpie	*Pica nuttalli*
Mammals	
Black-tailed hare	*Lepus californicus*
Coyote (scat)	*Canis latrans*
Virginia opossum (remains)	*Didelphis marsupialis*
Western gray squirrel	*Sciurus griseus*

Appendix E

Biological Resources Environmental Setting

Appendix E

Biological Resources Environmental Setting

Methods

For the purpose of this EIR, the study area was defined by the limits of the River Park study area, depicted in Figure 3.4-1 in Section 3.4, *Biological Resources*.

The methods used to identify biological resources within the study area consisted of reviewing the existing information on biological resources in the study area, conducting field surveys, and coordinating with resource agencies.

Methods used to document special-status species and waters of the United States (including wetlands) are described below.

Special-Status Plant Surveys

As listed in Table 3.4-1, special-status plant surveys were conducted in 2004 in the study area. Target special-status plant species included species known to occur in the project vicinity and with suitable habitat on the site (Table 3.4-2). Information from the California Natural Diversity Database (CNDDB) list (California Natural Diversity Database 2005) and the California Native Plant Society (CNPS) inventory (California Native Plant Society 2002) was compared with the vegetation communities and soils in the study area to identify special-status plant species with potential to occur on-site.

Surveys were conducted on June 10, 2004, during the blooming period of Sanford's arrowhead, the only species with suitable habitat present in the study area. A reference population of Sanford's arrowhead was observed in bloom in Antelope, California. The study area survey was conducted by walking transects in irrigation ditches and the seasonal wetland. Survey methods were conducted in accordance with the U.S. Fish and Wildlife Service's (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* and the CNPS botanical survey guidelines (California Native Plant Society 2002).

Special-Status Wildlife Surveys

ECORP Consulting Inc. conducted special-status wildlife surveys between 2003 and 2005 (specific dates listed in Table 3.4-1) to assess habitat suitability and document the presence of special-status species within the study area (ECORP 2005b and 2005c).

On July 25, 2005, Jones & Stokes wildlife biologist Angela Alcala conducted a follow-up field survey within the study area to document existing habitat conditions and ensure that habitat suitability for special-status species identified as potentially occurring in the study area has not changed since the 2003 and 2004 field surveys. Ms. Alcala also confirmed the location of previously mapped elderberry shrubs and mapped additional elderberry shrubs located within or adjacent to the revised study area.

Special-Status Fish Surveys

No special-status fish surveys were required for the project. The only aquatic resource in the study area that has the potential to support special-status fish is the Sacramento River. Based on existing fisheries information for the Sacramento River, seven special-status fish (Chinook salmon, Central Valley steelhead, Sacramento splittail, delta smelt, green sturgeon, river lamprey, and hardhead) are presumed to be present within the reach of the Sacramento River that passes through the study area.

Delineation of Waters of the United States (Including Wetlands)

The wetland delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). For the purpose of this analysis, waters of the United States are categorized as either *wetlands* or *other waters of the United States*. Wetlands are defined as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 Code of Federal Regulations [CFR] 328.3(b), 40 CFR 230.3). To be considered under federal jurisdiction, a wetland must support positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology. *Other waters of the United States* are seasonal or perennial bodies of water, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark (OHWM) but lack positive indicators for one or two of the three wetland parameters (33 CFR 328.4).

As listed in Table 3.4-1, two wetland delineations were performed in the study area, the second delineation including only an additional 43 acres that were added to the original River Park study area. Details of the wetland delineation methods used are available in the delineation reports (ECORP Consulting 2004b, 2005a). The locations of potential waters of the United States, including wetlands, delineated in the study area are included on Figure 3.4-1. This delineation is preliminary and has been submitted to the U.S. Army Corps of Engineers (Corps) for verification.

An additional reconnaissance survey of the study area was performed on July 25, 2005. The locations of the irrigation ditch and seasonal wetland mapped in the delineation report were verified. Also verified were the locations of additional irrigation ditches noted in the delineation report but not included on the delineation map.

Existing Conditions

The study area is located in the Sacramento Valley subregion of the California Floristic Province (Hickman 1993). The area is relatively level and varies from 0 to 15 feet above mean sea level. Most of the study area is fallow or active agricultural land farmed for safflower and wheat. Two small orchards are also present. The area was likely an historic floodplain along the Sacramento River. Riparian corridors occur along the edge of the Sacramento River and along irrigation ditches within the site.

Biological Communities

The study area supports both important and common biological communities. Important biological communities are habitats considered sensitive because of high species diversity, high productivity, unusual nature, limited distribution, declining status, or a combination of these attributes. Local, state, and federal agencies consider such habitats important. The CNDDB (2004) contains a current list of rare (i.e., important) natural communities throughout the state. USFWS considers certain habitats, such as wetlands and riparian communities, important to wildlife.

Common biological communities (consisting of natural and artificial habitats) are habitats that have low species diversity, are widespread, reestablish naturally following disturbance, or support primarily nonnative species. These communities are generally not protected by agencies unless the specific site is habitat for or supports sensitive species (e.g., raptor foraging or nesting habitat, or upland habitat within a wetland watershed).

Four distinct biological communities occur in the study area, including valley oak riparian woodland, seasonal wetland/irrigation ditches, nonnative annual grassland/fallow agricultural land, and agricultural land. The location and extent of biological communities in the study area are shown on Figure 3.4-1. Of these communities, the valley oak riparian woodland and seasonal wetland are considered important or sensitive natural communities. The nonnative annual grassland/fallow agricultural land and the actively cultivated agricultural land are common biological communities. Locations, dominant plant species, and typical wildlife species found in these communities are described below.

In addition to the above biological communities, the Sacramento River borders the eastern and southern boundaries of the study area. A marina is proposed at the Oak Hill Bench along the Sacramento River, which is at the river bend in the easternmost portion of the study area. At this time, the marina plan is conceptual and has not been fully designed.

Valley Oak Riparian Woodland

Valley oak riparian woodland occurs along the Sacramento River bank at the eastern and southern boundaries of the study area. This woodland also occurs as a dense stand along the irrigation ditch in the central part of the study area. Dominant species in this community include valley oak, box elder, cottonwood, narrow-leaved willow, elderberry, and Himalayan blackberry. Along the river, invasive species such as tree-of-heaven and giant reed also occur.

Despite the disturbed condition of the riparian woodland, it does provide an important wildlife resource because it is associated with open water habitats (i.e., Sacramento River and irrigation canals). Riparian trees and shrubs provide nesting habitat for numerous bird species that forage in the multilayered vegetation of the riparian forest and in adjacent nonnative annual grassland and open water habitats. Birds observed in riparian woodland during the field survey included Anna's hummingbird, bushtit, northern mockingbird, mourning dove, and black phoebe.

Seasonal Wetland/Irrigation Ditches

Seasonal wetland communities occur in one depressional area and within irrigation ditches throughout the study area. The 0.02-acre seasonal wetland mapped in the southeast corner of the study area occurs in a depression and receives surface runoff. This wetland supports wetland plants such as horsetail, broad-leaf peppergrass, Bermuda grass, smartweed, sorghum, giant reed, and Himalayan blackberry. Because the wetland is separated from the Sacramento River by an artificial levee, it may be considered an adjacent wetland and could be under jurisdiction of the Corps (ECORP Consulting 2004b).

The main irrigation ditch in the study area is included as a blue-line feature on the USGS quadrangle and was included on the wetland delineation map. This ditch averages 8 feet in width and is incised up to 10 feet deep in places. The bed and bank of the ditch is vegetated by a seasonal wetland community dominated by nutsedge, dallisgrass, sorghum, and narrow-leaved willow. This ditch was excavated through leveled ground in 1911 and is bordered on each side by berms (ECORP Consulting 2004). Reclamation District No. 900 currently controls the flow, which is pumped from the Sacramento River and used for irrigation. This ditch terminates at the Port of Sacramento Deep Water Ship Channel, into which water is pumped from the ditch (ECORP Consulting 2004b). Flow in the ditch is dependent on the pumped water.

Other irrigation ditches branch off of the main ditch to supply water to individual fields in the study area. These additional ditches are generally narrower (width of approximately 5 feet) and convey water from the main ditch to individual fields. Both sides of the 8-foot-wide ditch that lies between two fallow fields south of Davis Road support a narrow band of riparian habitat, including valley oak, willow, cottonwood, and blackberry. Another ditch is parallel to the western site boundary along an abandoned rail corridor. This ditch averages 8 feet in width and is within the Lower Northwest Interceptor pipeline construction corridor (Montgomery Watson 2003).

The value of irrigation ditches as wildlife habitat varies with the duration and intensity of water flow. When water is present, irrigation ditches are used by a variety of wildlife species. Mammals such as raccoons and opossums use the habitats for drinking and washing their food. Shorebirds and waterfowl may use irrigation ditches for resting or foraging, and these habitats may serve as travel corridors for amphibians, invertebrates, or other highly aquatic wildlife.

Nonnative Annual Grassland/Fallow Agricultural Land

At the time of the reconnaissance survey in July 2005, most of the central and northern study area was fallow agricultural land that was either plowed or vegetated by ruderal (weedy) nonnative annual grassland species, such as slender wild oat, ryegrass, broad-leaf pepper grass, and yellow star-thistle, and by remnant crop species, such as sorghum.

Nonnative annual grassland in the study area provides foraging habitat and cover for many wildlife species. Wide-ranging animals, such as turkey vultures, red-tailed hawks, and coyotes, are common in the area. Wildlife species observed within nonnative annual grasslands in the study area include western meadowlark, yellow-billed magpie, killdeer, California ground squirrel, and black-tailed hare.

Agricultural Land

One field along the southern part of the study area was planted in safflower at the time of the 2005 reconnaissance survey. Two orchards of walnut and pecan also occur in the southern half of the study area. Most of the agricultural land in the study area is fallow, as described above. Irrigation ditches border most of the agricultural fields and orchards. These ditches support valley oak riparian woodland or seasonal wetland communities, as described above.

Depending on the crop pattern and the proximity to native habitats, agricultural lands can provide relatively high-value habitat for wildlife, particularly as foraging habitat. Raptors use row and grain crop agricultural lands for foraging because several species of common rodents are found in agricultural fields. Raptor species observed foraging in and adjacent to the study area during the January 2005 field survey included northern harrier, red-tailed hawk, and Swainson's hawk. Agricultural habitats also provide foraging and resting habitat for migrating and wintering waterfowl and shorebirds, especially during the winter months.

Sacramento River

The Sacramento River is tidal and is considered a water of the United States by the Corps, as well as a water of the state by the Regional Water Quality Control Boards (RWQCBs). Within the study area, the Sacramento River bank is lined by valley oak riparian woodland community, as mentioned above. Any proposed work within the ordinary high-water mark of the Sacramento River would be subject to Corps regulation under Section 404 of the federal Clean Water Act (CWA) and to RWQCB regulation under Section 401 of the CWA.

Open water habitats in the project area (Sacramento River and the Deep Water Ship Channel) may provide resting and escape cover for many species of waterfowl. Some bird species, such as gulls and terns, hunt over open water. Birds such as herons and belted kingfishers forage in open water habitat, primarily along the water's edge. Many species of insectivorous birds, including swallows, swifts, and flycatchers catch their prey over open water. Mammals that could be found in and near the riverine habitat include river otter, raccoon, and muskrat.

The lower Sacramento River and North Sacramento–San Joaquin River Delta (North Delta) support over 40 species of freshwater, anadromous, and estuarine fish. Table 3.4-4 lists fish species expected to occur in the immediate vicinity of the proposed project based on the monitoring surveys described above and general life history characteristics of species known to occur in the Sacramento River.

Anadromous species are marine species that return their freshwater habitats to spawn. The amount of time individuals spend as adults in the ocean or as juveniles in freshwater various from species to species. For example, juvenile steelhead spend from 1 to 2 years in freshwater before emigrating to the ocean as smolts, whereas juvenile Chinook salmon spend from several months to less than 1 year before emigrating to the ocean as smolts. With the exception of striped bass and American shad, all of the anadromous species found in the Sacramento River and Sacramento–San Joaquin River Delta (Delta) are native. However, all of these anadromous species spawn in the rivers of the Central Valley.

Freshwater species are fish species that spend their entire life cycle within freshwater portions of free-flowing rivers; tidally influenced delta sloughs and channels; and reservoir, lakes and ponds. Introduced freshwater species greatly outnumber native species in the North Delta. Largemouth and smallmouth bass, catfish, sunfish, and forage fish species (e.g., threadfin shad) are abundant and occur in most lower Sacramento River and North Delta habitats.

Estuarine species spawn in freshwater and are tolerant of low to moderate salinity during juvenile and adult life stages. These species include the native delta smelt, longfin smelt, and Sacramento splittail. Other estuarine species include the introduced yellowfin and shimofuri goby.

Special-status fish species are legally protected or considered sensitive (e.g., rare) by state, federal, or other agencies. These include species that are listed as threatened or endangered under the California Endangered Species Act (CESA) or the federal Endangered Species Act (ESA) and species identified by the California Department of Fish and Game (DFG); USFWS; and National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries [formerly National Marine Fisheries Service]) as species of special concern.

A more detailed discussion of Chinook salmon, steelhead, Sacramento splittail, delta smelt, longfin smelt, green sturgeon, river lamprey, and hardhead is included under Special-Status Fish below.

Special-Status Species

Special-status species are plants and animals that are legally protected under CESA, ESA, or other regulations as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals are species in the following categories:

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the *Federal Register* [FR] [proposed species]);
- Species that are candidates for possible future listing as threatened or endangered under ESA (69 FR 24876, May 11, 2005);
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5);
- Species that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA) (State CEQA Guidelines, Section 15380);
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
- Plants considered by CNPS to be “rare, threatened, or endangered in California” (Lists 1B and 2, California Native Plant Society 2005);
- Plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (Lists 3 and 4, California Native Plant Society 2005), which may be included as special-

status species on the basis of local significance or recent biological information;

- Animal species of special concern to DFG (Remsen 1978 [birds], Williams 1986 [mammals], and Jennings and Hayes 1994 [amphibians and reptiles]); or
- Animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).

Special-Status Plants

A list of special-status plants with potential to occur in the study area was generated based on a review of the CNDDB (2004), the *California Native Plant Society Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2001), and species distribution and habitat requirements data (Table 3.4-2). Suitable habitat for only one special-status plant species, Sanford's arrowhead, was identified in the study area, which is primarily agricultural land. However, this species was not observed during the survey (ECORP Consulting 2004a). The special-status plant survey report concluded that no special-status plants occur in the study area.

Special-Status Wildlife

Based on a review of existing information (including a search of the CNDDB [2005]), species lists obtained from the USFWS, and species distribution and habitat requirements data), a total of 28 special-status wildlife species were determined to have potential to occur in the project region (10-mile radius around the study area) (Table 3.4-3). To determine whether these species could occur in the study area, Jones & Stokes reviewed previous habitat-based field assessments conducted by ECORP Consulting (2005b) and conducted a follow-up field survey on July 25, 2005, to document existing habitat conditions.

In addition to the 28 special-status wildlife species listed in Table 3.4-3, non-special-status migratory birds and raptors could also nest in the study area. Although these species are not considered special-status wildlife, their occupied nests and eggs are protected by Sections 3503 and 3503.5 of the California Fish and Game Code and the federal Migratory Bird Treaty Act (MBTA).

Of the 28 special-status wildlife species identified as potentially occurring in the project region, eight species (Midvalley fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog, California tiger salamander, western spadefoot, bank swallow, western yellow-billed cuckoo) would not occur in the study area because it lacks suitable habitat for the species or because it is outside the species' known range. An explanation for the absence each of these species from the study area is provided in Table 3.4-3.

Eight species of special-status raptors (American peregrine falcon, bald eagle, ferruginous hawk, golden eagle, little willow flycatcher, merlin, mountain plover, and tricolored blackbird) would not nest in the study area but could migrate through and potentially forage over the study area. These species are wide-ranging and use of the study area for foraging would be highly incidental. The loss of the small amount of foraging habitat in the study area would not affect these species because foraging habitat is not a limited resource in the project region. The remaining 12 species (VELB, giant garter snake, northwestern pond turtle, Cooper's hawk, loggerhead shrike, northern harrier, Swainson's hawk, white-tailed kite, western burrowing owl, long-legged myotis, pallid bat, and Yuma myotis) were documented or have potential to occur in the study area and could be affected by proposed development within the study area. These species are discussed below.[1]

Valley Elderberry Longhorn Beetle

The Valley Elderberry Longhorn Beetle (VELB) is federally listed as a threatened species (45 FR 52803). The species occurs from as far south as Kern County to as far north as Shasta County (U.S. Fish and Wildlife Service 1999a). The majority of specimens and recorded observations appear to be from the Sacramento/Davis area (Linsley and Chemsak 1972). VELB is closely associated with blue elderberry, an obligate host for beetle larvae. Blue elderberry is considered a typical riparian shrub (Roberts et al. 1977; Katibah et al. 1984; Warner 1984) in California. It is a hardy shrub that successfully grows in a variety of riparian habitat types. In a study of Sacramento Valley riparian vegetation, Conrad et al. (1977) found that blue elderberry grows mainly at an intermediate elevation level in the floodplain, in association with box elder and buttonbush.

The presence of exit holes in elderberry stems indicates previous use by VELB. Exit holes are cylindrical and approximately 0.25 inch in diameter. Exit holes can be found on stems that are at least 1 inch in diameter. On the stems, holes may be located from a few inches above the ground to about 8.9 to 9.8 feet above the ground (Barr 1991).

Numerous elderberry shrubs (94) were identified during VELB surveys conducted by ECORP (2005c) for the proposed project. During the July 25, 2005, survey, one additional elderberry shrub was identified in the study area to the east of the levee road that runs along the Sacramento River bend. This elderberry shrub occurs within the area proposed as a waterfront marina. Elderberry shrub surveys conducted for the Lower Northwest Interceptor (LNWI) project also identified several elderberry shrubs (up to eight) along an abandoned railroad line adjacent to the western boundary of the study area. At the time of the July 25, 2005, field survey, construction of the LNWI was in progress and most of these elderberry shrubs had already been transplanted out of the LNWI project area. The locations of elderberry shrubs currently present within the study area are depicted on Figure 3.4-1.

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[1] Lower Northwest Interceptor Project Draft EIR SCH # 2001112085

Giant Garter Snake

Giant garter snake is federally and state-listed as threatened. Historically, giant garter snake was found in the Sacramento and San Joaquin Valleys from Butte County south to Buena Vista Lake in Kern County. Today, populations are found only in the Sacramento Valley and isolated portions of the San Joaquin Valley as far south as Fresno County. Giant garter snake is still presumed to occur in 11 counties: Butte, Colusa, Fresno, Glenn, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo (U.S. Fish and Wildlife Service 1999b).

Giant garter snake inhabits wetlands, irrigation and drainage canals, rice fields, marshes, sloughs, ponds, low-gradient streams, and adjacent uplands in the Central Valley (U.S. Fish and Wildlife Service 1999b). The four essential habitat components for the giant garter snake are listed below:

- adequate water during its active season (early spring through mid fall);
- emergent, herbaceous wetland vegetation for foraging habitat and escape cover;
- upland habitat with grassy banks and openings in aquatic vegetation for basking; and
- upland habitat above the high-water line with burrows for overwintering (U.S. Fish and Wildlife Service 1999b).

Riparian woodlands do not provide suitable habitat because potential basking areas are often shaded. Giant garter snake does not inhabit large rivers or wetlands with sand, gravel, or rock substrates (U.S. Fish and Wildlife Service 1999b). It tends to stay within 200 feet of wetland habitat (U.S. Fish and Wildlife Service 1999b). It hibernates from early October to late March in burrows located in adjacent uplands, especially grasslands, high above the high-water line. The breeding season begins soon after the species emerges from hibernating burrows, from March to May, and resumes briefly during September (U.S. Fish and Wildlife Service 1999b).

The study area is within the current range of giant garter snake (U.S. Fish and Wildlife Service 1999b). Several (more than 10) CNDDB (2005) records for giant garter snake occur within a 10-mile radius around the study area. The closest reported occurrence of giant garter snake occurs approximately 5 miles west of the study area along the Willow Slough Bypass (California Natural Diversity Database 2005). Within the study area, irrigation ditches (Figure 3.4-1) provide suitable aquatic habitat for giant garter snake. Water is pumped into the main ditch (identified as a 8-foot-wide feature on Figure 3.4-1) from the Sacramento River and is used to irrigate agricultural fields in the study area. The flow of water through these ditches is variable and is dependent on the need for irrigation water. Most of the ditches in the study area were dry at the time of the July 25, 2005, field survey. It is likely that water was not being pumped into the main ditch because construction for the LNWI project was occurring at the western edge of the study area boundary in the vicinity of the main irrigation ditch. To avoid impacts on giant garter snake, the LNWI project is required to dewater any potential giant garter snake habitat (U.S. Fish and Wildlife Service 2004).

Upland basking and overwintering habitat is also present within the study area. Upland habitat consists of nonnative annual grasslands/fallow agricultural fields and agricultural lands within 200 feet of suitable aquatic habitat.

Northwestern Pond Turtle

Northwestern pond turtle is designated as a federal species of concern and a state species of special concern. Northwestern pond turtles, one of two subspecies of western pond turtle, occur from the vicinity of the American River in California north to the lower Columbia River in Oregon and Washington (Jennings et al. 1992).

Northwestern pond turtle is thoroughly aquatic, preferring the quiet waters of ponds, reservoirs, and sluggish streams (Stebbins 1985). The species occurs in a wide range of both permanent and intermittent aquatic environments (Jennings et al. 1992). Northwestern pond turtles spend a considerable amount of time basking on rocks, logs, emergent vegetation, mud or sand banks, or human-generated debris. They move up to 1,300 feet or more to upland areas adjacent to watercourses to deposit eggs and overwinter (Jennings and Hayes 1994). Northwestern pond turtles typically become active in March and return to overwintering sites by October or November (Jennings et al. 1992).

Irrigation ditches in the study area provide potential habitat for northwestern pond turtle when they contain sufficient water. Northwestern pond turtles could bask along berms associated with the irrigation ditches and nest in the adjacent grasslands and agricultural lands. No northwestern pond turtles were observed during field surveys conducted for the project, but focused wildlife surveys were not conducted within the irrigation ditches in the study area.

Cooper’s Hawk

Cooper’s hawk is designated as a state species of special concern. Cooper’s hawk is a year-round resident throughout much of California, except in the high Sierra Nevada. Migrants from the north winter in California, and residents move downslope and south from areas of heavy snow in fall and return in spring (Zeiner et al. 1990). Cooper’s hawks nest in riparian, deciduous, conifer, and mixed woodlands (Garrett and Dunn 1981) but will also nest in urban areas and seem to tolerate human disturbance near the nest. The species’ breeding season is March 1–August 1. Cooper’s hawks forage along forest edges and in broken habitats for small birds and small mammals (Zeiner et al. 1990).

No Cooper’s hawks were observed in the study area during the July 25, 2005, field survey. Cooper’s hawk are known to nest in the project region. Valley oak riparian woodlands in the study area provide suitable Cooper's hawk nesting and foraging habitat.

Loggerhead Shrike

Loggerhead shrike is a state species of special concern. It is a common year-round resident throughout California lowlands and foothills. Loggerhead shrikes prefer open habitats with shrubs, fences, utility line poles, or other perches. They tend to avoid urbanized areas but often frequent open croplands. Nests are usually hidden in densely foliaged shrubs or trees. The breeding season is from March through August (Zeiner et al. 1990).

Although no loggerhead shrikes were observed during the July 25, 2005, field survey, they have been observed in the project vicinity during previous biological surveys conducted for nearby projects. Nonnative annual grasslands in the study area provide suitable foraging habitat for loggerhead shrikes; they could also nest in valley oak riparian woodlands and scattered shrubs throughout the study area.

Northern Harrier

Northern harrier is a state species of special concern. Its breeding range includes most of the Central Valley, the Delta, Suisun Marsh, and portions of San Francisco Bay (Zeiner et al. 1990). Northern harriers use tall grasses and forbs in wetlands and field borders for cover (Zeiner et al. 1990). They roost on the ground in shrubby vegetation, often near a marsh edge (Brown and Amadon 1968). The species' breeding season is between April and September, with peak activity in June and July. Northern harriers feed mainly on voles and other small mammals, birds, small reptiles, crustaceans, and insects.

One northern harrier was observed foraging over grasslands and agricultural areas in and near the study area during the July 2005 field survey, which was conducted during the northern harrier breeding season. Tall annual grasses in the study area provide suitable nesting habitat and foraging opportunities for northern harriers.

Swainson's Hawk

Swainson's hawk is state listed as threatened. Swainson's hawk migrates annually from wintering areas in South America to breeding locations in northwestern Canada, the western United States, and Mexico. In California, Swainson's hawk nests throughout the Central Valley in large trees in riparian corridors and in isolated trees located in or adjacent to agricultural fields. Its breeding season extends from late March through late August, with peak activity from late May through July (England et al. 1997). In the Central Valley, Swainson's hawk forages in large, open agricultural habitats, including alfalfa and hay fields (California Department of Fish and Game 1994). The breeding population in California has declined by an estimated 91% since 1900, which is attributed to the loss of riparian nesting habitats and the conversion of native grassland and woodland habitats to agriculture and urban development (California Department of Fish and Game 1994).

More than 50 Swainson's hawk nesting records are known within a 10-mile radius of the study area (California Natural Diversity Database 2005). Although a total of six historic nest sites have been documented within 1 mile of the study area, no recorded nests sites occur in the study area (California Natural Diversity Database 2005). Three Swainson's hawks were observed flying out of large oak trees in the study area and soaring over the study area during the July 25, 2005, field survey. It is presumed that Swainson's hawks nested in the study area during the 2005 breeding season. Nonnative annual grasslands and agricultural lands in the study area provide suitable foraging habitat for Swainson's hawk nesting in the study area and up to 10 miles away from the study area.

Western Burrowing Owl

Western burrowing owl is a federal species of concern, a state species of special concern, and protected during its nesting season under the MBTA and California Fish and Game Code Section 3503.5. Western burrowing owl is found throughout much of California in annual and perennial grassland, desert, and arid scrubland (California Department of Fish and Game 1995). The presence of burrows is the critical requirement for western burrowing owl habitat. Throughout their range, burrowing owls rely on burrows excavated by fossorial mammals or reptiles, including prairie dogs, ground squirrels, badgers, skunks, armadillos, woodchucks, foxes, coyotes, and gopher tortoises (Karalus and Eckert 1987). Where the number and availability of natural burrows is limited (e.g., where burrows have been destroyed or ground squirrels eradicated), owls will occupy drainage culverts, cavities under piles of rubble, discarded pipe, and other tunnel-like structures (Haug et al. 1993). The species' breeding season extends from March through August, peaking in April and May (Zeiner et al. 1990).

Several (more than 10) historic burrowing owl records have been documented within a 10-mile radius of the study area (California Natural Diversity Database 2005). The closest reported nest sites occur about 1.5 miles east from the study area (California Natural Diversity Database 2005). No burrowing owls or potential burrows (e.g., ground squirrel burrows) were found in the study area during the January 2005 field survey, but focused burrowing owl surveys were not conducted for the project. Nonnative annual grassland in the study area provides potential wintering and breeding habitat for western burrowing owls.

White-Tailed Kite

White-tailed kite is a fully protected species under California Fish and Game Code Section 3511. The species has a restricted distribution in the United States, occurring only in California and western Oregon and along the Texas coast (American Ornithologists' Union 1983). The species is fairly common in the Central Valley lowlands. White-tailed kites nest in riparian and oak woodlands, and forage in nearby grasslands, pastures, agricultural fields, and wetlands. They use nearby treetops for perching and nesting sites. Voles and mice are common prey species.

White-tailed kite were not observed in the study area during the field surveys, but a focused nesting raptor survey has not been conducted for the project. Valley oak riparian woodlands in the study area provide suitable nesting habitat for white-tailed kites and adjacent annual grasslands, and agricultural lands provide potential foraging opportunities for the species.

Roosting Bats

Long-legged myotis, pallid bat, and Yuma myotis are designated as federal species of concern. Pallid bat is also designated as a state species of special concern. These bat species have the potential to occur in the project vicinity and are known to roost in a variety of natural and artificial habitats including, trees, rock outcrops, caves, buildings, bridges, and tunnels. Bats are colonial roosters and may form groups of more than 100 individuals, especially maternal colonies. Valley oak riparian woodlands in the study area provide potential bat roosting habitat.

Special-Status Fish

Chinook Salmon

Four distinct runs of Chinook salmon occur in the Sacramento River system: winter run, spring run, fall run, and late fall run. Chinook salmon are anadromous, meaning that adults live in marine environments and return to their natal freshwater streams to spawn. Juveniles rear in freshwater for a period of up to 1 year until smoltification (i.e., a physiological preparation for survival in marine environs) and subsequent ocean residence.

Winter-Run

Both ESA and CESA list the winter-run Chinook salmon as an endangered species. Critical habitat for the winter-run Chinook salmon includes the Sacramento River from Keswick Dam (River Mile [RM] 302) to Chipps Island (RM 0) in the Delta (National Marine Fisheries Service 1997).

Adult winter-run Chinook salmon immigration (upstream migration) through the Delta and into the Sacramento River occurs from December through July, with peak immigration from January through April. Winter-run Chinook salmon primarily spawn in the mainstem Sacramento River between Keswick Dam (RM 302) and the Red Bluff Diversion Dam (RM 242). Winter-run Chinook salmon spawn between late April and mid-August, with peak spawning generally occurring in June (Snider et al. 2000).

Juvenile emigration (downstream migration) past the Red Bluff Diversion Dam (RM 242) begins in late July, peaks during September, and may extend through mid-March (National Marine Fisheries Service 1997). The peak period of juvenile emigration through the lower Sacramento River into the Delta generally occurs between January and April (National Marine Fisheries Service 1997). Differences in peak emigration periods between these two locations suggest that juvenile winter-run Chinook salmon may exhibit a sustained residence in the upper or middle reaches of the Sacramento River before entering the lower Sacramento River/Delta. Although the location and extent of rearing in these lower or middle reaches is unknown, it is believed that the duration of fry presence in an area is directly related to the magnitude of river flows during the rearing period (Stevens 1989). Additional information on life history and habitat requirements is contained in the NOAA Fisheries biological opinion that was developed to specifically evaluate impacts on winter-run Chinook salmon associated with Central Valley Project (CVP) and State Water Project (SWP) operations (National Marine Fisheries Service 1993).

Spring-Run

Central Valley spring-run Chinook salmon, which includes populations spawning in the Sacramento River and its tributaries, are listed as threatened under the ESA and CESA. Spring-run Chinook salmon historically inhabited a range extending from the upper tributaries of the Sacramento River to the upper tributaries of the San Joaquin River. However, they have been extirpated from the San Joaquin River system. The only streams in the Central Valley with remaining wild spring-run Chinook salmon populations are the Sacramento River and its tributaries, including the Yuba River, Mill Creek, Deer Creek, and Butte Creek.

Spring-run Chinook salmon enter the Sacramento River from late March through September (Reynolds et al. 1993), but peak abundance of immigrating adults in the Delta and lower Sacramento River occurs from April through June. Adult spring-run Chinook salmon remain in deep-water habitats downstream of spawning areas during summer until their eggs fully develop and become ready for spawning. This is the primary characteristic that distinguishes spring-run Chinook salmon from the other runs. Spring-run Chinook salmon spawn primarily upstream of the Red Bluff Diversion Dam and in the aforementioned tributaries. Spawning occurs from mid-August through early October (Reynolds et al. 1993). A small portion of an annual year-class may emigrate as post-emergent fry (less than 45 millimeters long) and reside in the Delta undergoing smoltification. However, most are believed to rear in the upper river and tributaries during winter and spring, emigrating as juveniles (more than 45 millimeters long). The timing of juvenile emigration from the spawning and rearing reaches can vary depending on tributary of origin and can occur from November through June.

Fall-/Late Fall–Run

Central Valley fall-run and late fall–run Chinook salmon are important commercially and recreationally. They are designated as species of special concern in California and species of concern under the federal ESA. Fall-run Chinook salmon is currently the largest run of Chinook salmon in the Sacramento River system. Because fall-run Chinook salmon are the largest of all four runs, they continue to support commercial and recreational fisheries of significant economic importance.

In general, adult fall-run Chinook salmon migrate into the Sacramento River and its tributaries from July through December, with immigration peaking from mid-October through November. Fall-run Chinook salmon spawn in numerous tributaries of the Sacramento River, including the lower American River, lower Yuba River, Feather River, and tributaries of the upper Sacramento River. Most mainstem Sacramento River spawning occurs between Keswick Dam and the Red Bluff Diversion Dam. A greater extent of fall-run spawning, relative to the other three runs, occurs below the Red Bluff Diversion Dam, with limited spawning potentially occurring as far downstream as Tehama (RM 220) (Yoshiyama et al. 1996). Spawning generally occurs from October through December, with fry emergence typically beginning in late December and January. Fall-run Chinook salmon emigrate as post-emergent fry, juveniles, and smolts after rearing in their natal streams for up to 6 months. Consequently, fall-run emigrants may be present in the lower Sacramento River from January through June (Reynolds et al. 1993) and remain in the Delta for variable lengths of time before ocean entry.

Adult immigration of late fall–run Chinook salmon into the Sacramento River generally begins in October, peaks in December, and ends in April (Moyle et al. 1995). Primary spawning areas for late fall–run Chinook salmon are located in tributaries of the upper Sacramento River (e.g., Battle Creek, Cottonwood Creek, Clear Creek, Mill Creek), although late fall–run Chinook salmon are believed to return to the Feather and Yuba Rivers as well (Moyle et al. 1995). Spawning in the mainstem Sacramento River occurs primarily from Keswick Dam (RM 302) to the Red Bluff Diversion Dam (RM 258), generally from January through April (Moyle et al. 1995). Juveniles emigrate through the lower Sacramento River primarily from October through April.

Myrick and Cech (2001) have compiled the most comprehensive review of temperature effects on Central Valley Chinook salmon to date. Chinook salmon eggs can survive at temperatures ranging from 35 to 62ºF, but highest survival rates occur between approximately 45 and 50ºF. Survival of juvenile Chinook salmon under high temperatures is a function of acclimation temperature and exposure time. In general, the maximum temperature at which eggs can survive is positively correlated with acclimation temperature. The reported chronic upper lethal limit for Central Valley Chinook salmon is approximately 77ºF, although temperatures approaching 84ºF may be tolerated for short periods of exposure. Growth of juvenile Chinook salmon occurs at temperatures ranging from approximately 46 to 77ºF, with maximum to near-maximum growth rates reached at approximately 56 to 68ºF (Myrick and Cech 2001).

Steelhead

Central Valley steelhead is listed as threatened under the ESA. Steelhead, an anadromous variant of rainbow trout, is closely related to Pacific salmon. The species was once abundant in California coastal and Central Valley drainages. However, population numbers have declined significantly in recent years, especially in the tributaries of the Sacramento River. Steelhead typically migrate to marine waters after spending 1 year or more in freshwater. In the marine environment, they typically mature for 1–3 years before returning to their natal stream to spawn as 3- or 4-year-olds. Unlike other Pacific salmon, steelhead are capable of spawning more than once before they die. The steelhead spawning season typically stretches from December through April. After several months, fry emerge from the gravel and begin to feed. Juveniles rear in freshwater from 1 to 4 years (usually 2 years), then migrate to the ocean as smolts. The period of emigration for steelhead juveniles near Red Bluff is believed to be from November through April, with the peak in January and February (Coulon pers. comm.).

Sacramento Splittail

Sacramento splittail is a California species of special concern. Sacramento splittail is an endemic California minnow that was once widely distributed in lakes and rivers throughout the Central Valley, including the Sacramento River upstream to Redding and in the American River as far east as Folsom (Moyle 2002). Present distribution includes Suisun Bay, the Napa and Petaluma Rivers (Sommers et al. 1997), the Sacramento River as far north as the Red Bluff Diversion Dam, portions of the Delta, and the San Joaquin River upstream of its confluence with the Tuolumne River (Moyle 2002).

Adult splittail usually reach sexual maturity in their second year. They then migrate upstream in late fall to early winter before spawning. Spawning occurs from mid-winter through July in water temperatures between 48 and 68°F (Wang 1986) at times of high winter or spring runoff (Moyle et al. 1995). Eggs acquire adhesive properties following exposure to water and adhere to vegetation or other benthic substrates (Wang 1986). Fertilized eggs generally hatch in 3–5 days, and larvae begin feeding on plankton soon thereafter. Juvenile splittail inhabit shallow areas with abundant vegetation that are devoid of strong currents (Wang 1986) as they travel downstream from the spawning grounds to the Delta.

Mature splittail are generally found in the shallows of sloughs in edgewater habitat by emergent vegetation. They feed primarily on benthic invertebrates and aquatic insect larvae (Moyle 2002). Although they are tolerant of brackish water (Moyle 2002), splittail tend to move from areas of relatively high salinity to those characterized by freshwater (Moyle et al. 1995).

Delta Smelt

Estuarine rearing habitat for juvenile and adult delta smelt is typically found in the waters of the lower Delta and Suisun Bay where salinity is between 2 and 7 ppt. Delta smelt tolerate 0 ppt to 19 ppt salinity. They typically occupy open shallow waters but also occur in the main channel in the region where freshwater and brackish water mix. The zone may be hydraulically conducive to their ability to maintain position and metabolic efficiency (Moyle 2002).

Adult delta smelt begin spawning migration into the upper Delta beginning in December or January. Migration may continue over several months. Spawning occurs between January and July, with peak spawning during April through mid-May (Moyle 2002). Spawning occurs in along the channel edges in the upper Delta, including the Sacramento River above Rio Vista, Cache Slough, Lindsey Slough, and Barker Slough. Spawning has been observed in the Sacramento River up to Garcia Bend during drought conditions, possibly attributable to adult movement farther inland in response to saltwater intrusion (Wang and Brown 1993). Eggs are broadcast over the bottom, where they attach to firm substrate, woody material, and vegetation. Hatching takes approximately 9 to 13 days, and larvae begin feeding 4 to 5 days later. Newly hatched larvae contain a large oil globule and are semibuoyant. Larval smelt feed on rotifers and other zooplankton. As their fins and swim bladder develop, they move higher into the water column. Larvae and juveniles gradually move downstream toward rearing habitat in the estuarine mixing zone (Wang 1986).

Green Sturgeon

Green sturgeon is a California species of special concern. Green sturgeon are known to occur in the lower reaches of large rivers from the Delta northwards, including the Klamath, Eel, and Smith Rivers (Moyle 2002). Green sturgeon have also been found in saltwater from Ensenada, Mexico, to the Bering Sea and Japan (Miller and Lea 1972). Adults of this species tend to be more marine than the more common white sturgeon, although spawning populations have been identified in the Sacramento and Klamath Rivers (Beak Consultants 1993). Virtually all green sturgeon spawning occurs upstream of Hamilton City and as far upstream as Keswick Dam (Adams et al. 2002). Green sturgeon are thought to be spawning upstream of the Red Bluff Diversion Dam following modifications to the operation of that facility (Adams et al. 2002). The preferred spawning substrate is thought to be large cobble, although the substrate type may range from clean sand to bedrock. Eggs are broadcast and fertilized in relatively fast-flowing water where depths typically exceed 3 meters (9.9 feet) (Moyle 2002). In the Sacramento River, green sturgeon presumably spawn at temperatures ranging from 46 to 57°F (Beak Consultants 1993).

River Lamprey

River lamprey is a California species of special concern. The river lamprey is relatively small (averaging 17 centimeters long) and highly predaceous (Moyle 2002). They are anadromous and will attack fish in both fresh- and saltwater (Moyle 2002). A great deal of what is known about the river lamprey is from information on populations in British Columbia. There, adults migrate from the Pacific Ocean into rivers and streams in September and spawn in winter. Adults will excavate a saucer-shaped depression in sand or gravel riffles where eggs are deposited. After spawning, the adults perish. Juvenile river lamprey, called ammocoetes, remain in backwaters for several years, where they feed on algae and microorganisms (Moyle et al. 1989). The metamorphosis from juvenile to adult begins in July and is complete by the following April. From May through July, following completion of metamorphosis, the river lamprey aggregate in the Delta before entering the ocean.

The river lamprey is distributed in streams and rivers along the eastern Pacific Ocean from Juneau, Alaska, to San Francisco Bay. It may have its greatest abundance in the Sacramento and San Joaquin River systems, although it is not commonly observed in large numbers (Moyle et al. 1989).

Hardhead

Hardhead, a California species of special concern, occur mostly in large, undisturbed low- to mid-elevation rivers and streams (Moyle 2002). They are widely distributed throughout the Sacramento and San Joaquin River systems.

Hardhead sexually mature following their second year. Based on observations of May and June upstream migrations of adults into smaller tributary streams, they presumably begin spawning in spring. Spawning activity has not been documented, but reproductive behavior may involve mass spawning in upstream gravel bed riffles (Moyle et al. 1989).

Appendix F
Geotechnical Engineering Letter Reports

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Geotechnical Engineering
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Environmental Consulting
Remediation Services
Construction Inspection
Materials Testing

June 20, 2005

Mr. Todd Chambers
Richland Communities, Inc.
2220 Douglas Boulevard, Suite 290
Roseville, California 95661

Geotechnical Engineering Letter Report
RODGERS/VENDLEY PROPERTY
South River Road
West Sacramento, California
WKA No. 5841.02

As authorized, we completed a geotechnical engineering investigation of soil and ground water conditions for the proposed Rodgers/Vendley Property residential subdivision to be constructed as part of the Southport Property subdivision located north and west of South River Road in West Sacramento, California. The purpose of our work has been to explore the existing soil conditions at the site and to provide geotechnical engineering information regarding development of the property with a residential subdivision.

Work Scope

Our scope of work included the following tasks:

1. Site reconnaissance.
2. Review of previous geotechnical reports prepared by our firm on adjacent projects.
3. Subsurface investigation consisting of the drilling and sampling of six exploratory borings to a maximum depth of 16½ feet below existing site grades.
4. Laboratory testing of selected soil samples.
5. Engineering analyses and preparation of this report.

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ROCKLIN OFFICE
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STOCKTON OFFICE
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Stockton, CA 95219
Tel 209.234.7722
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Recycled paper

Plates and Attachments

This letter report contains a Site Vicinity Map, as Plate No. 1; a Site Plan showing boring locations as Plate No. 2; Logs of Borings, Plates No. 3 through 8. An explanation of the symbols and classification system used on the logs is included as Plate No. 9. Various laboratory test results of the onsite soils are included as Plates No. 10 through 12.

Project Description

The Rodgers/Vendley Property consists of three separate parcels that include a total area of approximately 52 acres. We understand the parcels are to be developed as part of the Southport residential master development. We anticipate construction will consist of single-family, one- and two-story wood-frame structures with interior slab-on-grade lower floors. Associated development will include construction of underground utilities, exterior flatwork, residential streets and landscaping.

Grading plans were not available during the preparation of this report, however, based on site topography we anticipate typical cuts and fills on the order of three to five feet for general development of the site.

Previous Report

Our office previously prepared the geotechnical report for the 425-acre Southport Property (WKA No. 5841.01, dated February 13, 2004). In preparing that report our office performed a subsurface investigation consisting of the drilling and sampling of 20 exploratory borings, which included the installation of six monitoring wells across the site. We also performed the excavation of 15 backhoe test pits at various locations across the site.

The results of our field investigation for that report indicated that the surface soils across the site consist of a mixture of surface clays and granular soils within the upper five feet. Based on those observations special recommendations regarding site grading, foundation design and slab design were provided to minimize the effects of the on-site expansive clay soils.

FINDINGS

Site Conditions

The approximately 52-acre Rodgers/Vendley property is located within the south and central portions of the Southport Property development. The Rodgers/Vendley property predominantly consists of rural farmland used for row crops, with the exception of the parcel in which Boring D1 was performed. At this location we observed numerous abandoned pieces of farm machinery, a few barn/shed buildings and an existing communications transmission tower facility.

At the time of our June 1, 2005 field exploration the parcel associated with Borings D2 through D5 had been recently disced. Within the parcel associated with Boring D6, we observed unfarmed land heavy with concentrations of volunteer weeds and grasses. Numerous large trees are present on the boundaries of the three parcels. Irrigation/drainage ditches and agricultural pump/well systems were also observed in several areas across the three parcels. Within the drainage ditch areas, both standing and flowing water was observed.

Topography of the property is relatively flat with surface elevations ranging from approximately +10 to +15 feet relative to mean sea level (msl). Surface elevations along the South River Road Levee are approximately +30 feet msl, based on review of the USGS *Topographic Map of the Sacramento West Quadrangle, California (1980).*

Soil Conditions

Due to agricultural activity across a majority of the site, surface soils within the upper one-foot are disturbed and in a loose condition. In general, the majority of the upper soils across the site consist of brown, silty sands and sandy clays in the upper five feet. Below these soil layers we observed additional lenses of silty sands and deposits of highly expansive dark brown to black silty clay to the maximum 16½ foot depth explored. The expansive clays were observed as shallow as two feet from existing surface grades in some areas. Please refer to the Logs of Borings Plates No. 3 through 8, for details regarding soil conditions at a specific location. An explanation of the symbols used on the logs is provided on Plate No. 9.

Ground Water Conditions

Ground water was encountered in our exploratory borings performed June 1, 2005 at depths ranging from 5½ to 7½ feet below existing site grades. These depths are consistent with the levels recorded during our previous field investigation for the Southport Property and our continued periodic readings of the on-site monitoring wells.

CONCLUSIONS AND RECOMMENDATIONS

Site Development

The results of our field investigation for the Rodgers/Vendley property indicate that the soil and ground water conditions on the property are relatively similar to those observed during our investigation of the surrounding Southport Property. Based on these observations and the proposed construction it is our opinion that the conclusions and recommendations presented in our geotechnical report for the Southport Property are applicable to the Rodgers/Vendley property and should be utilized for design and construction of the Rodgers/Vendley property. Supplemental conclusions/recommendations for additional site features specific to the Rodgers/Vendley property are further discussed below.

Greenway Detention Feature

The project design team has informed us that existing agricultural ditches located on the property are to be utilized as natural detention basins for the property. Review of a plan prepared by Nolte and Associates indicates the onsite detention basins will range from 80 to 160 feet in width with a bottom depth of approximately 15 to 16 feet below adjacent site grades. The lower eight feet of the basin will consist of a "permanent pond" due to the relative shallow ground water elevations at the site. Above the pond portion of the basin, the upper seven to eight feet of the basin will be dedicated to storage for storm events. Slopes associated with the lower portion of the basin are to be constructed at grades of two horizontal to one vertical (2H:1V). Slopes within the upper portion of the basin will range from 3H:1V to 6H:1V.

Based on the proposed construction and our knowledge of on-site conditions, ground water will likely be encountered during construction of the basin. We anticipate that construction of the lower basin can be performed using an excavator with a wide bucket to cut/remove soils to their required grades. Due to the presence of shallow ground water, removed soils will likely be saturated and will require significant drying if they are to utilized as engineered fill on other portions of the site. Portions of the removed soils along the detention basin alignment will likely consist of highly expansive clays. As previously stated in our original geotechnical report for the Southport Property, these clay soils should not be utilized within the upper two feet of finish pad grade.

Limitations

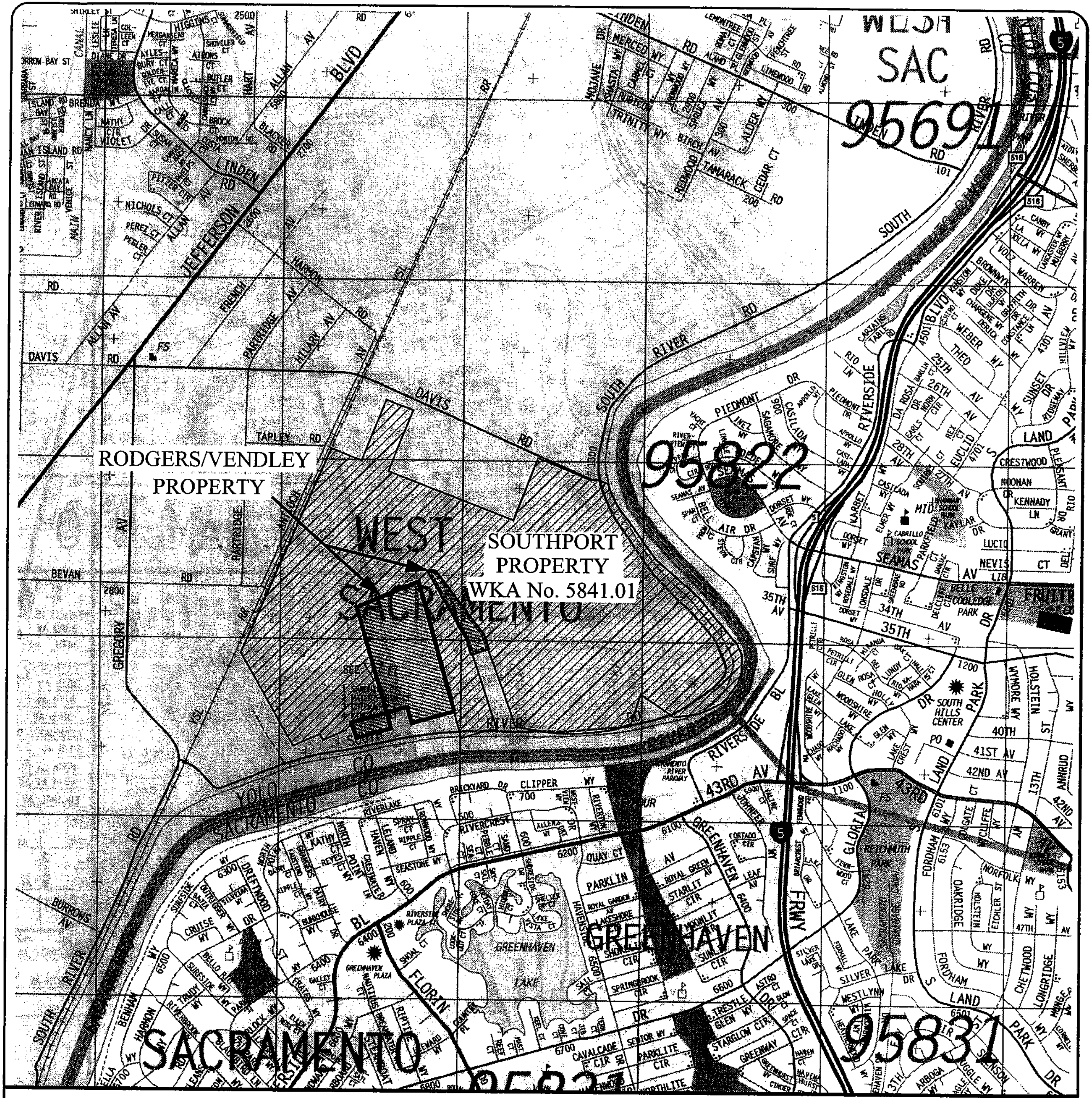
This letter is considered an addendum to our original geotechnical report for the Southport Property and is subject to the same limitations of that report.

We appreciate this opportunity to be of service; please call with any questions you may have.

Wallace - Kuhl & Associates, Inc.

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY J. CRESS
NO. 62724
Exp. 6/30/06
CIVIL
STATE OF CALIFORNIA

Timothy J. Cress
Project Engineer



Adapted from the Thomas Guide
Sacramento and Solano Counties
Street Guide and Directory, 2001 edition.

0 1000 2000
Scale in Feet

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VICINITY MAP

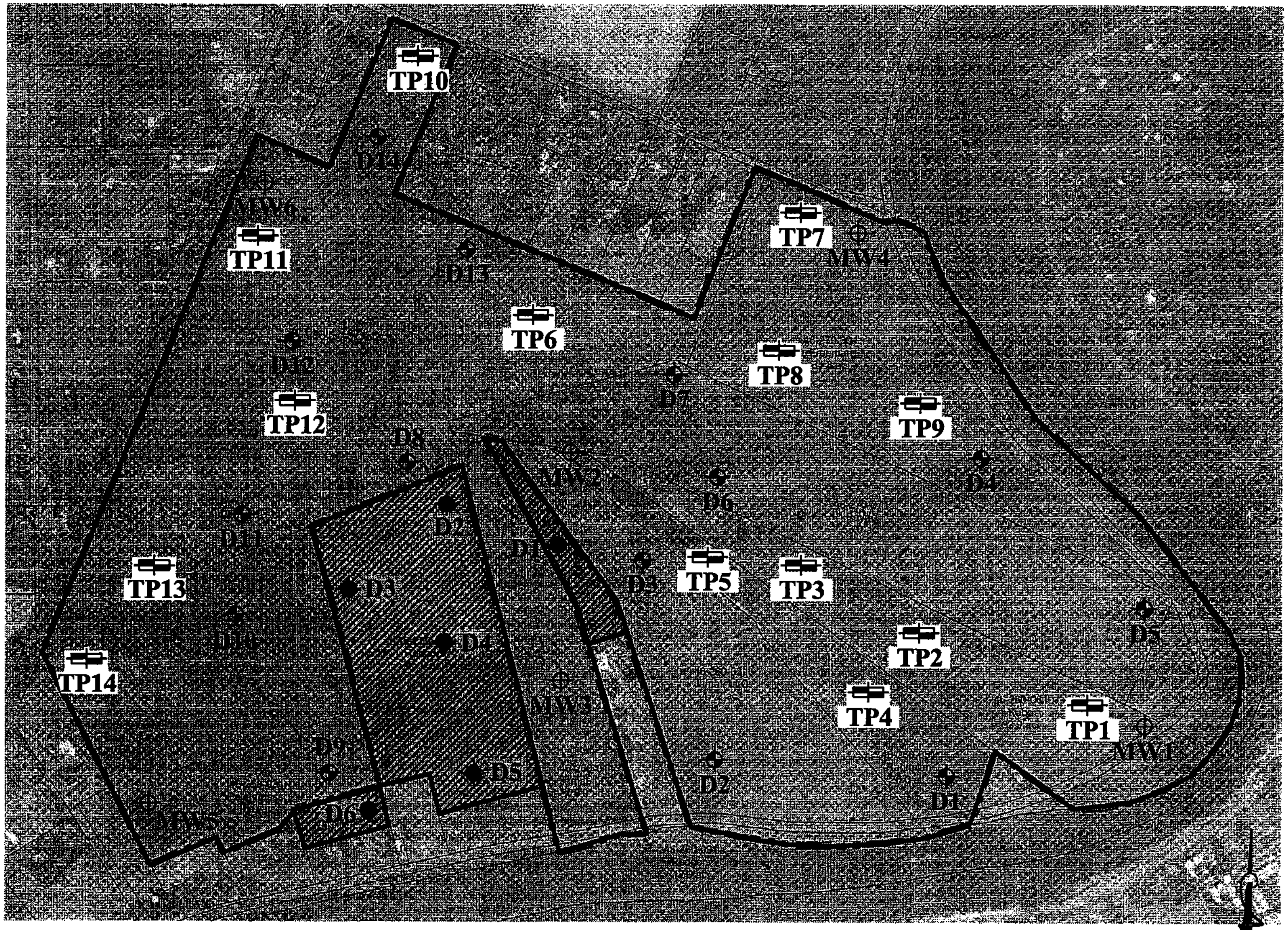
RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02

DATE: 6/05

PLATE NO: 1



Not to Scale

Legend:

- ◈ Approximate soil boring location WKA No. 5841.01
- ⊕ Approximate monitoring well location WKA No. 5841.01
- ⊟ Approximate test pit location WKA No. 5841.01
- ● Approximate soil boring location WKA No. 5841.02

Note:
Adapted from an aerial photograph provided by the client.

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Drawn By: HCS
Checked By: TJC

SITE PLAN
RODGERS/VENDLEY PROPERTY
West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 2

BORING NUMBER: D1
DATE DRILLED: 6/1/05
LOGGED BY: JWM

DRILL RIG/METHOD:
CME-55/6 INCH
SOLID FLIGHT AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Light brown to gray-brown, slightly silty fine to medium sand
							ML		Brown, slightly fine sandy, clayey silt
		D1-1I	3	74	37.3	0.5 (TSF) UCC			
5									
							CL		Dark brown, slightly silty, fine sandy clay
		D1-2I	3						
									▽
		D1-3I	23	95	27.0		ML		Gray-brown, clayey silt with few sandy lenses
10									
		D1-4I	0	91	28.1				brown, clayey, fine sandy silt
15									
		D1-5I	0						
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 9.

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LOG OF BORING D1

RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02

DATE: 6/05

PLATE NO: 3

BORING NUMBER: D2
DATE DRILLED: 6/1/05
LOGGED BY: JWM

DRILL RIG/METHOD:
CME-55/6 INCH
SOLID FLIGHT AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	░	Light brown to brown, slightly silty fine to medium sand
	◩	D2-1I	6	80	28.3		ML	▥	Brown, slightly fine sandy, clayey silt
							CL	▨	Brown, fine sandy clay and silt
5	◩	D2-2I	3	73	45.7			▨	
								▨	▽
10	◩	D2-3I	4					▨	
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 9.

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LOG OF BORING D2

RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 4

BORING NUMBER: D3
DATE DRILLED: 6/1/05
LOGGED BY: JWM

DRILL RIG/METHOD:
CME-55/6 INCH
SOLID FLIGHT AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	▦	Light brown, slightly silty fine to medium sand
							ML	▥	Brown, slightly fine sandy, clayey silt
	◩	D3-1I	4	69	43.3	0.8 (TSF) UCC	CL	▨	Brown, fine sandy clay and silt
5									▽
	◩	D3-2I	5	79	41.0				
10									brown to dark brown
	◩	D3-3I	6	90	30.3				
15									
	◩	D3-4I	10						mottled brown, red-brown and light brown
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 9.

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LOG OF BORING D3

RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 5

BORING NUMBER: D4
DATE DRILLED: 6/1/05
LOGGED BY: JWM

DRILL RIG/METHOD:
CME-55/6 INCH
SOLID FLIGHT AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	░	Light brown to brown, slightly silty fine to medium sand
	◩	D4-1I	9	85	32.6	TX	CL	▨	Dark brown, slightly silty, slightly fine sandy clay
	◩	D4-2I	8	84	33.4				
5									
									▽
							ML	▥	Brown, fine to medium sandy, clayey silt
	◩	D4-3I	2						
10									
	◩	D4-4I	2						
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 9.

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LOG OF BORING D4

RODGERS/VENDLEY PROPERTY
West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 6

BORING NUMBER: D5
DATE DRILLED: 6/1/05
LOGGED BY: JWM

DRILL RIG/METHOD:
CME-55/6 INCH
SOLID FLIGHT AUGERS

SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS
D5-1I	6	74	37.5	
D5-2I	13	87	27.9	
D5-3I	2			

USCS	SOIL DESCRIPTION AND REMARKS
SM	Light brown to brown, slightly silty fine to medium sand
CL	Dark brown, fine sandy, slightly silty clay ▽ brown to dark brown
SM	Brown, slightly clayey, silty fine to medium sand

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 9.

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LOG OF BORING D5

RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 7

BORING NUMBER: D6
DATE DRILLED: 6/1/05
LOGGED BY: JWM

DRILL RIG/METHOD:
CME-55/6 INCH
SOLID FLIGHT AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Brown, silty fine to medium sand
		D6-1I	6	88	22.8		CL		Dark brown, slightly fine sandy, silty clay
5									brown
		D6-2I	14	90	25.4				
									∇
							SM		Brown, slightly clayey, silty fine to medium sand
		D6-3I	1	87	34.1				
10									
									dark brown
		D6-4I	2						
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 9.

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LOG OF BORING D6

RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 8

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW	⁘	Well graded gravels or gravel - sand mixtures, little or no fines
		GP	●	Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM	▥	Silty gravels, gravel - sand - silt mixtures
		GC	▨	Clayey gravels, gravel - sand - clay mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW	⁖	Well graded sands or gravelly sands, little or no fines
		SP	░	Poorly graded sands or gravelly sands, little or no fines
		SM	▥	Silty sands, sand - silt mixtures
		SC	▨	Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML	▥	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	▨	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	▤	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH	┆	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	▧	Inorganic clays of high plasticity, fat clays
		OH	⋱	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	┄	Peat and other highly organic soils
ROCK		RX	▦	Rocks, weathered to fresh

OTHER SYMBOLS

◩ = Drive Sample: 2-1/2" O.D. Modified California sampler

▯ = Drive Sample: no recovery

◪ = SPT Sample

▽i = Initial Water Level

▼f = Final Water Level

— — — = Estimated or gradational material change line

——— = Observed material change line

Laboratory Tests

PI = Plasticity Index

EI = Expansion Index

UCC = Unconfined Compression Test

TR = Triaxial Compression Test

GR = Gradational Analysis (Sieve)

K = Permeability Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse (c)	3" to 3/4"	76.2 to 19.1
fine (f)	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse (c)	No. 4 to No. 10	4.76 to 2.00
medium (m)	No. 10 to No. 40	2.00 to 0.420
fine (f)	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

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UNIFIED SOIL CLASSIFICATION SYSTEM

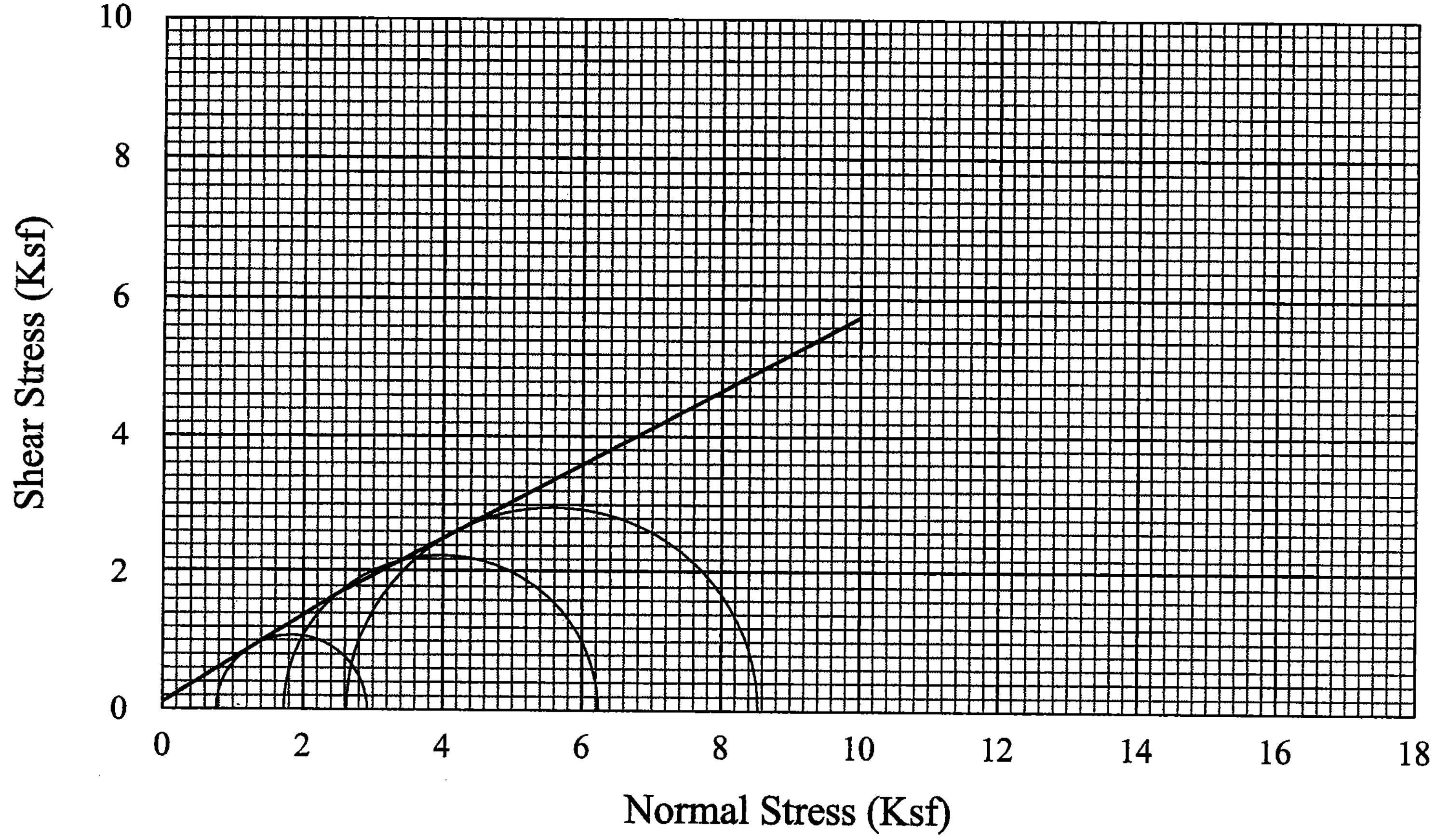
RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 9

TRIAXIAL COMPRESSION TEST

ASTM D4767-95



SAMPLE NO. :	D4-1I
SAMPLE CONDITION :	Undisturbed
SAMPLE DESCRIPTION :	Light brown, silty fine sand

DRY DENSITY (PCF) :	85
INITIAL MOISTURE (%) :	32.6
FINAL MOISTURE (%) :	32.8
ANGLE OF INTERNAL FRICTION (ø) :	30°
COHESION (PSF) :	270

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Drawn By: HCS
Checked By: TJC

TRIAXIAL COMPRESSION TEST
RODGERS/VENDLEY PROPERTY
West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 10

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Combination silty sand and sandy clay

LOCATION: D5 (0'-2')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion Pressure (dial)	Expansion Pressure (psf)	R Value
1	114	17.5	796	122	528	5*

*Sample extruded therefore R-value = 5

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RESISTANCE VALUE TEST VALUE

RODGERS/VENDLEY PROPERTY

West Sacramento, California

WKA NO: 5841.02

DATE: 6/05

PLATE NO: 11

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/08/2005
Date Submitted 06/03/2005

To: Tim Cress
Wallace-Kuhl & Associates, Inc.
P.O. Box 1137
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 5841.02/RODGERS/VEND Site ID : D6 (1-2').
Your purchase order number is 9034.
Thank you for your business.

* For future reference to this analysis please use SUN # 44819-88409.

EVALUATION FOR SOIL CORROSION

Soil pH	7.75		
Minimum Resistivity	1.23	ohm-cm (x1000)	
Chloride	56.5 ppm	00.00565	%
Sulfate	14.0 ppm	00.00140	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

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CORROSION TEST
RODGERS/VENDLEY PROPERTY
West Sacramento, California

WKA NO: 5841.02
DATE: 6/05
PLATE NO: 12

GEOTECHNICAL ENGINEERING REPORT

SOUTHPORT PROPERTY

WKA No.
5841.01

February 13,
2004

WALLACE • KUHL & ASSOCIATES INC.

WALLACE • KUHL
& ASSOCIATES INC.

Geotechnical Engineering

Engineering Geology

Environmental Consulting

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3410 West Hammer Lane
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Stockton, CA 95219
Tel 209.234.7722
Fax 209.234.7727

Geotechnical Engineering Report
SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California
WKA No. 5841.01
February 13, 2004

INTRODUCTION

General

As authorized, we completed a geotechnical engineering investigation of the soil conditions for the proposed Southport Property residential subdivision to be constructed southeast of the intersection of Antioch Road and Davis Road in West Sacramento, California. The purposes of our work have been to explore the existing soil conditions at the site, and to provide geotechnical engineering information regarding development of the property with a residential subdivision.

Work Scope

Our scope of work included the following tasks:

1. Site reconnaissance
2. Review of historic USGS topographic maps and aerial photographs of the property
3. Subsurface investigation consisting of the drilling and sampling of 20 exploratory borings, in which six piezometers were installed, to a maximum depth of 20 feet and the excavation of 15 backhoe test pits to a maximum depth of approximately 12 feet below existing site grades
4. Laboratory testing of selected soil samples
5. Engineering analyses and preparation of this report

Recycled paper

Plates and Attachments

This report contains a Site Vicinity Map, Plate No. 1; a Site Plan showing boring and test pit locations as Plate No. 2; Logs of Borings, Plates No. 3 through 22. An explanation of the symbols and classification system used on the logs is included as Plate No. 23. Logs of Test Pits depicting the soils encountered in the test pits are included as Plates No. 24 through 26.

Appendix A contains general information regarding project concepts, exploratory methods used during our field investigation, and laboratory test results not included on the logs (Plates No. A1 and A10). Appendix B contains *Guide Earthwork Specifications* that may be used in the preparation of contract documents.

Project Description

We understand the approximately 425-acre site will be developed with a single-family residential subdivision. We anticipate residential home construction will consist of one- and two-story, wood-framed structures with interior slab-on-grade lower floors. Associated development will include construction of underground utilities, exterior flatwork and asphalt concrete streets.

Grading plans were not available during the preparation of this report, however, based on site topography we anticipate typical cuts and fills on the order of three to five feet for development of the site.

FINDINGS

Site Conditions

The approximately 425-acre, irregularly shaped project site is located in an area of rural farmland, with scattered single-family residential homesteads in southern West Sacramento, California. The property is bordered to the north by Davis Road and existing rural homes, to the east by the South River Road and Levee and Sacramento River, to the south by existing rural residential homes, and to the west by the Yolo Shortline Railroad. The major portion of the land is currently used for agricultural purposes, primarily supporting row crops. A few existing rural homes and associated outbuildings are located across the site. Numerous irrigation/drainage ditches randomly cross the site. Several agricultural pump and well systems were observed across the site.

Topography of the site is relatively flat with surface elevations ranging from approximately +10 to +15 feet relative to mean sea level (msl). Surface elevations along the South River Road Levee are approximately +30 feet msl, based on review of the USGS *Topographic Map of the Sacramento West Quadrangle, California (1980).*

At the time of our January 2004 field explorations, the majority of the site had been recently disced. In those areas where fallow land exists, we observed heavy concentrations of volunteer weeds and grasses. Within the drainage ditch areas, both standing and flowing water was observed. Review of historic aerial photographs of the site indicates that portions of the site previously supported an orchard crop.

Soil Conditions

Due to agricultural activity across a majority of the site surface soils within the upper one foot are disturbed and in a loose condition. In general, the majority of the upper soils across the site consist of brown, silty sands and silty clays in the upper five feet. The surface clay soils were predominantly observed in the southeast corner of the site. Below these soil layers we observed additional lenses of silty sands and deposits of highly expansive black silty clay to the maximum 20 foot depth explored. The black clays were observed as shallow as two feet from existing surface grades in some areas. Please refer to the Logs of Borings and Test Pits, Plates No. 3 through 26, for details regarding soil conditions at a specific location.

Ground Water Conditions

Ground water was encountered in our exploratory borings and test pits performed in January 2004 at depths ranging from 7 to 10 feet below existing site grades. Six of the borings were converted to monitoring wells and their elevations recorded for periodic ground water monitoring. Recent stabilized ground water readings from the wells indicate the ground water table is at an elevation of +0 feet relative to mean sea level.

Review of the Yolo County Flood Control and Water Conservation, *Spring 1996 Groundwater Elevation Map*, prepared by Borcalli & Associates, Inc., shows ground water beneath the site at an elevation of +0 feet msl, or approximately 10 feet below the lower site elevations, which is consistent with our findings.

Levee History and Performance

We contacted Bureau of Reclamation District officials' concerning history and performance of the existing levee located on the eastern site boundary. Bureau officials informed us that upgrades to the levee and overlying South River Road within the project area consist of a smaller, secondary berm constructed along the west side of the existing levee in 1989. The secondary berm consists of a series of smaller, benched berms consisting of alternating layers of gravel, sand and geotextile fabric which serves as a buttress fill that provides stability for the existing levee and serves as a drainage blanket for which seepage associated with the interior levee can drain through on its way to an existing drainage ditch.

The primary levee in the area is an earth filled embankment using native soils from the area and does not contain an internal clay core or slurry wall system. Bureau officials indicated that although seepage is a common occurrence with the levy system in the project area, they know of no occurrences of "boils" or "piping" failures within the levee. Bureau officials also indicated that erosion along the primary levee has occurred in a few spots within the Davis Road area, but has been corrected during the Bureau's ongoing maintenance of the levees.

CONCLUSIONS

Seismic Code Design

The entire State of California is considered to be subject to ground shaking from numerous active fault systems across the state. Based on tables provided in the 1997 edition of the Uniform Building Code (UBC) and the 2001 edition of the California Building Code (CBC), the proposed development has the following site characteristics. The site is located within Seismic Zone 3. The site soil conditions most closely approximate an S_D profile. The site is not located within 15 kilometers of a Type A or Type B seismic source; therefore, near-fault effects will not be a factor in seismic design, nor is a seismic source type assigned using the 1997 UBC or 2001 CBC.

/Effects of Existing Development

In our opinion, important aspects of site development for this project will be the adequate clearing of existing surface and sub-surface structures, the proper backfilling of depressions created from removal of the structures, and uniform recompaction of disturbed soils. Clearing operations to remove remnants of the existing structures will disturb the soils, creating loose and variable soil conditions. Disturbed areas must be excavated to expose a firm base and the excavations backfilled with engineered fill to provide adequate and uniform support for the new structures. This is critical to future performance of the new structures.

Building Support

Our work indicates the near-surface soils and engineered fills composed of the on-site soils are considered capable of supporting the proposed structures. However, recompaction of the upper soils, which have been disturbed by previous site/agricultural activity and will be disturbed during removal of existing surface and subsurface structures, is required to provide uniform support. Additionally, any discovered below-grade septic tanks and leech beds may require drying and/or some overexcavation to fully remove organics and unsuitable soils.

Field exploration information indicates that soil conditions in possible deep future fill areas directly adjacent to the levee consist of high plasticity clay soils. These soils will compress under the anticipated embankment loads, although at this time it is not known to what extent. When additional information regarding the depth of soil embankments is known, we can perform additional testing to estimate the extent of settlements.

Conversations with Bureau of Reclamation District officials indicate that existing levee upgrades created a smaller secondary levee with an internal drainage blanket that directs associated seepage from the levee to an existing drainage ditch. The Bureau has indicated that additional embankments adjacent to the existing levee are allowed, provided that a drain collection system is constructed to direct the associated seepage from the levee to an appropriate drain collection system.

Excavation Conditions

The test pits were excavated with a Case 580 backhoe, which generally was able to excavate the materials at the site. Based upon our field exploration and experience in the area, conventional grading and trenching equipment likely will be suitable for excavations required in the surface soil areas of the site to the depths explored. Underground utility excavations deeper than five or six feet from existing grade may encounter ground water and possible sloughing soil conditions in these saturated soil areas. In addition, pockets of clean, cohesionless sands may be encountered that may slough or cave during excavations.

Fill Material Suitability

In our opinion, the majority of on-site soils encountered in our borings are considered suitable for use in engineered fill construction, provided they are free of debris and organics and at a workable moisture content. The use of highly expansive black clays within final finish grades of building pads and pavement areas should be avoided. Special recommendations are contained in this report regarding the use of expansive clays in engineered fill.

Expansive Soils

The surface and near-surface native soils at the site are variable and contain significant concentrations of clays. Laboratory tests indicate these clays are moderately to highly expansive (Plates No. A2 and A3). In our opinion, these soils are capable of developing moderate to high swelling pressures with increases in soil moisture content. Special preparation during site grading along with deepened foundations, presaturation of soil subgrades prior to floor slab placement, and reinforcement of floor slabs is recommended to minimize the effects of expansive soils.

Pavement Subgrade Quality

Our field exploration indicates the surface soils across the site are variable with concentrations of clays in some areas. Laboratory test results (Plates No. A5 and A6) of the soils indicate typical Resistance ("R") values ranging from 10 to 20. Based on the variable soil conditions observed across the site and our experience in the area, it is our opinion that an R-value of 10 is appropriate for design of pavements.

Ground Water

Based upon the published ground water depths for the area, the results of our field exploration and ground water monitoring of the wells installed, ground water will most likely be a factor in construction of deeper utilities (greater than five feet) and may affect shallow utilities in some areas. Site utility contractors should anticipate the dewatering of utility trenches during construction depending on the depth of their services.

Seasonal Water

Infiltrating surface run-off water from seasonal moisture during the winter and spring months will create saturated surface soil conditions. It is probable that grading operations attempted in standing surface water areas or following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soils, intended for use as engineered fill, will require a prolonged period of dry weather and/or considerable aeration to reach a moisture content suitable for proper compaction.

Seasonal moisture and landscape irrigation will assure that high soil moisture contents prevail below interior floor slabs throughout the lifetime of structures. Therefore, moisture vapor penetration resistance should be a significant consideration during design and construction of interior floor slabs.

Preliminary Soil Corrosion Potential

Four composite samples of near-surface soils were submitted to Sunland Analytical Lab, Inc. for testing to determine pH, resistivity, sulfate and chloride concentrations to help evaluate the potential for corrosive attack upon buried structures. The test results for the samples revealed a minimum resistivity of 1930 ohm-centimeters (Ω-cm) with a soil pH ranging from 6.6 to 7.2. Sulfates were recorded at 37 parts per million (ppm) and chlorides at 10 ppm. Results of the testing performed by Sunland Analytical Lab are summarized on Plates No. A7 through A10.

Published data[1] indicates soils with low resistivity values, typically less than 1000 Ω-cm, a chloride concentration greater than 500 ppm, a sulfate concentration greater than 200 ppm, or with a pH below 5.5, may significantly increase corrosion of reinforced concrete structures. Comparing this information to the test results indicates the native soils may be corrosive to buried metal but not unusually corrosive to reinforcement steel properly embedded in concrete. Use of concrete with a water/cement ratio of 0.6 or less along with a minimum three-inch cover over reinforcement steel may help to minimize the corrosion of reinforced concrete. Use of Type I-II Portland cement would be appropriate at the site based upon the test results and published data.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, to further define the soil corrosion potential at the site, or to determine the need or design parameters for cathodic protection or grounding systems a corrosion engineer should be consulted.

RECOMMENDATIONS

Due to existing and previous site usage, conditions exist at the site that likely will require additional earthwork processing and subsurface exploration (e.g. on-site structures, wells, septic systems, leech lines, etc.) The contractor should anticipate additional excavation, backfilling and reworking of the areas during site preparation. *

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be near saturated by rainfall in the winter and early spring months, and will not be compactable without drying by aeration or chemical treatment. Should the construction schedule require work to continue during the wet months, additional recommendations can be provided, as conditions warrant.

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[1] May 1999, CALTRANS, "Interim Corrosion Guidelines for Foundation Investigation (DRAFT)," Corrosion Technology Section, Office of Materials and Foundations.

Site Clearing and Preparation

Initially, the site should be cleared of existing structures designated for removal, including but not limited to, concrete slabs and foundations, septic systems and leech lines, utilities to be relocated or abandoned, demolition debris, fences, buried irrigation pipes, and vegetation. Trees designated for removal should include the rootball and all surface roots larger than ½-inch in diameter. The upper 12 inches of soil subgrades within areas of removed structures, irrigation/drainage ditches, and trees should be ripped and cross-ripped. All exposed remnants should be removed and debris and roots cleared from the site. Adequate removal of debris and tree roots may require handpicking by laborers to clear the subgrade soils to the satisfaction of our on-site representative, prior to further site preparation. All demolition debris either produced from the removal of such items or found on-site should be hauled off site.

Water wells and onsite septic systems should be abandoned in accordance with Yolo County Environmental Health Division requirements. Soil located below septic systems/leech lines and irrigation/drainage ditches likely will be saturated and may contain significant concentrations of organics. If organics are present they should be excavated down to firm undisturbed soils, as determined by our on-site representative. If the soils are saturated they will require aeration and a period of drying time before the soils reach a suitable moisture content for proper compaction.

Depressions resulting from clearing operations, as well as any loose, saturated, or organically contaminated soils, as identified by our representative, should be cleaned out to firm, undisturbed soils and widened, as necessary, to allow access with construction equipment. Depressions should be backfilled with engineered fill in accordance with the recommendations contained in this report.

It is important that our representative be present during clearing operations to verify adequate removal of buried structures and the need for additional overexcavation of areas. If clearing takes place well in advance of site grading and the proper compaction equipment is not available at that time, the excavations for removal of buried structures should be left open as dish-shaped depressions to facilitate identification and proper backfilling during site grading operations.

Organic Removal

Following or during clearing operations, remaining surface vegetation should be removed by stripping. Strippings should be hauled from the site or used as fill only in landscape areas. Strippings should not be used as fill in building pad areas or pavement areas. Strippings should receive moisture conditioning and compactive effort, should not exceed a vertical thickness of two feet and should not extend within five feet of building pads or pavements. Discing may be a suitable alternate to stripping, depending upon the quantity and condition of the organics at the time of grading. ***Discing should be allowed only with our approval after review of the site conditions at the time of grading.***

Engineered Fill Placement

Areas designated to receive engineered fill and at-grade areas should be uniformly scarified to a depth of at least 12 inches, moisture conditioned to at least two percent above the optimum moisture content for clay soils or to at least the optimum for sandy soils, as identified by our representative, and compacted to not less than 90 percent of the maximum dry density, as determined by ASTM D1557 specifications. Loose, soft or saturated soils deposits exposed during compaction operations should be excavated to firm, undisturbed soils and properly backfilled with engineered fill.

Fills should be placed in lifts no greater than six inches in compacted thickness, with each lift being compacted to at least 90 percent relative compaction. Moisture content of the soil at the time of compaction should be at least two percent above the optimum moisture content. Preparation of areas to receive fill and fill placement should extend at least five feet beyond the building perimeters and pavement areas. The upper 12 inches of all building pads should be uniformly compacted at a moisture content at least two percent above the optimum moisture content.

On-site soils may be utilized as fills provided the soils are free of rocks larger than four inches in maximum dimension, and free of significant quantities of organic material. Imported soil, if required, should be granular material with non-plastic fines (Plasticity Index of 15 or less), contain no particles greater than four inches in maximum dimension, and have less than five percent of the material greater than one-inch in maximum size. Our firm must approve import material before being transported to the project site.

The upper six inches of pavement subgrade soils, as well as aggregate base utilized within pavement sections, should be compacted to at least 95 percent relative compaction.

Permanent excavation and fill slopes should be constructed no steeper than two horizontal to one vertical (2:1).

Site preparation and fill placement should be accomplished in accordance with these recommendations and the appended Guide Earthwork Specifications. We recommend that a representative from our office be present during site preparation and fill placement to identify areas of the site containing existing loose fills or saturated soils, and to verify conformance with our recommendations. We should review the project plans and specifications to verify that the intent of our recommendations have been properly interpreted and implemented into the construction documents.

Trench Backfill

Utility trenches within the structural areas of the site should be backfilled with engineered fill placed in accordance with these recommendations. Native soils should be compacted in maximum six-inch lifts; imported sand or gravel backfill material may be compacted in maximum 12-inch lifts. Compaction should be achieved by mechanical means.

Where utility lines cross building perimeters, the trench should be completely filled with compacted native soils, rather than imported sand or gravel materials. The native soil "plug" should extend at least five feet beyond the interior and exterior of the building footprint. Bedding and initial backfill of utility lines should conform to Yolo County Standards and the pipe manufacturers recommendations.

Foundation Design

The foundation design recommendations provided below are contingent upon our representative performing a clay survey of the residential lots to identify building pads as non-expansive or expansive. Building pads identified as containing granular materials in at least the upper one-foot of finish pad grade may utilize the non-expansive recommendations. If clays are identified within the upper foot of finished pad grade or exposed within foundation excavations, the foundations should be designed and constructed utilizing the expansive building pad recommendations.

The highly expansive black silty clays should not be used within the upper two feet of finish pad grades. If these clays are present they should be removed and replaced with on-site granular materials.

Non-Expansive Building Pads

One- and two-story residential structures may be supported upon continuous and isolated spread foundations that extend at least 12 inches into the compacted building pad, as measured from lowest adjacent soil grade. The 12-inch embedment depth also applies to interior supports for raised-wood portions of structures. For this project, the building pad subgrade is defined as the soil surface on which capillary break gravel is placed. A continuous, reinforced foundation should be utilized for the perimeter of the structures to act as a "cut-off" to help minimize moisture infiltration and variations beneath the interior slab-on-grade areas of the structures. Continuous foundations should be at least 12 inches wide; isolated spread foundations should maintain a minimum 18-inch dimension.

Foundations bearing in undisturbed or recompacted native soils, engineered fill, or a combination of those materials may be sized for maximum vertical compressive loads utilizing maximum allowable soil bearing pressures of 2000 per square foot (psf) for dead plus live load; this bearing value may be increased by one-third to include the effects of seismic or wind forces. The weight of foundation concrete extending below lowest adjacent soil grade may be disregarded in sizing computations.

We recommend that all foundations be adequately reinforced to provide structural continuity, mitigate cracking and permit spanning of local soil irregularities. The structural engineer should determine final foundation reinforcing requirements. However, *as a minimum,* we recommend that continuous foundations be reinforced with at least two No. 4 steel reinforcing bars, placed one each near the top and bottom of the foundations.

Resistance to lateral displacement of shallow foundations may be computed using an allowable friction factor of 0.25 multiplied by the effective vertical load on each foundation. Additional lateral resistance may be achieved using an allowable passive earth pressure against the vertical projection of the foundation equal to an equivalent fluid pressure of 250 psf per foot of depth. These two modes of resistance should not be added unless the frictional component is reduced by 50 percent since mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance.

Expansive Building Pads

Foundations constructed on building pads containing expansive clays, as identified by our representative, should be designed using the recommendations for building pads constructed with non-expansive soils, except that foundations should extend to at least 18 inches below lowest adjacent soil grade. We stress that perimeter foundations should be continuous around the structure to form a cut-off wall foundation to minimize soil moisture variations beneath the structure.

Sound Wall Systems

Foundations for sound wall systems should bear on firm, undisturbed ground, engineered fill placed and compacted in accordance with the recommendations of our report, or a combination of these materials, as confirmed by our representative. Sound wall foundations should extend at least 18 inches below lowest adjacent soil grade. Foundations may be sized using a maximum allowable soil bearing pressure of 2000 psf with a 1/3 increase for wind or seismic forces. Foundations should be at least 12 inches wide. Lateral resistance may be computed using an equivalent fluid pressure of 250 pcf, with the understanding that the upper 12 inches of embedment should be neglected due to the presence of expansive clays. For pier foundations used to support sound walls, the lateral resistance may be applied over 1½ times the pier diameter.

If the walls will be constructed on sloping ground or at the top of a soil berm, the passive resistance should be computed below a depth at which at least five feet of engineered fill or undisturbed native soil is present in front of the foundation, as measured from the exterior edge of the foundation to the face of the slope.

Interior Floor Slab Support

Non-Expansive Building Pads

Portland cement concrete slab-on-grade floors can be suitably supported upon subgrades prepared in accordance with the recommendations of this report. Final slab thickness and reinforcing should be determined by the structural engineer based upon the anticipated floor loads. However, as a minimum, we recommend slabs be at least four inches thick and contain *at least* 6x6/W2.9xW2.9, flat sheet, welded wire mesh reinforcement or No. 3 rebar located on maximum 24-inch centers each way throughout the slab. Location of the reinforcement at mid-slab is essential to its performance.

Floor slabs may be underlain by a layer of free-draining gravel serving as a deterrent to migration of capillary moisture. The gravel layer should be at least four inches thick and should have a gradation such that 100 percent passes a one-inch sieve and none passes a No. 4 sieve. Additional moisture protection can be provided by placing a durable plastic moisture vapor retarder directly over the gravel. The vapor retarder should meet or exceed ACI and ASTM E 1745 standards. An optional, thin layer of clean sand above the vapor retarder is acceptable, as an aid to curing of the slab concrete. Additionally, a moisture-proofing admixture could be added to the concrete as an added precaution against water vapor transmission through the slabs. Admixtures must be used only in strict conformance with the manufacturer's specifications.

If relatively impervious floor coverings such as vinyl tile are anticipated, it has been our experience that specifying a maximum 0.60 water/cement ratio and a minimum five sacks of cement per cubic yard for the floor slab concrete can provide additional resistance to moisture-vapor transmission. We also suggest that concrete observation and testing on concrete placed in floor slabs be considered to verify compliance with contract specifications.

Seasonal moisture and landscape irrigation will assure that relatively high soil moisture contents exist below interior floor slabs throughout their lifetime. This condition should be a significant consideration in design and construction of interior floor slabs. It is emphasized that use of the sub-slab sheet plastic vapor retarder will not moisture proof the slab, nor does it assure that slab moisture transmission levels will meet floor-covering manufacturers standards. The design and construction of quality of the slab concrete is equally important. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs. For increased protection against moisture vapor penetration of slabs you should consult a concrete moisture protection specialist.

Expansive Building Pads

Slab-on-grade floors constructed on expansive soils should contain at least No. 3 rebar located on maximum 18-inch centers each way throughout the slab, to help minimize the effects of expansive clays. Location of the reinforcement at mid-slab is essential to its performance.

Floor slabs constructed on expansive soils must have the upper 12 inches of the soil subgrade brought to a near-saturated condition, prior to concrete slab placement. Our office must verify adequate moisture conditioning within 48 hours prior to slab placement.

Exterior Flatwork

Exterior flatwork constructed over the native clayey soils will experience seasonal movement and cracking as the subgrade soils change volume in response to moisture variations. The risk of flatwork cracking due to subgrade heaving can be reduced if the flatwork is underlain by at least 12 inches of compacted granular soils. If granular soils are not used, the subgrade soils should be uniformly compacted at a moisture content of at least two percent above the optimum moisture content and maintained at an over optimum moisture condition until concrete placement. For additional slab protection, the outside edge of the slabs could be deepened to twice the slab thickness or at least six inches. Flatwork cracking can also be reduced by proper joint placement and by following guidelines of the Portland Cement Association (PCA) for flatwork construction on expansive soils.

Pavement Design

Based on Resistance ("R-") value testing, our experience in the area, and the design traffic indices considered appropriate for the given construction we have calculated pavement section alternatives. The procedures used for designing the pavement section are in general conformance with the "Flexible Pavement Structural Design Guide for California Cities and Counties" and applicable portions of the Caltrans Highway Design Manual. A Resistance-value of 10 is applicable to pavement subgrades at the site.

Pavement Design Alternatives
(R-value = 10)

Street Right-of-Way	Traffic Index (TI)	Type B Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
40' and 50' Residential	5.0	3*	10
56' to 74' without Bus Routes	6.0	3 3½*	13 12
56' to 74' with Bus Routes and Cul-de-Sacs	6.5	3 4*	15 13
84' Streets	9.0	4 5½*	22 19

* Asphalt concrete section contains the Caltrans factor of safety.

Pavement performance is critically dependent upon uniform and adequate compaction of the soil subgrade, as well as all engineered fill and utility trench backfill within the limits of the pavement. Subgrade soils should be compacted to at least 95 percent relative compaction at a moisture content no less than the optimum moisture. Final scarification, moisture conditioning and compaction of pavement subgrades should be accomplished within 72 hours of aggregate base placement, after the underground utilities have been completed. Aggregate base should be compacted to at least 95 percent relative compaction.

Materials, quality and construction of the structural section of the pavement should conform to the applicable provisions of the Caltrans Standard Specifications, dated July 1992.

Site Drainage

Final site grading should be accomplished to provide positive drainage of surface water away from the buildings and prevent ponding of water adjacent to foundations, slabs or pavements. The grade adjacent to the structures should be sloped away from the foundations at a minimum two percent slope for a distance of at least five feet, where possible. Roof gutter downspouts and surface drains should be connected to solid PVC piping and directed towards appropriate drainage facilities, or the downspouts should drain onto concrete surfaces sloping away from the buildings.

Construction Testing and Observation

Geotechnical testing and observation services during construction are considered a continuation of our geotechnical engineering investigation. Wallace - Kuhl & Associates, Inc. should be retained to provide testing and observation services during site grading, foundation and pavement construction, and to observe saturation of expansive building pad subgrades. In addition, it is recommended that WKA be retained to verify compliance with design concepts and project plans and specifications, and to provide consultation as required during construction.

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed construction, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our best engineering judgment based upon the information provided and the data generated from our investigation. If the proposed construction is modified or relocated or, if it is found during construction that subsurface conditions differ from those we encountered at our boring locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

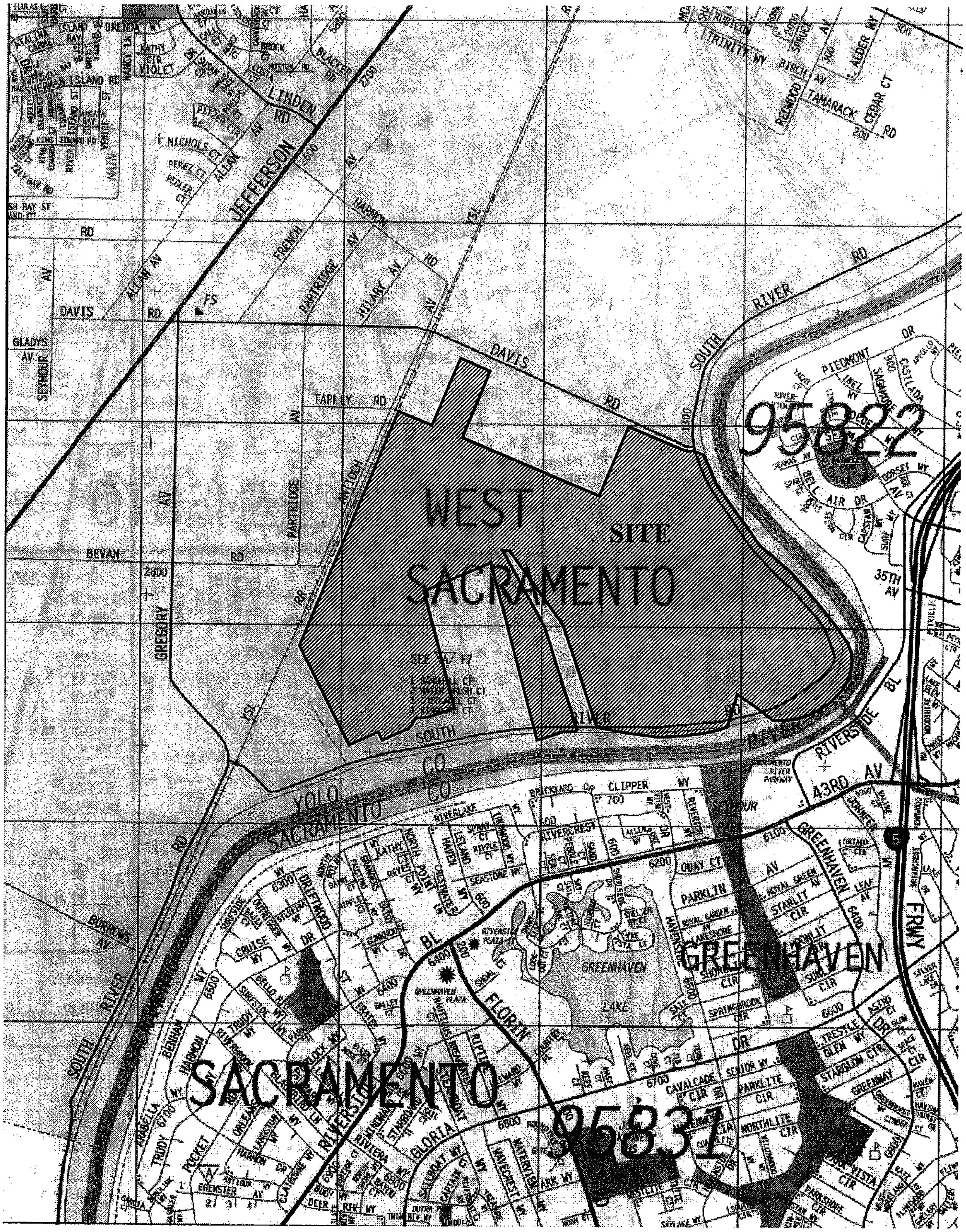
We should review the final plans and specifications to determine if the intent of our recommendations has been implemented in those documents.

We emphasize that this report is applicable only to the proposed construction and the investigated site. This report should not be utilized for construction on any other site.

Wallace - Kuhl & Associates, Inc.

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY J. CRESS
NO. 62724
Exp. 6/30/06
CIVIL
STATE OF CALIFORNIA

Timothy J. Cress
Project Engineer



Adapted from the Thomas Guide
Sacramento and Solano Counties
Street Guide and Directory, 2001 edition.

WALLACE • KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY

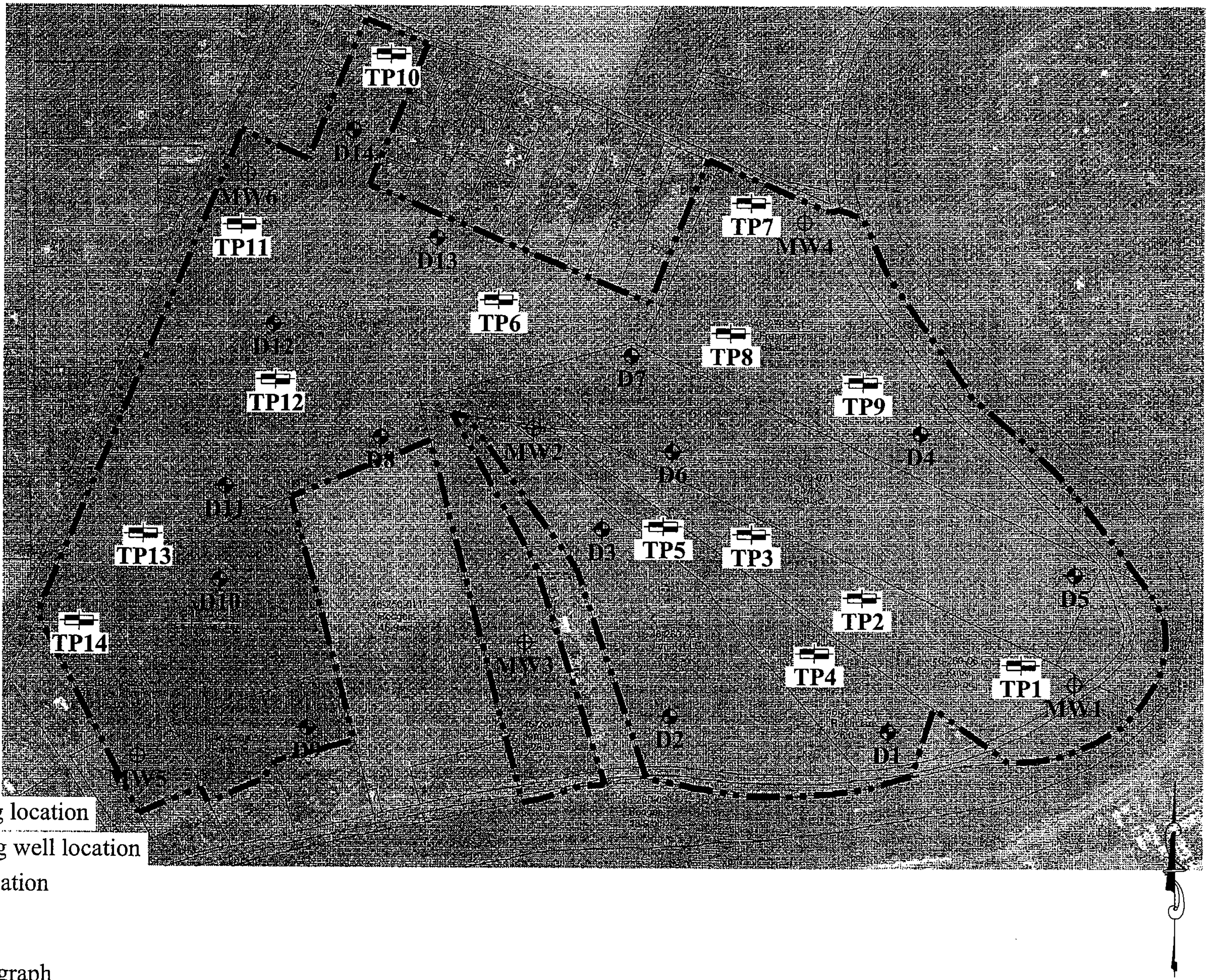
Antioch Road and Davis Road

West Sacramento, California

WKA NO: 5841.01

DATE: 2/04

PLATE NO: 1



Scale not Provided

Legend:

- ✦ -Approximate soil boring location
- ⊕ -Approximate monitoring well location
- ▬ -Approximate test pit location

Note:

Adapted from an aerial photograph provided by the client.

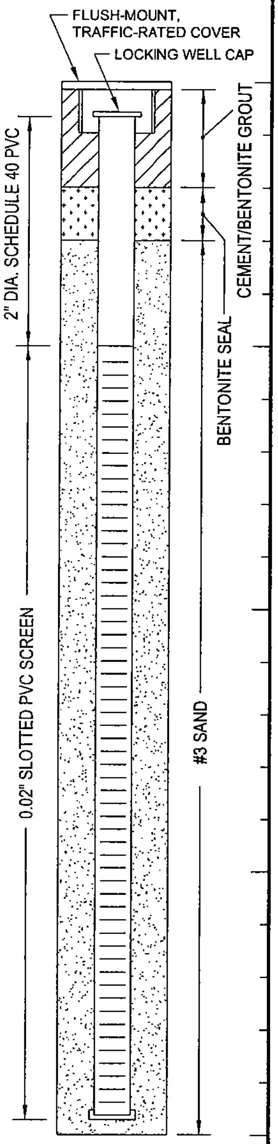
WALLACE • KUHL & ASSOCIATES, INC. GEOTECHNICAL ENGINEERING GEOLOGIC & ENVIRONMENTAL SERVICES	Drawn By: PVT Checked By: TJC	**SOUTHPORT PROPERTY** Antioch Road and Davis Road West Sacramento, California	WKA NO: 5841.01 DATE: 2/04 PLATE NO: 2

BORING NUMBER: MW1
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							CL	▨	Dark brown silty clay
	◩	MW1-1I	4						
	◩	MW1-2I	3	83	28.6		SM	▦	Dark grayish brown silty fine sand
5									
									▼f
	◩	MW1-3I	2	91	29.1				
10									
	◩	MW1-4I	4						
15									
									dark gray
	◩	MW1-5I	3	83	37.1				
20									
25									
30									

WELL DIAGRAM



Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

WALLACE • KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 3

BORING NUMBER: MW2
DATE DRILLED: 1/20/04
LOGGED BY: DJP

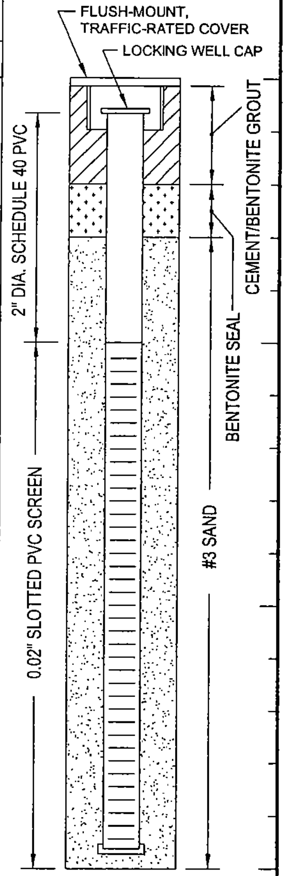
DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	▥	Dark brown silty fine sand
	◪	MW2-1I	5	101	20.4			▥	
5	◪	MW2-2I	5	96	17.3			▥	
								▥	▼f
10	◪	MW2-3I	6					▥	
15	◪	MW2-4I	3	98	26.0			▥	
20									
25									
30									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

WELL DIAGRAM



WALLACE • KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

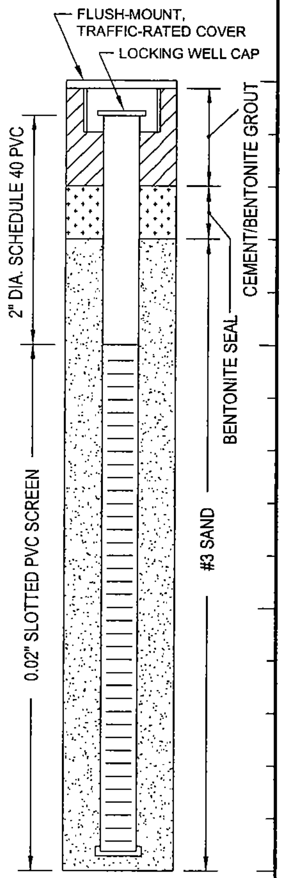
WKA NO: 5841.01
DATE: 2/04
PLATE NO: 4

BORING NUMBER: MW3
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							CL	▨	Dark brown sandy clay
									silty
	◩	MW3-1I	8	90	30.3	1.6 (TSF) UCC			
5	◩	MW3-2I	5						
							SM		Dark brown silty fine sand
10	◩	MW3-3I	2	97	27.6				
15	◩	MW3-4I	3	90	31.6				
20									
25									
30									

WELL DIAGRAM



Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 5

BORING NUMBER: MW4
DATE DRILLED: 1/20/04
LOGGED BY: DJP

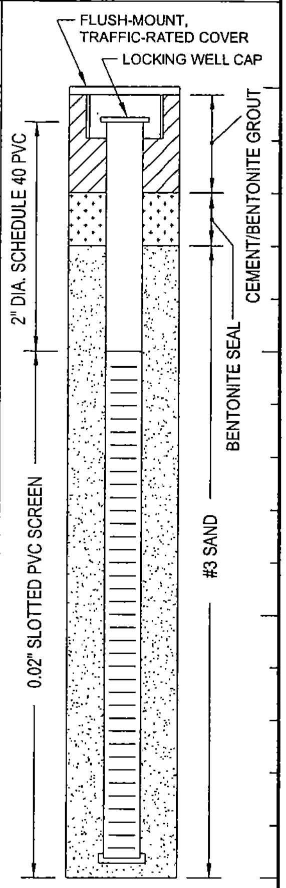
DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
									dark grayish brown
		MW4-1I	4	94	22.3				
		MW4-2I	4	93	17.1				
5									
							CL/ CH		Dark gray silty clay
10		MW4-3I	2						
15		MW4-4I	7	86	35.2				
20									
25									
30									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

WELL DIAGRAM



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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

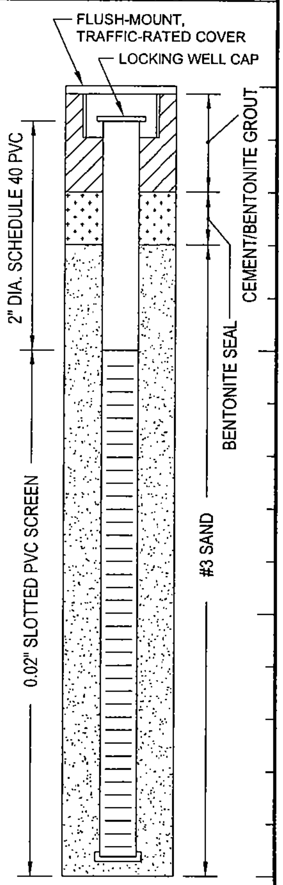
WKA NO: 5841.01
DATE: 2/04
PLATE NO: 6

BORING NUMBER: MW5
DATE DRILLED: 1/21/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
		MW5-1I	6	90	25.1				
		MW5-2I	9	98	23.1		CL		Dark grayish/brown silty clay
5									
							SM		Dark brown silty fine sand
10		MW5-3I	3	101	25.6				▼ f
15		MW5-4I	3						
20									
25									
30									

WELL DIAGRAM



Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY

Antioch Road and Davis Road

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WKA NO: 5841.01

DATE: 2/04

PLATE NO: 7

BORING NUMBER: MW6
DATE DRILLED: 1/21/04
LOGGED BY: DJP

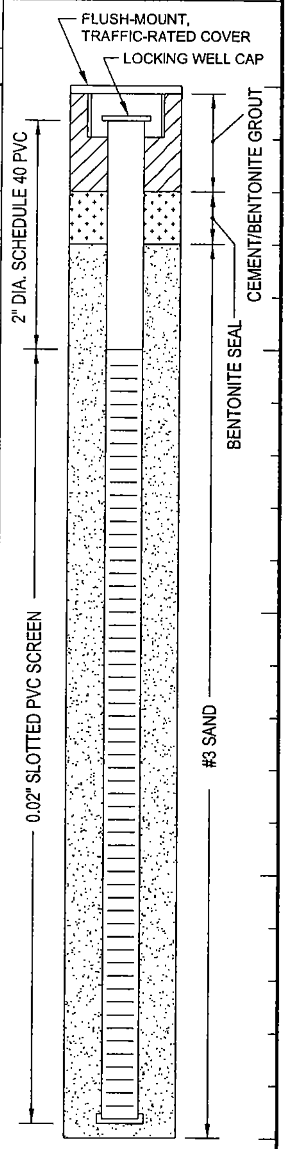
DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	▦	Dark brown silty fine sand
	◪	MW6-1I	2	76	44.2		ML	▥	Light brown fine sandy silt
	◪	MW6-2I	3						
5							CL/ CH	▨	Black silty clay
	◪	MW6-3I	4						
10									▼f
15	◪	MW6-4I	6	89	33.6				
20	◪	MW6-5I	12	88	32.7				
25									
30									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

WELL DIAGRAM



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SOUTHPORT PROPERTY

Antioch Road and Davis Road

West Sacramento, California

WKA NO: 5841.01

DATE: 2/04

PLATE NO: 8

BORING NUMBER: D1
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							CL	▨	Dark brown silty clay
							SM	░	Dark grayish brown, silty fine sand
	◩	D1-1I	5	86	23.0			░	
5	◩	D1-2I	5	95	16.3			░	
								░	▼
10	◩	D1-3I	2					░	
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY
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West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 9

BORING NUMBER: D2
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							CL	▨	Dark brown silty clay
	◩	D2-1I	4	78	35.5			▨	
5	◩	D2-2I	4					▨	
							SM	░	Dark grayish brown silty fine sand
								░	▼f
10	◩	D2-3I	3	85	34.5			░	
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY
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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 10

BORING NUMBER: D3
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	▦	Brown silty fine sand
							CL	▨	Dark brown silty clay
							SM	▦	Dark brown silty fine sand
	◩	D3-1I	5	88	24.1			▦	
5								▦	
	◩	D3-2I	30	103	22.4			▦	
								▦	▼ f
10	◩	D3-3I	6					▦	
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 11

BORING NUMBER: D4
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
	◩	D4-1I	8	98	10.3				dark grayish brown
5	◩	D4-2I	5						
							CL/ CH		▼ Dark grayish brown silty clay
10	◩	D4-3I	12	101	23.8				
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 12

BORING NUMBER: D5
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark grayish brown silty fine sand
		D5-1I	4	88	28.6				
									with black mottling
5		D5-2I	3	81	33.4				
									▼f
10		D5-3I	2						
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 13

BORING NUMBER: D6
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	▥	Dark brown silty fine sand
	◩	D6-1I	5						
5							CL/ CH	▨	Dark grayish brown silty clay
	◩	D6-2I	12	90	28.8				
									▼f
10	◩	D6-3I	4	94	27.4				
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY
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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 14

BORING NUMBER: D7
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	░	Dark brown silty fine sand
	◩	D7-1I	7	87	25.6			░	
	◩	D7-2I	4					░	
5								░	
							CL/ CH	▨	Dark grayish brown silty clay
								▨	▼f
10	◩	D7-3I	5	78	41.8			▨	
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 15

BORING NUMBER: D8
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM	▒	Dark brown silty fine sand
	◩	D8-1I	5	80	38.0		ML	▥	Dark gray/reddish brown fine sandy silt
5	◩	D8-2I	5	80	14.7		SM	▒	Dark grayish brown silty fine sand
10	◩	D8-3I	3				CL	▨	Dark brown silty clay
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. Ground water was not encountered in the boring.
3. For an explanation of the symbols used in the boring log, see Plate No. 23

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SOUTHPORT PROPERTY
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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 16

BORING NUMBER: D9
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
	◩	D9-1I	6	98	22.3				
							CL/ CH		Black silty clay
5	◩	D9-2I	8						
							SM		Dark brown silty fine sand
10	◩	D9-3I	2	88	33.0				
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. Ground water was not encountered in the boring.
3. For an explanation of the symbols used in the boring log, see Plate No. 23

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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 17

BORING NUMBER: D10
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
		D10-1I	7	81	38.1	1.1 (TSF) UCC	ML		Light brown fine sandy silt
							CL/ CH		Black silty clay
5		D10-2I	9	78	23.8				
							SM		Dark brown silty fine sand
10		D10-3I	2	90	30.8				
15									
20									

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SOUTHPORT PROPERTY
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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 18

BORING NUMBER: D11
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0									
							SM		Dark brown silty fine sand
		D10-1I	7	81	38.1				
							ML		Light brown fine sandy silt
							CL/ CH		Black silty clay
		D10-2I	7						
5									
							SM		Dark brown silty fine sand
10		D10-3I	2	89	32.1				
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. Ground water was not encountered in the boring.
3. For an explanation of the symbols used in the boring log, see Plate No. 23

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SOUTHPORT PROPERTY
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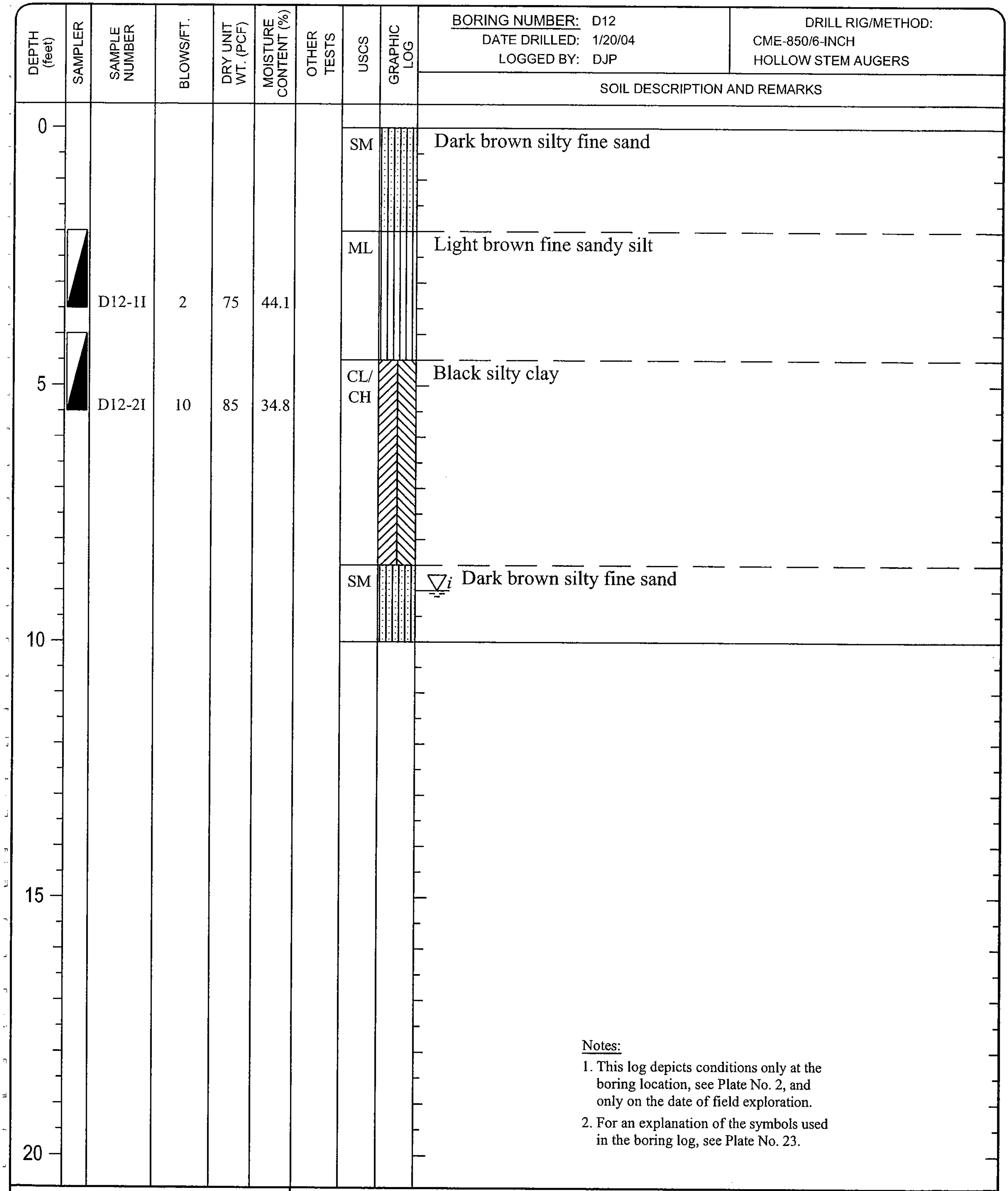
WKA NO: 5841.01
DATE: 2/04
PLATE NO: 19

BORING NUMBER: D12
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS



DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
							ML		Light brown fine sandy silt
		D12-1I	2	75	44.1				
5		D12-2I	10	85	34.8		CL/ CH		Black silty clay
							SM		∇i Dark brown silty fine sand
10									
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. For an explanation of the symbols used in the boring log, see Plate No. 23.

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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 20

BORING NUMBER: D13
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Brown silty fine sand
									dark grayish brown increasing fines
		D13-1I	6	87	21.0				
5									less fines
		D13-2I	5						
							CL/ CH		Black silty clay
10		D13-3I	2	71	51.4				
15									
20									

Notes:

1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. Ground water was not encountered in the boring.
3. For an explanation of the symbols used in the boring log, see Plate No. 23

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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 21

BORING NUMBER: D14
DATE DRILLED: 1/20/04
LOGGED BY: DJP

DRILL RIG/METHOD:
CME-850/6-INCH
HOLLOW STEM AUGERS

DEPTH (feet)	SAMPLER	SAMPLE NUMBER	BLOWS/FT.	DRY UNIT WT. (PCF)	MOISTURE CONTENT (%)	OTHER TESTS	USCS	GRAPHIC LOG	SOIL DESCRIPTION AND REMARKS
0							SM		Dark brown silty fine sand
							ML		Dark grayish brown fine sandy silt
		D14-1I	6	79	39.9	0.8 (TSF) UCC			
		D14-2I	3	74	45.2				
5							CL/ CH		Black silty clay
10		D14-3I	5	73	47.5				
15									
20									

Notes:
1. This log depicts conditions only at the boring location, see Plate No. 2, and only on the date of field exploration.
2. Ground water was not encountered in the boring.
3. For an explanation of the symbols used in the boring log, see Plate No. 23

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SOUTHPORT PROPERTY
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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 22

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW	▨	Well graded gravels or gravel - sand mixtures, little or no fines
		GP	▨	Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM	▨	Silty gravels, gravel - sand - silt mixtures
		GC	▨	Clayey gravels, gravel - sand - clay mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW	▨	Well graded sands or gravelly sands, little or no fines
		SP	▨	Poorly graded sands or gravelly sands, little or no fines
		SM	▨	Silty sands, sand - silt mixtures
		SC	▨	Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML	▨	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	▨	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	▨	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH	▨	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	▨	Inorganic clays of high plasticity, fat clays
		OH	▨	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	▨	Peat and other highly organic soils

OTHER SYMBOLS

◩ = Drive Sample: 2-1/2" O.D. Modified California sampler

▯ = Drive Sample: no recovery

∇i = Initial Water Level

▼f = Final Water Level

— — — = Estimated or gradational material change line

——— = Observed material change line

Laboratory Tests

PI = Plasticity Index
EI = Expansion Index
UCC = Unconfined Compression Test
TR = Triaxial Compression Test
GR = Gradational Analysis (Sieve)
K = Permeability Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

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WKA NO: 5841.01
DATE: 2/04
PLATE NO: 23

LOGS OF TEST PITS

TEST PIT 1

0' to 5'	Dark brown, silty clay (CL)
5' to 12'	Dark brown, silty fine sand (SM)
10'	Groundwater

TEST PIT 2

0' to 4'	Dark brown, silty clay (CL)
4' to 11'	Brown, silty fine sand (SM)
10'	Groundwater

TEST PIT 3

0' to 3'	Dark brown, silty clay (CL)
3' to 9'	Brown, silty fine sand (SM)
8'	Groundwater

TEST PIT 4

0' to 3'	Dark brown, silty clay (CL)
3' to 10'	Brown, silty fine sand (SM)
8'	Groundwater

TEST PIT 5

0 to 2'	Dark brown, silty clay (CL)
2' to 3'	Black, silty clay (CL/CH)
3' to 9'	Brown, silty fine sand (SM)
7'	Groundwater

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 24

LOGS OF TEST PITS

TEST PIT 6

0' to 7'	Brown, silty fine sand (SM)
7' to 11'	Black, silty clay (CL/CH)
10'	Groundwater

TEST PIT 7

0 to 10'	Brown, very silty fine sand (SM)
9'	Groundwater

TEST PIT 8

0' to 10'	Brown, silty fine sand (SM)
3'	Light brown, with less silt
9'	Groundwater

TEST PIT 9

0' to 5'	Dark brown, silty fine sand (SM)
5' to 8'	Black, silty clay (CL/CH)
8' to 10'	Dark brown, silty fine sand (SM)
9'	Groundwater

TEST PIT 10

0' to 4'	Dark brown, silty fine sand (SM)
4' to 10'	Black, silty clay (CL/CH)
9'	Groundwater

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West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 25

LOGS OF TEST PITS

TEST PIT 11

0' to 3'	Brown, fine sandy silt (ML)
3' to 8'	Black, silty clay (CL/CH)
8' to 10'	Brown, silty clay (CL)
9'	Groundwater

TEST PIT 12

0' to 6'	Dark brown, silty fine sand (SM)
6' to 10'	Black, silty clay (CL/CH)
9'	Groundwater

TEST PIT 13

0' to 3'	Dark brown, silty fine sand (SM)
2'	Light brown, with less fines
3' to 6'	Light brown, fine sandy silt (ML)
6' to 11'	Black, silty clay (CL/CH)
10'	Groundwater

TEST PIT 14

0' to 3'	Brown, silty, very fine sand (SM)
3' to 7'	Light brown, fine sandy silt (ML)
7' to 10'	Black, silty clay (CL/CH)
9'	Groundwater

TEST PIT 15

0' to 3'	Dark brown, silty clay (CL)
3' to 11'	Brown, silty fine sand (SM)
10'	Groundwater

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: 26

APPENDICES

APPENDIX A

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& ASSOCIATES INC.

APPENDIX A

A. GENERAL INFORMATION

The performance of a geotechnical engineering investigation and pavement design at the site of the planned Southport property located southeast of Antioch Road and Davis Road in West Sacramento, California, was authorized by Stephen Thurtle on December 10, 2003. Authorization was for an investigation as described in our proposal letter dated November 25, 2003, sent to our client Richland Communities, Inc. whose mailing address is 2220 Douglas Boulevard, Suite 290 Roseville, California 95661; telephone (916) 782-3330; facsimile (916) 784-3369.

In performing this investigation, we made reference to an aerial site plan supplied to us by the client.

B. FIELD EXPLORATION

Both exploratory borings and test pits were performed for our field exploration. Twenty test borings were drilled on January 20 and 21, 2004, utilizing a CME-850 track-mounted drill rig at the locations indicated on Plate No. 2. The borings were drilled to a maximum depth of approximately 20 feet below existing grade using six-inch diameter hollow stem helical augers, within six of the borings plastic casing was installed to monitor ground water levels. At various intervals, relatively undisturbed soil samples were recovered with a 2½-inch O.D., 2-inch I.D., California sampler driven by a 140-pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 18-inch long sampler each 6-inch interval was recorded, with the sum of the blows required to drive the sampler the lower 12-inch interval, or portion thereof, designated the penetration resistance or "blow count" for that particular drive. Upon recovery of samples, the field engineer classified the soil and the ends of the tubes were sealed with plastic caps to preserve the natural moisture content. The samples were taken to our laboratory for additional classification and selection of samples for testing.

Fifteen test pits were performed at the approximate locations indicated on Plate No. 2. Test pits were excavated at the site on January 15, 2004 utilizing a Case 580 backhoe equipped with a 24-inch wide bucket. The maximum depth penetrated by the test pits was approximately 12 feet. Selected bulk bag samples were collected from the test pits and taken to our laboratory for soil classification and additional testing.

C. LABORATORY TESTING

Selected undisturbed samples of the soils were tested to determine dry unit weight (ASTM D2937), natural moisture content (ASTM D2216), and unconfined compressive strength (ASTM D2166). The results of those tests are included on the boring logs at the depth each sample was obtained.

One sample of near surface soils was tested to determine its Atterberg Limits (ASTM D4318). Results of the analysis are presented on Plate No. A1.

Two representative bulk samples of subgrade soils were subjected to Expansion Index testing in accordance with ASTM D4829. The results of the tests are presented on Plates No. A2 and A3.

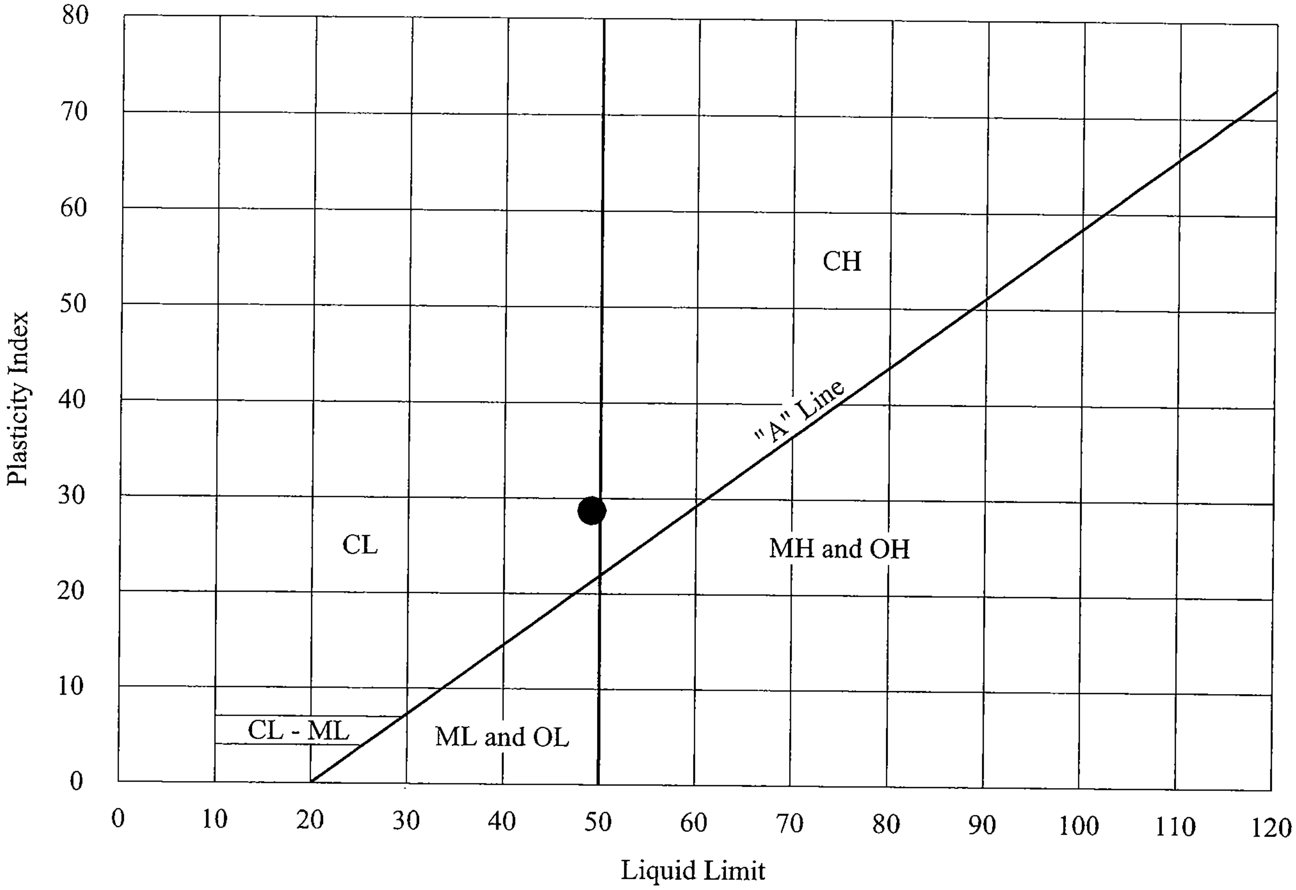
One undisturbed sample was tested to determine its shear strength using triaxial compression test methods (ASTM D4767). The results of the triaxial compression test are presented on Plate No. A4.

Three representative bulk samples of anticipated pavement subgrade soils were obtained and subjected to Resistance value testing in accordance with California Test 301. The results of the R-value tests, which were used for pavement design, are presented on Plates No. A5 and A6.

Four representative bulk samples of subgrade soils were submitted to Sunland Analytical Lab to determine the preliminary corrosion characteristics of the near-surface soils (CT 417, 422, 643). The results of the tests are presented on Plates No. A7 through A10.

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION (SEE PLATE NO. 2)	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	TP-5	2'	41	50	29	---	CL/CH

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SOUTHPORT PROPERTY

Antioch Road and Davis Road

West Sacramento, California

WKA NO: 5841.01

DATE: 2/04

PLATE NO: A1

EXPANSION INDEX TEST RESULTS

UBC Standard No. 29-2

ASTM D4829-88

MATERIAL DESCRIPTION: Brown silty clay

LOCATION: TP5

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index *
0-2'	13.9	32.8	91	**70**

CLASSIFICATION OF EXPANSIVE SOIL **

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	**Medium**
91 - 130	High
Above 130	Very High

* Corrected to 50% Saturation

** From UBC Table 29-C

EXPANSION INDEX TEST RESULTS

UBC Standard No. 29-2

ASTM D4829-88

MATERIAL DESCRIPTION: Black silty clay

LOCATION: TP10

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index *
4'-5'	20.7	41.7	84	**121**

CLASSIFICATION OF EXPANSIVE SOIL **

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	**High**
Above 130	Very High

* Corrected to 50% Saturation

** From UBC Table 29-C

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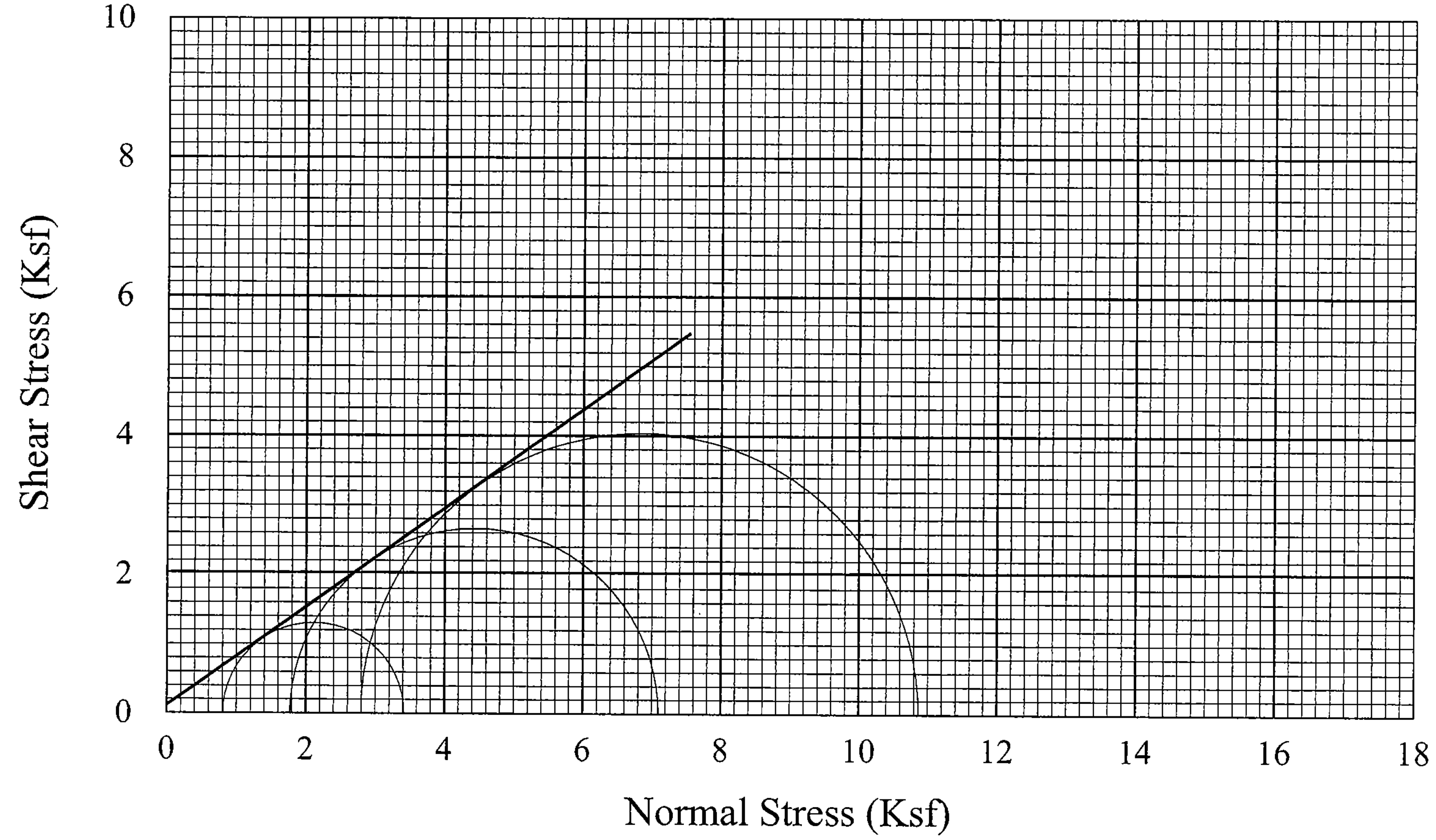
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A3

TRIAXIAL COMPRESSION TEST

ASTM D4767-95



SAMPLE NO. : D6-1I

SAMPLE CONDITION : Undisturbed

SAMPLE DESCRIPTION : Brown silty fine sand

DRY DENSITY (PCF) : 95

INITIAL MOISTURE (%) : 24.5

FINAL MOISTURE (%) : 22.6

ANGLE OF INTERNAL FRICTION (ø) : 35°

COHESION (PSF) : 112

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Drawn By: PVT

Checked By: TJC

SOUTHPORT PROPERTY

Antioch Road and Davis Road

West Sacramento, California

WKA NO: 5841.01

DATE: 2/04

PLATE NO: A4

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Brown silty sand with clay

LOCATION: TP-4

Specimen No.	Dry Unit Weight	Moisture @ Compaction	Exudation Pressure	Expansion Pressure		R Value
				(dial)	(psf)	
	(pcf)	(%)	(psi)			
1	111	18.3	263	18	78	17
2	112	17.4	454	18	78	20
3	112	17.8	334	16	69	24

R-Value at 300 psi exudation pressure = 21

MATERIAL DESCRIPTION: Brown silty sand

LOCATION: D10

Specimen No.	Dry Unit Weight	Moisture @ Compaction	Exudation Pressure	Expansion Pressure		R Value
				(dial)	(psf)	
	(pcf)	(%)	(psi)			
1	117	14.9	160	16	69	7
2	118	13.2	311	36	156	37
3	121	12.3	438	54	234	51

R-Value at 300 psi exudation pressure = 35

Equilibrium R-value for TI = 5.0 = 24

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A5

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Brown sandy silt with clay

LOCATION: TP11

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion Pressure (dial)	Expansion Pressure (psf)	R Value
1	93	25.9	160	21	91	7
2	99	236	334	160	693	21
3	104	21.4	725	210	909	47

R-Value at 300 psi exudation pressure = 19

Equilibrium R-value for TI = 5.0 = 10

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SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A6

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 01/28/2004
Date Submitted 01/23/2004

To: Tim Cress
Wallace-Kuhl & Associates, Inc.
P.O. Box 1137
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 5841.01\SOUTHPORT P. Site ID : MW1-1II.
Your purchase order number is 6174.
Thank you for your business.

* For future reference to this analysis please use SUN # 40995-79642.

EVALUATION FOR SOIL CORROSION

Soil pH	6.83		
Minimum Resistivity	3.48	ohm-cm (x1000)	
Chloride	36.5 ppm	00.00365	%
Sulfate	9.6 ppm	00.00096	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

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GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A7

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 01/28/2004
Date Submitted 01/23/2004

To: Tim Cress
Wallace-Kuhl & Associates, Inc.
P.O. Box 1137
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 5841.01\SOUTHPORT P. Site ID : MW3-2II.
Your purchase order number is 6174.
Thank you for your business.

* For future reference to this analysis please use SUN # 40995-79643.

EVALUATION FOR SOIL CORROSION

Soil pH	7.15		
Minimum Resistivity	3.22	ohm-cm (x1000)	
Chloride	26.7 ppm	00.00267	%
Sulfate	1.6 ppm	00.00016	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

WALLACE • KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A8

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 01/28/2004
Date Submitted 01/23/2004

To: Tim Cress
Wallace-Kuhl & Associates, Inc.
P.O. Box 1137
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 5841.01\SOUTHPORT P. Site ID : D4-1II.
Your purchase order number is 6174.
Thank you for your business.

* For future reference to this analysis please use SUN # 40995-79644.

EVALUATION FOR SOIL CORROSION

Soil pH	6.69		
Minimum Resistivity	9.65	ohm-cm (x1000)	
Chloride	11.1 ppm	00.00111	%
Sulfate	3.9 ppm	00.00039	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

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GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A9

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 01/28/2004
Date Submitted 01/23/2004

To: Tim Cress
Wallace-Kuhl & Associates, Inc.
P.O. Box 1137
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 5841.01\SOUTHPORT P. Site ID : D12-1II.
Your purchase order number is 6174.
Thank you for your business.

* For future reference to this analysis please use SUN # 40995-79645.

EVALUATION FOR SOIL CORROSION

Soil pH	7.23		
Minimum Resistivity	1.93	ohm-cm (x1000)	
Chloride	29.7 ppm	00.00297	%
Sulfate	10.6 ppm	00.00106	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

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GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

SOUTHPORT PROPERTY
Antioch Road and Davis Road
West Sacramento, California

WKA NO: 5841.01
DATE: 2/04
PLATE NO: A10

APPENDIX B

APPENDIX B
GUIDE EARTHWORK SPECIFICATIONS
SOUTHPORT PROPERTY

Antioch Road and Davis Road
West Sacramento, California
WKA No. 5841.01

PART 1: GENERAL

1.1 SCOPE

a. General Description

This item shall include the clearing of remaining building remnants, slabs, any utilities to be abandoned, on-site wells and septic systems, trees, shrubbery and associated items; preparation of surfaces to be filled, filling, spreading, compaction, observation and testing of the fill; and all subsidiary work necessary to complete the grading of the building areas to conform with the lines, grades and slopes as shown on the accepted Drawings.

b. Related Work Specified Elsewhere

(1) Trenching and backfilling for sanitary sewer system: Section ______.

(2) Trenching and backfilling for storm sewer system: Section ______.

(3) Trenching and backfilling for underground water, natural gas, and electric supplies: Section ______.

c. Geotechnical Engineer

Where specific reference is made to "Geotechnical Engineer" this designation shall be understood to include both the firm and the individual representatives of that firm.

1.2 PROTECTION

a. Adequate protection measures shall be provided to protect workmen and passers-by the site. Streets and adjacent property shall be fully protected throughout the operations.

b. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

c. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site.

d. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

e. Surface drainage provisions shall be made during the period of construction in a manner to avoid creating a nuisance to adjacent areas.

f. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance.

1.3 GEOTECHNICAL REPORT

a. A Geotechnical Engineering Report (WKA No. 5841.01, dated February 13, 2004) has been prepared for this site by Wallace - Kuhl & Associates, Inc., Geotechnical Engineers of West Sacramento, California [(916) 372-1434]. A copy is available for review at the office of Wallace - Kuhl & Associates, Inc.

b. The information contained in this report was obtained for design purposes only. The contractor is responsible for any conclusions he may draw from this report; should he prefer not to assume such risk, he should employ his own experts to analyze available information and/or to make additional test pits or borings upon which to base his conclusions, all at no cost to the Owner.

1.4 EXISTING SITE CONDITIONS

The Contractor shall acquaint himself with all site conditions. If unshown active utilities are encountered during the work, the Architect shall be promptly notified for instructions. Failure to notify will make the Contractor liable for damage to these utilities arising from Contractor's operations subsequent to his discovery of such unshown utilities.

1.5 SEASONAL LIMITS

Fill material shall not be placed, spread or rolled during unfavorable weather conditions. When heavy rains interrupt the work, fill operations shall not be resumed until field tests indicate that the moisture contents of the subgrade and fill materials are satisfactory.

PART 2: PRODUCTS

2.1 MATERIALS

a. Fill shall be of approved local materials from required excavations, supplemented by imported fill, if necessary. Approved local materials are defined as on-site soils free from significant quantities of rubble, rubbish and vegetation, and having been tested and approved by the Geotechnical Engineer prior to use. Clods, rocks or hard lumps exceeding four inches (4") in final size shall not be allowed in the upper two feet (2') of any fill placed in structural areas.

b. Imported fill materials shall meet the above requirements and shall have plasticity indices not exceeding fifteen (15); shall be of one-inch (1") maximum particle size; and shall be approved by the Geotechnical Engineer prior to transportation to the project site.

c. Capillary barrier material under floor slabs shall be provided to the thickness shown on the Drawings. This material shall be clean gravel or crushed rock of one-inch (1") maximum size, with no material passing a Number four (#4) sieve.

d. Asphalt concrete, aggregate base, and other paving products shall comply with the appropriate provisions of the State of California (Caltrans) Standard Specifications, dated July, 1992.

PART 3: EXECUTION

3.1 LAYOUT AND PREPARATION

Lay out all work, establish grades, locate existing underground utilities, set markers and stakes, set up and maintain barricades and protection of utilities prior to beginning actual earthwork operations.

3.2 CLEARING, GRUBBING AND PREPARING BUILDING PAD AND PAVEMENT AREAS

a. All items including but not limited to rubble and rubbish; underground utilities; associated trench backfill; concrete slabs and foundations; septic systems; leech lines; irrigation piping; and other items encountered during site work and deemed unacceptable by the Geotechnical Engineer, shall be removed and disposed of so as to leave the disturbed areas with a neat and finished appearance, free from unsightly debris. Trees that are designated for removal shall include the rootball and all associated root systems ½-inch or greater. Water wells and any on-site septic systems shall be abandoned in accordance with Yolo County Environmental Health Division requirements. The upper twelve inches (12") of soil subgrade within areas of removed items and irrigation/drainage ditches shall be thoroughly ripped and cross-ripped to expose any subsurface structures, building foundations, concrete and other remnants or root systems. Exposed remnants shall be removed and debris and roots cleared from the site. Excavations and depressions resulting from the removal of such items, as well as existing excavations or loose soil deposits, as determined by the Geotechnical Engineer, shall be cleaned out to firm, undisturbed soil and backfilled with suitable materials in accordance with these specifications.

b. The surfaces upon which fill is to be placed, as well as at-grade areas or areas achieved by excavation, shall be plowed or scarified to a depth of at least twelve inches (12"), until the surface is free from ruts, hummocks or other uneven features, which would tend to prevent uniform compaction by the selected equipment.

c. When the moisture content of the subgrade is below that required to achieve the specified density, water shall be added until the proper moisture content is achieved. Granular soils shall be moisture conditioned to at least the optimum moisture content and clay soils to at least two percent above the optimum moisture content.

d. When the moisture content of the subgrade is too high to permit the specified compaction to be achieved, the subgrade shall be aerated by blading or other methods until the moisture content is satisfactory for compaction.

e. After the foundations for fill have been cleared, plowed, or scarified, they shall be disced or bladed until uniform and free from large clods, brought to the proper moisture content and compacted to not less than ninety percent (90%) of the maximum dry density as determined by the ASTM D1557 Test Method.

3.3 PLACING, SPREADING AND COMPACTING FILL MATERIAL

a. The selected soil fill material shall be placed in layers which when compacted shall not exceed six inches (6") in thickness. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to promote uniformity of material in each layer.

b. When the moisture content of the fill material is below that required to achieve the specified density, water shall be added until the proper moisture content is achieved. Granular soils shall be moisture conditioned to at least the optimum moisture content and clay soils to at least two percent above the optimum moisture content.

c. When the moisture content of the fill material is too high to permit the specified degree of compaction to be achieved, the fill material shall be aerated by blading or other methods until the moisture content is satisfactory.

d. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to at least ninety percent (90%) as determined by the ASTM D1557 Test Method. Compaction shall be undertaken with a heavy self-propelled sheepsfoot compactor (Caterpillar 815 or equivalent) capable of achieving the specified density and shall be accomplished while the fill material is at the required moisture content. Each layer shall be compacted over its entire area until the desired density has been obtained.

e. The filling operations shall be continued until the fills have been brought to the finished slopes and grades as shown on the accepted Drawings.

Recycled paper

3.4 FINAL SUBGRADE PREPARATION

The upper six inches (6") of final building pad subgrades and the upper six inches (6") of all final subgrades supporting pavement sections shall be brought to a uniform moisture content, and shall be uniformly compacted to not less than:

building pads	90%
pavement areas	95%

as determined by the ASTM D1557 Test Method, regardless of whether final subgrade elevations are attained by filling, excavation or are left at existing grades.

3.5 STRUCTURAL BACKFILL

Utility trench backfill shall be placed in lifts of no more than twelve inches (12") in compacted thickness. Each lift shall be compacted to at least ninety percent (90%) compaction, as defined by ASTM D1557, except that backfill supporting sidewalks, streets or other public pavement shall be compacted to comply with Yolo County Standard Specifications, latest edition.

3.6 TESTING AND OBSERVATION

a. Grading operations shall be observed by the Geotechnical Engineer, serving as the representative of the Owner.

b. Field density tests shall be made by the Geotechnical Engineer after compaction of each layer of fill. Additional layers of fill shall not be spread until the field density tests indicate that the minimum specified density has been obtained.

c. Earthwork shall not be performed without the notification or approval of the Geotechnical Engineer. The Contractor shall notify the Geotechnical Engineer at least two (2) working days prior to commencement of any site earthwork.

d. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory, as determined by the Geotechnical Engineer and the Architect/Engineer. No deviation from the specifications shall be made except upon written approval of the Geotechnical Engineer or Architect/Engineer.

Appendix G

Water Supply Assessment—City of West Sacramento

Appendix G

Water Supply Assessment—City of West Sacramento

Introduction

The purpose of this water supply assessment (WSA) is to determine the adequacy of existing and planned future water supplies available to the City of West Sacramento (City), and the City's ability to meet the water supply demands of the proposed River Park project, considering other planned developments in the City. In order to evaluate current and forecasted water supplies and demands for the City and Specific Plan, this WSA incorporates information from numerous sources including the City's 2005 Urban Water Management Plan (UWMP), the City's Water Master Plan Update 2005, the City's general plan, and agreements and memoranda of understanding between the North Delta Water Agency (NDWA), the City, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and NDWA's other primary water customers, and other relevant water supply and usage studies.

Senate Bill 610

California Senate Bill 610 (SB 610; Chapter 643, Statutes of 2001), which took effect on January 1, 2002, was created so that cities and counties could make appropriate land use decisions based on water supply and availability. SB 610 mandates that detailed water availability information, in the form of a water supply assessment as defined in the bill, be provided to city and county decision makers prior to approval of large development projects. A project subject to the requirements of SB610, as defined by California Water Code Section 10912, would be any or all of the following:

1. Residential development of 500 or more units;
2. Shopping center or business establishment employing 1000 or more people or encompassing 500 or more square feet;
3. Office building employing 1000 or more people or encompassing 500 or more square feet;
4. Hotel or motel with 500 or more rooms;

5. Industrial or manufacturing plant or industrial park employing 1000 or more people or encompassing 650 or more square feet or on 40 or more acres;
6. A mixed use project or other project with water demand equal to a 500 dwelling development;
7. For a supplier with 5000 or fewer connections, if the project will increase connections or demand by more than 10%.

A water supply assessment should include, in as much detail as possible, existing and future water supplies and demands over a 20 year timeline, water agreements or contracts, water demands of the proposed project, and an assessment to determine if the available supplies will be able to support the proposed project demands during normal, single dry, and multiple dry water years (California Department of Water Resources 2003a).

The Specific Plan qualifies under criterion #6, above; therefore, a WSA is required for this project.

Setting

Climate

In the City of West Sacramento, temperatures average 60 degrees F annually, ranging from average winter morning lows in the 30's to average summer afternoon highs in the 90's. Relative humidity ranges from 60 to 90 percent in winter months to 30 percent in the summer months. Annual rainfall averages approximately 17 inches, with most rainfall occurring between November and April. Evapotranspiration (ET) values, which serve as indicators of how much water is required to maintain healthy agriculture and landscaping, range from 1.55 inches during December and January to 8.68 inches in July.

Service Area

The City is the public water system that provides retail domestic water to West Sacramento. The service area of the City is equivalent to the borders of the City itself. The City is located in eastern Yolo County and borders the Sacramento River. The City is part of a four county metropolitan area that includes Yolo County, Sacramento County, and portions of Placer County and El Dorado County. The City extends from the Sacramento River and Tule Lake Road on the North, the Sacramento River on the east, Shangri-La Slough in the south, and the Yolo Bypass in the west. The City covers approximately 19 square miles with an estimated Year 2005 population of approximately 38,000. The City is divided by the Sacramento Deep Water Channel or Barge Channel. All areas north of this channel are considered Northport Area. All areas south of this channel are considered Southport Area.

Population

As shown in Table G-1, according to the City's General Plan, population in the City is currently approximately 38,000, and is anticipated to grow to approximately 78,700 at the buildout of the current General Plan in 2020.

Table G-1. Current and Projected Population

	2005	2010[a]	2015[a]	2020	2025[b]	2030[b]
Service Area Population	40,206	51,600	65,100	78,700	78,700	78,700

a. The City has not developed formal population projections for the years preceding buildout. For the purposes of this analysis, it has been assumed that the City will experience linear population growth between 2005 and buildout at 2020.

b. Buildout for the City is expected to occur in 2020; population therefore should not increase after 2020.

Population Increase Associated with the River Park Project

The project is part of the planned development of the Southeast Village. The area is currently planned for residential development and associated uses ranging from low to high densities, neighborhood commercial, water-related commercial, elementary school, open space, and parkland uses. The project would amend the current land use designations to support development of approximately 2,788 residential units (including rural residential, low-, medium-, and high-density offerings), a ±40-acre regional park, community open-space areas, and an elementary school.

The project would represent an increase of approximately 900 residential units compared to what was considered by the Framework Plan. A calculation of number of units associated with the River Park Project as identified in the Southport Framework Plan, and the additional units under the River Park Project as currently proposed, are shown below in Table G-2.

Table G-2. Calculation of Number of Units for River Park Project as Identified in the Southport Framework Plan, and under the River Park Project as Currently Proposed

Land Use	River Park Project, as Identified in the Southport Framework Plan (units)	Units under the River Park Project as Currently Proposed (units)	*Net Change (units)*
RR	52	22	(30)
RE	22	0	(22)
LR	1,215	728	(487)
MR	193	1,446	1,253
HR	414	592	178
Total:	1,896	2,788	892

Rural Estate (RE), Rural Residential (RR), Low Density Residential (LR), Medium Density Residential (MR), and High Density Residential (HR) units

The project also includes changes to the General Plan and the Zoning Map (West Sacramento Municipal Code, Title 17) to generally increase residential densities and add recreational opportunities. The existing and proposed zoning designations are shown in Figure 2-4 and are described below in Table G-3.

Table G-3. Acreage by Zoning Designation Comparing the River Park Project under the Southport Framework Plan and as Currently Proposed

Existing Zoning	Southport Framework Plan (acres)	River Park Project as Currently Proposed (acres)	*Net Change (acres)*
Rural Residential (RRA)	10.4	22.9	*+12.5*
Rural Estates (RE)	39.9	0	*-39.9*
Residential-One Family (R-1B)	270.9	144.3	*-128.6*
Residential-One Family or Multi-Family (R-2)	32.0	168.1	*+139.3*
Multiple-Family Residential (R-3)	20.0	31.9	*+11.9*
Neighborhood Commercial (C-1)	6.3	6.0	*-0.3*
Water Related Commercial (WRC)	0.1	2.6	*+2.5*
Recreation-Parks (RP)	90	82.3	*-7.7*
Public-Quasi Public (PQP)	9.6	0	*-9.6*
Public Open Space (POS)	16.4	24.1	*+7.7*
Roadway	–	12.2	–
Total	**495.6**	**494.4**	**–**

Existing and Future Water Supply

Groundwater Supply

In the past, the City used groundwater as its sole source of supply, and still has existing wells with a pumping capacity of about 5.6 million gallons per day (mgd). Currently the wells are not in good operating condition and the quality of water they produce is poor. Use of groundwater in the City thus involves the need to treat the water to remove iron, manganese, methane and probably arsenic. Treatment, however, does not reduce the dissolved solids concentration that affects taste. Rehabilitation of these wells, and integration of wellhead treatment units and emergency power supplies to make the wells available during power outages, could be costly when compared on a lifecycle cost basis to providing equivalent treated water storage capacity. This resource, therefore, does not provide the City with a highly reliable supply option.

As indicated in the City's Water Master Plan Update 2005, the City intends to deactivate its existing groundwater sources. On this basis, the 2005 UWMP assumes that groundwater is not available as a source of future water supply. Consistent with the UWMP, for the purposes of this WSA, it is assumed that groundwater will not be a source of water supply for the City. Groundwater wells are now considered solely an emergency supply.

Surface Water Supply

Water supplies to the City are obtained from three sources:

- The City holds an appropriative right for diversion of surface water from the Sacramento River.
- The City holds a contract with Reclamation for Central Valley Project (CVP) water.
- The majority of the City, including the River Park project, is within the boundaries of the NDWA service area.

The City's existing surface water supply facilities include the 58 mgd Bryte Bend Water Treatment Plant (BBWTP).

Appropriative Water Right

The City has an appropriative right for diversion of surface water from the Sacramento River. Permit number 18150, issued by the State Water Resources Control Board (State Water Board) under this right, allows the city to divert up to 18,350 acre-feet per year (afy) pf water from the Sacramento River at the BBWTP intake structure. This permit was issued in 1981 and limits the diversion of water to the periods of January 1st through June 30th, and September

1st through December 31st of each year, with a maximum rate of diversion for municipal use limited to 62 cubic feet per second (CFS), about 40 mgd. Under this permit the City does not have the right to divert water during the high demand months of July and August. There are no charges for raw water with the use of this supply.

This diversion is authorized under the State's appropriative water rights law, which is based on the theory of "first in time, first in rights." As such, it is subject to reduction by the State Water Board, if necessary, due to drought conditions and/or to meet downstream water quality objectives. In the permit, the State Water Board has the right to modify, reduce, or completely eliminate the authorized diversions because of variations in demand and hydrologic conditions within the Sacramento River Basin, and/or the need to meet downstream water quality objectives in the Delta.

Under Standard Permit Term 91 (Term 91) of the City's appropriative right, diversions were reduced by 100 percent during the drought years of 1991 and 1992 between the months of June and October. It is assumed that during a normal water year, Term 91 supply reductions will not impact the City's overall supply strategy, due to the nature of the City's Reclamation contract.

Appendix B of the 2005 UWMP contains written documentation of the City's water right.

U.S. Department of the Interior, Bureau of Reclamation

To obtain water during the summer months, the City has entered into a forty-year agreement with Reclamation. This contract authorizes the City to divert from the Sacramento River a specified amount of water supply created by the CVP. The City can divert up to 23,600 afy from the Sacramento River of combined appropriative right water and CVP water.

The total diversion amount is equivalent to an average day diversion of 21.1 mgd. The contract does not restrict the maximum rate or months of diversion from the river by the City. The contract does obligate the City to pay for specified percentages of the diverted quantities during the months of June through September and requires the City to purchase a certain minimum annual quantity. The City is required to purchase 20 percent, 88 percent, 100 percent, and 100 percent of the water diverted during June, July, August and September, respectively. As a result, 20 percent and 100 percent of the water diverted in June and September, respectively, must come from Reclamation, even though diversion from the City's appropriative right during these periods may be legal in normal years.

Provisions in this contract allow for the renewal of the contract for successive periods and to increase or decrease the quantity of water available to the City. While the City has received water from Reclamation in previous years, it does not have records of the quantities of water received from Reclamation, because the diversions from the Sacramento River related to this contract are lumped with those conducted under the appropriative right and the NDWA supply. Appendix B of the 2005 UWMP contains written documentation of the City's contract with Reclamation.

North Delta Water Agency

Most of the City lies within the service area of NDWA. The NDWA negotiated a contract that assures that the State, through the State Water Project (SWP), will maintain a dependable water supply of adequate quantity and quality for municipal, industrial, and agricultural purposes to the NDWA.

In 1998, the California Department of Water Resources (DWR) and NDWA developed a Memorandum of Understanding (MOU) during the Bay-Delta Water Rights hearings conducted by the State Water Board. This MOU states that the 1981 contract between DWR and NDWA remains in full force and effect. DWR agreed that if diversions were modified to achieve flow objectives from the Bay-Delta Water Quality Control Plan, water within the NDWA would be subject to the existing obligation of DWR to provide water to the area subject to reasonable and beneficial use. A copy of the agreement between DWR and NDWA is included in Appendix B of the UWMP.

During the 1987-1992 drought years, contractors of the CVP and SWP received reduced deliveries from the projects. During those drought years, however, diversions from the Sacramento River by water purveyors within the NDWA, including the City, were not reduced. A large portion of the City's surface water supply appears to be assured under the NDWA contract, even if the City's appropriative right and Reclamation contract deliveries are reduced. Use of this supply is limited to the NDWA boundaries. The NDWA northern boundary is along the union Pacific Railroad (UPRR) tracks.

While the City has received water from NDWA in previous years, it does not have records of the quantities of water received from NDWA, because the diversions from the Sacramento River related to this contract are lumped with those conducted under the appropriative right and the Reclamation supply. Appendix B of the 2005 UWMP contains written documentation of the contract with NDWA.

Future Water Supply

For a large portion of the City, including the Southport area, water supply in future years is assured by NDWA. The City's appropriative right will not expire, and can therefore be used to provide portions of the City's water needs indefinitely. The City's contract with the Reclamation expires in 2020; the City expects to renew its contract at that time. The City also plans to construct over 23 million gallons of additional reservoir storage to alleviate the City's current and anticipated water storage deficits.

The total existing and future water supply is shown in Table G-4.

Table G-4. Current and Planned Water Supplies (afy)

Water Supply Sources	2005	2010	2015	2020	2025	2030
Bureau of Reclamation	10,390	14,260	14,660	13,390	13,390	13,390
Appropriative Right	5,610	7,700	8,940	10,210	10,210	10,210
North Delta Water Agency	0	1,278	3,176	6,796	6,796	6,796
Total	**16,000**	**23,238**	**26,776**	**30,396**	**30,396**	**30,396**

Source: 2005 UWMP.

Water Supply Reliability

In future years, the City's only water supply will come from the Sacramento River. Seasonal and climactic changes can impact the availability of water to the portion of the City outside of the NDWA boundary. Restrictions have occurred on those parts of the City outside these boundaries in previous drought years (1991 and 1992). However, these had no effect on those portions of the City within NDWA boundaries.

Reasons why the NDWA supply could fail include catastrophic interruptions to the source or to the City's water treatment facilities, and/or drastic water quality reduction in the Sacramento River. The City has adopted a Disaster/Emergency Response Plan which addresses many of the possible scenarios which could interrupt winter supply from the Sacramento River.

Since the River Park Project occurs within NDWA boundaries, the water supply is assured and should not be impacted by the State Water Board's restrictions during single dry or multiple dry years. Therefore, the WSA assumes that there would be no water supply reductions related to the River Park project or elsewhere in the NDWA boundaries during single dry or multiple dry years.

For the purposes of disclosure, the water supply reliability of the area outside of the NDWA boundary is as follows: demand during the months of possible diversion restrictions (June through October) amounts to approximately 58% of the total annual demand. This proportion of the supply available from Reclamation and the City's appropriative right amounts to 13,806 afy. Table G-4 shows the anticipated reductions in the entitlement for single dry and multiple dry water years, with a minimum supply of 3,449 acre-feet during multiple dry years 3 and 4. Based on demand projections, the buildout demand in the area outside of the NDWA service area boundary during the season of possible restriction is approximately 2,700 afy. Because demand in this portion of the City is less than the available supply during all water year types, no water supply shortage is anticipated.

In summary, outside of the NDWA service area, the City's water supplies are sufficient during all water year types. Within the NDWA service area, NDWA assures adequate supply during all water year types. On this basis, no water shortages are anticipated during dry years. Table G-5 shows water supply reliability during normal, single dry, and multiple dry years.

Table G-5. Water Supply Reliability (afy)

Average/Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
13,806	10,354	10,354	6,898	3,449	3,449
Percent of Normal:	75%	75%	50%	25%	25%
Source: 2005 UWMP					

Existing and Future Water Demand

2005 Urban Water Management Plan Demand

As described in the 2005 UWMP, in order to develop estimated current and future water demands by water use sector, the following information was used: City land use information as developed in the 2000 UWMP (based on the City's General Plan), current water production data from Bryte Bend Water Treatment Plant, expected future City development schedules, and buildout water demands as developed in the 2005 Water Master Plan update. Demands from the UWMP are given in Table G-6, including the River Park Project as it was described in the Southport Framework Plan.

Table G-6. City's Total Demands as Stated in the UWMP (afy)

Year	2005	2010	2015	2020	2025	2030
Demand	16,000	21,962	25,500	29,120	29,120	29,120

River Park Project Demand

The River Park Project proposes to amend the current land use designations to support an development of 2,788 residential units and other land uses, some of which were not accounted for in the City's General plan and the Urban Water Management Plan (UWMP). This includes an increase in the density of residential units of approximately 900 units. These amendments in land use designations will lead to an increase in water demand unaccounted for in the UWMP. Buildout demands are shown in the Table G-6, based on the unit factors as presented in the 2005 Water Master Plan Update. The total demand associated with the River Park Project is 1,620,310 gpd, or 1,815 acre-feet/year. The increase in demand under the project as currently proposed is 427,160 gpd or 479 acre-feet/year.

Buildout demands are shown in Table G-7 below.

Table G-7. Water Demand: River Park Project under the Southport Framework Plan and as Currently Proposed

Land Use Type	Number of Dwelling Units or Acres (Framework Plan)	Number of Dwelling Units or Acres (River Park as Currently Proposed)	Average Demand	Total Demand (gpd) (Framework)	Total Demand (gpd) (River Park as Currently Proposed)	Net Change (gpd)
Single Family Residential	1,482	2,106	560 gpd/du	829,920	1,179,360	349,440
Multi-family Residential	414	682	290 gpd/du	120,060	197,780	77,720
Commercial	8.6 acres	8.6 acres	2,950 gpd/acre	25,370	25,370	0
Industrial	0	0	2,950 gpd/acre	0	0	0
Schools	0	0	25 gpd/student	0	0	0
Parks/Others	121 acres	121 acres	1,800 gpd/acre	217,800	217,800	0
Total				**1,193,150**	**1,620,310**	**427,160**

Other Future Demand

Other future demand not accounted for in the 2005 UWMP include those associated with the Yarbrough project as amended from the Southport Framework Plan. Under the Southport Framework Plan, six developments will contribute to water demands: Yarbrough, River Park, Harbor Pointe, University Park, Parks at Southpoint, and Seaway. Currently, Yarbrough is the only development with specific information on proposed development plan amendments. Water demand projections for the Yarbrough development were based on a summary report of the Southport Area Development Decisions. The calculations should be considered conservative (i.e., biased upwards) since specific numbers for all land use within the developments is not yet been available. As a conservative measure, all residential units were considered to be single family residential. The total estimated increased demand associated with this project is 711,200 gpd, or 797 acre-feet/year.

Buildout demands associated with the Yarbrough project are shown in Table G-8 below.

Table G-8. Water Demand: Yarbrough Project under the Southport Framework Plan and as Currently Proposed

Land Use Type	Number of Dwelling Units or Acres (Framework Plan)	Number of Dwelling Units or Acres (Yarbrough as Currently Proposed)	Average Demand	Total Demand (gpd) (Framework)	Total Demand (gpd) (Yarbrough as Currently Proposed)	Net Change (gpd)
Single Family Residential	1,734	3,004	560 gpd/du	971,040	1,682,240	711,200
Multi-family Residential	0	0	290 gpd/du	0	0	0
Commercial	3.4 acres	3.4 acres	2950 gpd/acre	25,370	25,370	0
Industrial	0	0	2950 gpd/acre	0	0	0
Schools	0	0	25 gpd/student	0	0	0
Parks/Others	75 acres	75 acres	1,800 gpd/acre	135,000	135,000	0
Total				**1,131,410**	**1,842,610**	**711.200**

Total Future Demand

The total future demand is summarized on Table G-9.

Table G-9. City's Total Existing and Future Demands (afy)

Year	2005	2010	2015	2020	2025	2030
UWMP Demand	16,000	21,962	25,500	29,120	29,120	29,120
River Park Demand (Increase)	0	479	479	479	479	479
Yarbrough Project Demand (Increase)	0	797	797	797	797	797
Total Demand	**16,000**	**23,238**	**26,776**	**30,396**	**30,396**	**30,396**

Conservation Measures

While no restrictions on water deliveries are anticipated during dry years, the City is nevertheless committed to water conservation and has implemented several policies and on-going programs that promote and encourage water conservation. In addition, the City has several drought-specific programs.

The following is a summary of the Demand Management Measures (DMMs) contained in the UWMP:

- Water Survey programs for single Family and Multi-family residential customers
- Residential Plumbing Retrofit
- System water audits, leak detection and repair
- Metering with commodity rates for all new connections and retrofit of existing connections
- Large landscape conservation programs and incentives
- High efficiency washing machine rebate programs
- Public information programs
- School education programs
- Conservation programs for commercial, industrial, and institutional accounts
- Wholesale agency programs
- Conservation pricing
- Water conservation coordinator
- Water waste prohibitions
- Residential ultra-low flush toilet replacement program

Water Sufficiency Analysis

According to the Urban Water Management Plan, in all but the emergency conditions, demands in all years will be met by first applying the City's entitlements to the portion of the City outside the NDWA boundary, and then meeting remaining City demands by combining the remaining entitlements with NDWA water. Water delivery restriction projections indicate that the Reclamation contract and appropriative rights are sufficient to supply the Northport area during all water year types. NDWA assures water supply through its agreement with DWR, and therefore supplies in the Southport area are also assured.

A comparison of existing and future supply and demand is presented in Table G-10. For the area within the NDWA service area, the total supply matches total demand, as NDWA assures that adequate water quality and supplies will be available during all years.

Table G-10. Supply and Demand Comparison

	2005	2010	2015	2020	2025	2030
Total Supply (afy)	16,000	23,238	26,776	30,396	30,396	30,396
Total Demand (afy)	16,000	23,238	26,776	30,396	30,396	30,396
Surplus	0	0	0	0	0	0

References Cited

Carollo Engineers. 2005. Water Master Plan Update. May 18. Sacramento, CA. Prepared for the City of West Sacramento.

City of West Sacramento. 2005. Summary Report on Southport Development Decisions. West Sacramento, CA.

RMC. 2005. Urban Water Management Plan. July 29. Rancho Cordova, CA. Prepared for the City of West Sacramento.

Appendix H

Executive Summary of Citygate Associates' Update on City of West Sacramento Fire Services Deployment

EXECUTIVE SUMMARY

The City of West Sacramento engaged Citygate Associates to update the two year old study of Fire Services Deployment previously conducted by Citygate for use in environmental impact reports being prepared for development projects in Southport. The emphasis on this update was to identify the number, locations and timing of fire stations in the Southport area, given the current simultaneous development proposals before the city. Ultimately the information contained within this report will be used for impact analysis in the respective project EIR's.

In summary, Citygate finds that the continuing development in Southport will require a total of three fire stations for effective first-due and multiple unit coverage:

- New Station #45, already under development by the City, is necessary, and appropriately located.
- As growth occurs in the Southeast and Southwest villages, where the River Park and Yarbrough projects are proposed respectively, existing Station #42 should be relocated to the south.
- Growth in the Parks at Southport project area, in the northwest village, will require a sixth station in the City, and the third in Southport. This station is even more necessary when the eventual re-location of existing Station #43 to the north occurs.
- In the timing section of this report, Citygate has suggested some thresholds that will assist the City to determine when relocated Station #42 and new Station #46 should be on-line.

PROJECT APPROACH AND RESEARCH METHODS

Citygate met with City planning and fire department staff to gain an understanding of the new development applications before the City in Southport and the improvements to fire services already underway since the October 2003 study. We then updated the geographic coverage computer models to determine fire station coverage areas. As part of this process, City staff advised which primary arterial roads would likely extend into each development area, and these were added to the geographic street network so the fire station coverages shown in the maps attached to this report do closely approximate what will occur when the final street designs are approved. Finally, Citygate reviewed the growth assumptions for the Southport projects to suggest some timing thresholds for bringing the fire stations on-line.

DESCRIPTION OF RISK AND FIRE SERVICES

As covered in the 2003 report, the City of West Sacramento is principally growing in the Southport area with housing and commercial businesses. Buildings such as these represent moderate or "average" risk for fire, and the existing West Sacramento Fire Department is equipped and trained to handle these fires. Additionally, high rise buildings are proposed in the Triangle Specific Plan (adopted 1993) and Washington Specific Plan (adopted 1996) areas north of the deep water ship channel, but given modern fire codes, they represent less of a major fire risk. However with increased population, emergency medical and small fire calls for service will increase. For fire services, calls for service will increase in direct proportion with population, as humans will need medical help, have accidents or cause fires much more than buildings do.

The issue for the City of West Sacramento is one of providing equitable geographic coverage for fire services to all neighborhoods as the City grows south of the deep water ship channel. The stations located north of the ship channel in the older, original part of the City are all located too far from Southport to provide effective first-due and in some cases, multiple unit coverage.

General Fire Deployment Background Information

The Commission on Fire Accreditation International recommends a systems approach known as "Standards of Response Coverage" to evaluate deployment as part of the self-assessment process of a fire agency. This approach uses risk and community expectations on outcomes to assist elected officials in making informed decisions on fire and EMS deployment levels. Citygate has adopted this methodology as a comprehensive tool to evaluate fire station location. Depending on the needs of the study, the depth of the components can vary.

Such a systems approach to deployment, rather than a one-size-fits-all prescriptive formula, allows for local determination. In this comprehensive approach, each agency can match local need (risks and expectations) with the costs of various levels of service. In an informed public policy debate, a city council "purchases" the fire and EMS service levels (insurance) the community needs and can afford.

Working with multiple components to conduct a deployment analysis yields a much better result than any singular component can. If we only look to travel time, for instance, and not look at the frequency of multiple calls, the analysis could miss over-worked companies. If we do not use risk assessment for deployment, and just base deployment on travel time, a community could under-deploy to incidents.

The Standard of Response Cover process consists of eight parts:

1. Existing Deployment – each agency has something in place today.
2. Community Outcome Expectations – what is expected of the response agency?
3. Community Risk Assessment – what assets are at risk in the community?
4. Critical Task Time Study – what must be done over what timeframe to achieve the stated outcome expectation?
5. Distribution Study – the locating of first-due resources (typically engines).
6. Concentration Study - first alarm assignment or the effective response force.
7. Reliability and Historical Response Effectiveness Studies – using prior response statistics to determine what percent of compliance the existing system delivers.
8. Overall Evaluation - proposed standard of cover statements by risk type.

Fire department deployment, simply stated, is about the speed and weight of the attack. Speed calls for first-due, all risk intervention units (engines, trucks and or ambulance/rescue companies) strategically located across a department. These units are tasked with controlling everyday moderate emergencies without the incident escalating to second alarm or greater size, which then unnecessarily depletes the City resources as multiple requests for service occur. Weight is about multiple unit response for serious emergencies like a room and contents structure fire, a multiple patient incident, a vehicle accident with extrication required, or a heavy rescue incident. In these situations, enough firefighters must be assembled in a reasonable time frame in order to control the emergency safely without it escalating to greater alarms.

Thus, small fires and medical emergencies require a single or two-unit response (engine and specialty unit) with a quick response time. Larger incidents require more crews. In either case, if the crews arrive too late or the total personnel sent to the emergency are too few for the emergency type, they are drawn into a losing and more dangerous battle. The art of fire crew deployment is to spread crews out across a community for quick response to keep emergencies small with positive outcomes, without spreading the stations so far apart that they cannot mass together quickly enough to be effective in major emergencies.

Given the need for crews to be stationed throughout a community for prompt response instead of all crews responding from a central fire station, cities such as West Sacramento are faced with neighborhood equity of response issues. When one or more areas grow beyond the reasonable travel distance of the nearest fire station, the choices available to the elected officials are few: add more neighborhood fire stations, or tell certain segments of the community that they have longer response times, even if the type of fire risk found is the same as other areas.

GENERAL FIRE SERVICE RESPONSE TIME DISCUSSION

Today, the best recommendations for fire service delivery measures come from the Commission on Fire Accreditation International and the National Fire Protection Association. Instead of measuring average response time, they recommend that a percent of completion performance goal for first-due units and the total number of units needed for serious building fires be designed to meet risk in each community. These goals are measured from the time of 911 call receipt to units on the scene. A typical way to state them is, "For structure fires in a moderate risk area, the first unit shall be on-scene within six minutes of the time of call, 90 percent of the time. For first alarm assignments in moderate risk areas, the entire effective firefighting force shall arrive within ten minutes, 90 percent of the time."

The National Fire Protection Association (NFPA) Deployment Guideline #1710 for a full career fire department recommends that an all-risk initial intervention unit (pumper or ladder) will arrive at the scene of a critical emergency in six minutes or less from the time of call receipt in fire dispatch 90 percent of the time. This includes:

60 seconds or less dispatcher processing time

60 seconds or less fire crew turnout time

4 minutes road travel time

NFPA #1710 also recommends the balance of a first alarm assignment for building fires arrive within eight travel minutes, or ten minutes from the time of fire dispatch receipt.

The NFPA recommends a four minute travel time goal for the first-due units. This is very appropriate for the built-up, traffic-congested suburban areas. It is not as appropriate for the rural home areas. Nationally, there are not rural fire response expectations.

The Insurance Services Office (ISO) Fire Department Grading Schedule would like to see fire stations spaced 1.5 miles apart in suburban areas, which given travel speeds on surface streets, is a 3 to 4-minute road travel time.

More importantly within the Standards of Response Coverage Process, and for West Sacramento, positive outcomes are the goal, and from that crew size and response time can be calculated to allow efficient fire station spacing. Emergency medical incidents have situations with the most severe time constraint. In a heart attack that stops the heart, a trauma that causes severe blood loss, or in a respiratory emergency, the brain can only live 8 to 10 minutes maximum without oxygen. Events other than heart attacks can cause oxygen deprivation to the brain. Heart attacks make up a small percentage; drowning, choking, trauma constrictions or other similar events have the same effect. In a building fire, a small incipient fire can grow to involve the entire room in an 8 to 10-minute time frame. If fire service response is to achieve positive outcomes in severe EMS situations and incipient fire situations, all the crews must arrive, size-up the situation and deploy effective measures before brain death occurs or the fire leaves the room of origin.

Given that the emergency started before it was noticed and escalates through the steps of calling 911 to units arriving on-scene, there are three “clocks” that fire and emergency medical crews must work against to achieve successful outcomes:

1. The time it takes an incipient room fire to fully engulf a room (5 to 10 minutes), thus substantially damaging the building and most probably injuring or killing occupants.
2. When the heart stops in a heart attack, the brain starts to die from lack of oxygen in 4 to 6 minutes and brain damage becomes irreversible at about the 10-minute point.
3. In a trauma patient, severe blood loss and organ damage becomes so great after the first hour that survival is difficult if not impossible. The goal of trauma medicine is to stabilize the patient in the field and get them to the trauma surgeon inside of one hour.

Somewhat coincidently, in all three situations above, the first responder emergency crew must arrive on-scene within 5 to 7 minutes of the 911 call to have a chance at a successful resolution. Further, the follow-on (additional) crews for serious emergencies must arrive within 10 minutes.

The three event timelines above start with the emergency occurring. It is important to note the fire or medical emergency continues to deteriorate from the time of inception, not the time the fire engine actually starts to drive the response route. It is hoped that the emergency is noticed immediately and the 911 system is activated. This step of awareness – calling 911 and giving the dispatcher accurate information – takes, in the best of circumstances, one minute. Then crew notification and travel take additional minutes. Once arrived, the crew must walk to the patient or emergency, size-up the problem and deploy their skills and tools. Even in easy to access situations, this step can take two or more minutes. It is considerably longer in multi-storied complexes such as garden apartment buildings with limited street access, shopping center buildings or large agriculture or industrial occupancies.

Thus from the time of 911 receiving the call, an effective deployment system is ***beginning*** to manage the problem within 7 to 8 minutes total reflex time. This is right at the point that brain death is becoming irreversible and the fire has grown to the point to leave the room of origin and become very serious. Thus, the City needs to adopt a response time policy that is within the range to give the situation hope for a positive outcome. Sometimes the emergency is too severe before the Fire Department is called in. However, given an appropriate response time policy and a well-designed system, only issues like bad weather, poor traffic conditions or multiple emergencies will slow down the response system. Thus, a properly designed system will give the citizen the hope of a positive outcome for their tax dollar expenditure.

WEST SACRAMENTO ADOPTED RESPONSE TIME MEASURES

The current Fire Department response standard is that an appropriately staffed unit will arrive at the scene of an emergency within the city limits in five minutes, 95 percent of the time from the time of fire crew notification. Five minutes is comprised of one minute "turnout" time (to hear the dispatch, don the appropriate protective clothing and get the apparatus moving), plus four minutes of actual driving time. This performance measure was never adopted by the City Council, other than as a budget measure.

The City's General Plan calls for 1.5 firefighters per 1,000 population without a response time requirement. This standard is largely outmoded and will be revised as part of the City's upcoming General Plan update. Current practices are based on response times rather than per capita ratios for fire department personnel. This now out-of-date measure could have required upwards of 118 firefighters at build out without regard to neighborhood response times or fire station geography.

In the October 2003 report, Citygate recommended that the Fire Department initial unit response of four minutes road travel time was adequate, but that the City go further and adopt a multi-unit performance measure to ensure enough firefighters arrive soon enough for serious building fires. This recommended performance measure for West Sacramento was "an effective response force of at least fifteen firefighters plus one chief officer shall arrive within ten minutes of the receipt of the call, 90 percent of the time."

Staffing - What Must be Done Over What Timeframe to Achieve the Stated Outcome Expectation?

Fires and complex medical emergencies require a timely, coordinated effort in order to stop the escalation of the emergency. In this phase of the Standards of Response Cover process, time studies determine how many personnel are required over what timeframe to achieve the stated outcome expectation. Once the tasks and time to accomplish them to deliver a desired outcome are set, travel time and thus station spacing can be calculated to deliver the requisite number of firefighters over an appropriate timeframe.

Offensive vs. Defensive Strategies in Structure Fires Based on Risk Presented

Most fire departments use a strategy that places emphasis upon the distinction between offensive or defensive methods. These strategies can be summarized:

> It is important to have an understanding of the duties required at a structural fire to meet the strategic goals and tactical objectives of the Fire Department response. Fireground operations fall in one of two strategies **– offensive or defensive.**
>
> > We may risk our lives a lot to protect savable lives
> >
> > We may risk our lives a little to protect savable property
> >
> > We will not risk our lives at all to save what is already lost.

> Considering the level of risk, the Incident Commander will choose the proper strategy to be used at the fire scene. The Incident Commander must take into consideration the available resources (including firefighters) when determining the appropriate strategy to address any incident. The strategy can also change with conditions or because certain benchmarks (i.e., "all clear") are achieved or not achieved.
>
> Once it has been determined that the structure is safe to enter, an offensive fire attack is centered on life safety. When it is safe to do so, departments will initiate offensive operations at the scene of a structure fire. Initial attack efforts will be directed at supporting a primary search – the first attack line will go between the victims and the fire to protect avenues of rescue and escape.
>
> The decision to operate in a defensive strategy indicates that the offensive attack strategy, or the potential for one, has been abandoned for reasons of personnel safety, and the involved structure has been conceded as lost (the Incident Commander makes a conscious decision to write the structure off). The announcement of a change to a defensive strategy means all personnel will withdraw from the structure and maintain a safe distance from the building. Captains will account for their crews. Interior lines will be withdrawn and repositioned. Exposed properties will be identified and protected.

Additionally, for safety, Federal and State Occupational Health and Safety Regulations (OSHA) mandate that firefighters can't enter a burning structure past the incipient or small fire stage, without doing so in teams of two, one team inside and one team outside, ready to rescue them. This totals a minimum of four firefighters on the fireground to initiate an interior attack. The only exception is when there is a known life inside to be rescued.

Many fire department deployment studies using the Standards of Response Coverage process, as well as NFPA guidelines arrive at the same fact – that a moderate risk structure fire needs a minimum of 14-15 firefighters, plus one commander. The usual recommendation is that the first unit should arrive on-scene within six minutes of call receipt (1-minute dispatch, 1-minute crew turnout, and 4-minute travel), 90 percent of the time. The balance of the units should arrive within ten minutes of call receipt (8-minute travel), 90 percent of the time, if they hope to keep the fire from substantially destroying the building.

For an extreme example, to confine a fire to one room in a multi-story building requires many more firefighters than in a single story family home in a suburban zone. How much staffing is needed can be derived from the desired outcome and risk class. If the City desires to confine a one-room fire in a residence to the room or area of origin, that effort will require a minimum of 14 personnel, which means that every serious fire in West Sacramento today requires four engine crews and the ladder truck. This number of firefighters is the minimum needed to safely conduct the simultaneous operations of rescue, fire attack, and ventilation plus providing for firefighter accountability in a modest, one attack line fire, and no rescue needed fire. A serious fire in a two story residential building or a one story commercial or multi-story building would require at a minimum, an additional 2-3 Engines, an additional Truck and Battalion Chief, for upwards of twelve plus additional personnel that would have to come from mutual aid. A typical auto accident requiring multiple patient extrication or other specialty rescue incidents will require a minimum of ten firefighters plus the battalion chief for accountability and control.

As stated earlier in this section, national norms are that 14-15 firefighters including an incident commander are needed at serious building fires if the expected outcome is to contain the fire to the room of origin and to be able to simultaneously and safely perform critical tasks. The reason for this is that the clock is still running on the problem after arrival, and too few firefighters on-scene will mean the fire can still grow faster than the efforts to contain it.

Given currently budgeted decisions, by 01/01/2007, West Sacramento Fire Department will deploy the following units per day:

Station 41
(1) Engine-3 personnel

Station 42
(1) Engine-3 personnel

Station 43
(1) Engine-3 personnel

Station 44
(1) Engine-3 personnel

Station 45
(1) Engine-3 personnel
(1) Truck-3 personnel
(1) Duty Chief-1 personnel

This is a total of eighteen firefighters per day plus one chief officer. The department at this point will send to building fires four engines and one truck to deliver the necessary fifteen firefighters. One three-person engine would be left uncommitted for simultaneous calls for service, which do occur.

STATION CONFIGURATIONS

In brief, there are two geographic perspectives to fire station deployment:

- **Distribution** – the spreading out or spacing of first-due fire units to stop routine emergencies and provide initial emergency medical care.
- **Concentration** – the clustering of fire stations close enough together so that building fires can receive enough resources from multiple fire stations quickly enough. This is known as the Effective Response Force or commonly the “First Alarm Assignment” **–** the collection of a sufficient number of firefighter’s on-scene delivered within the concentration time goal to stop the escalation of the problem.

The above response time and staffing discussion is needed to set up the system response requirements to model fire station locations in Southport. Citygate has modeled fire station response areas based on the above information, thus in West Sacramento:

A. First-due Engine with 3 firefighters should cover a *4-minute* travel time area.

B. An effective response force (1st Alarm) of 15 firefighters on 4-engines and 1-truck should cover an *8-minute* travel time area.

To analyze first-due fire unit travel time coverage for this study, Citygate used a geographic mapping tool from ESRI Corporation called *Network Analyst* that can measure travel time over the street network. Citygate ran several deployment map studies and measured their impact on various parts of the community.

The following table identifies the fire station locations that West Sacramento staff provided to Citygate for this study. The sites for additional or relocated stations had to both work from a coverage standpoint as well as zoning and parcel size. While during final specific plan negotiations these sites could move a little, given the street network in the city, the proposed station sites are in the correct neighborhoods.

Fire Station	Status	Assessor Parcel	Street Address	Cross Street 1	Cross Street 2
41	Existing	58-052-10	132 15th Street		
42	Existing	46-151-17	3585 Jefferson Blvd		
43	Existing	67-140-20	1561 Harbor Blvd		
44	Existing	14-258-17	905 Fremont Blvd		
45	Planned	46-101-35	2040 Lake Washington Blvd.	West of Stonegate Blvd.	East of Jefferson Blvd
46 P	Proposed	045-554-03		Southeast of Southport Parkway	Northeast of Promenade Way
42 R	Relocated	46-190-02		East of Jefferson Blvd.	South of Bevan Rd.
43 R	Relocated	08-410-08		East of Harbor Blvd.	North of W Capitol Ave

The following sections will describe our findings by each type of map attached to this report. One note on these geographic coverage maps, given the street design in Southport, it is impossible to cover 100% of the streets within 4 and 8-minutes. However, the best national guidelines on this are to strive for 90% plus coverage from the station design system.

Map #1 – Station Locations

This is a reference map for the others. It shows the City limits, existing and proposed streets with existing and proposed fire station locations.

Map #2 – Proposed Southport Development Locations

This map also for reference purposes shows the locations of six proposed development applications within the Southport area of the city, along with again the fire station locations.

Map #3a – Existing Station 41 Coverage Area

This map displays the 4 & 8-minute travel time coverage's from fire station 41 against the proposed development areas. Streets in green are covered within 4-minutes. Streets shown in red are covered within 8-minutes.

It is apparent that Station 41 can extend primary unit coverage into very little of Southport and when Station 41 is assigned on a multi-unit effective response force, its 8-minute travel time area (light yellow area) does not cover all of Southport.

The finding of this map is that additional stations are needed in the Southport area to deliver reasonable neighborhood primary and multi-unit coverage per City of West Sacramento expectations.

Map #3b – Existing Station 42 Coverage Area

Displayed here, in a method similar to Map #3a, are the coverage areas for Station 42. It is apparent that Station 42 can only provide primary coverage to the core area of Southport and on a multi-unit response, can cover all of Southport.

However, Station 42 can't provide primary coverage to the western and eastern edge area streets in Southport, depending on the final street design in the River Park and Yarbrough plan areas. Given the need for new Station 45, Station 42 ends up too close to Station 45, with almost 100% overlap into Station 45's area.

Map #3c – Existing Station 43 Coverage Area

Like Station 41, Station 43 in its current location, can't provide 4-minute primary coverage to very much of Southport. It does provide 3rd due unit coverage (8-minute zone) into the northern half of Southport. Given the road re-alignment in front of this station, the station will be moved northward, and a later map will show that when that happens, Station 43 will provide very little to no primary coverage in Southport.

Map #3d – Existing Station 44 Coverage Area

While, north and off the scale of this map, displayed here is the 4 and 8-minute coverage from this station. Again, as with other stations north of the Shipping Canal, there is not effective primary coverage into Southport and very little multi-unit coverage.

Map #3e – Proposed Station 45 Coverage Area

New Station 45 provides primary unit coverage in north and upper central Southport. It is estimated that it can provide good coverage into the Seaway project area, the northern half of

Harbor Pointe and the northern corner of River Park. It is ineffective for primary coverage into the west side or far south plan areas. Station 45 does provide primary 2nd-due unit coverage into all of existing Southport and into the northern part of the proposed University Park project area.

Map #3f – Proposed Station 46 Coverage Area

To provide effective primary unit coverage to the northwest and west Southport areas, where Station 42 does not reach well, a station is desirable in this area. Station 46 also will provide effective multi-unit coverage in the entire Southport area. In Citygate's opinion, if The Parks Development is approved, then Station 46 is necessary for primary unit coverage, as The Parks falls largely between the primary coverage areas of Station 42 and 45.

Map #3g – Proposed Station 42 Relocated Coverage Area

Given the need for a northern station in Southport at site 45, this map shows the positive effect of re-locating Station 42 to the south. From this site, adequate primary coverage is provided to and a little past the south city limits, into the proposed University Park project area plus primary coverage is provided to the west edge of Yarbrough and the existing area north of the Yarbrough project area. The station also provides primary coverage into the far south and eastern sections of River Park that would not be fully reached from existing Station 42.

Station 42 R's 4 minute travel polygon extends 0.4 miles south of the city limit, providing 4-minute coverage to the north third of University Park. The 8-minute travel analysis for Station 42 R extends 2.7 miles south on Jefferson, from the point that it leaves the city, completely crossing the proposed University Park development. As roads are built in this development, 4-minute coverage will be achieved in the north western area, but not in the south and southeast. Yet, this is still better coverage than the existing Station 42 site and the University Park area is not large enough to require its own, additional fire station.

Map #3h – Proposed Station 43 Relocated Coverage Area

As mentioned in the description for Map #3c, the northward relocation of Station 43 almost eliminates it from providing primary unit coverage in Southport. Within 8-minutes travel, it does contribute to multi-unit coverage in north and northeast Southport. However, the multi-unit coverage in all of Southport is hurt by this move, so that if Station 46 is not built, and Station 43 is moved north, then the south half of Southport will not get the needed 15 firefighters from five units, given only two stations (with three units) in the entire Southport area.

Map #4a – Concentration or Effective Response Force Coverage's - Existing

Map series #4 will progressively show the multi-unit coverage's in the Southport area from existing and proposed station locations. All maps will model the coverage from 4 engines and the one ladder truck to provide 15 firefighters to serious building fires within 8-travel minutes.

Map #4a displays the multi-unit coverage from the existing stations and new Station 45. With only two stations in Southport the distances to Stations 1-3, there is effective coverage only to the upper 50% or so of Southport.

Map #4b – Concentration Coverage with Station 43 Relocated

As would be expected with a northward relocation of this station, the effect of this relocation is to shrink the effective multi-unit coverage area in Southport, especially with only two fire stations in Southport. Given the size and population in Southport and the growing population north of the ship canal, this scenario is inadequate multi-unit coverage for much of Southport. If even one of the northern stations is on a prior emergency, then the effective coverage area in Southport is even smaller. This is also a situation that even mutual aid from Sacramento City can't solve, given the lack of cross river access in the Southport area.

Map #4c – Concentration Coverage with Station 42 Relocated

Moving Station 42 to the south helps primary coverage in south and west Southport, plus the eastern area of River Park. This move does not affect multi-unit coverage as the last-due unit which is Station 41, drives the southern limit of multi-unit coverage, not Station 42.

Map #4d – Concentration Coverage with Station 46 Added

Given that Station 46 is needed for primary unit coverage in northwest Southport, especially if The Parks area is developed, this map shows the multi-unit coverage effect of this station. The effect is positive as the 5-unit coverage area is significantly expanded throughout Seaway and much further south to the relocated Station 42 site into some of the Yarbrough area. Given the need to get four engines into Southport for serious fires, the 8-minute multi-unit coverage into all of Yarbrough and University Park will always be limited by the location of Station 41 for the last due unit.

Map #5 – Concentration Density Coverage with Six Final Station Locations

Given that all of Southport can't be covered by 5-units within 8-travel minutes, is it a critical problem? As this map shows, the answer is **no**, because almost the entire southern city except a small area at the southern tip is covered by a multi unit force of 3-engines and 1-truck or 9-12 firefighters on 4-units. The last or 5th unit from Station 41 will get to the southern city limits in minute 9-10. This is acceptable multi-unit coverage for 90 plus percent of Southport and proposed University Park. Additionally, to ensure serious fires do not grow beyond the reach of the smaller multi-unit response in University Park, Citygate would recommends that all buildings receive full automatic fire sprinkler coverage.

STATION LOCATION FINDINGS

As the 2003 West Sacramento Fire Department deployment report found, Southport eventually requires three fire stations for effective primary and multi-unit coverage due to its large area and non-grid type street network.

These station locations are interdependent and if anyone area significantly develops outside the primary reach of current Station 42 and new Station 45, those areas will not have primary unit coverage in 4 or even 5 travel minutes. Additionally, if Station 43 is moved northerly before

Station 46 is opened, then the multi-unit coverage in Southport is not effective for anything much below north-central Southport.

TIMING OF FACILITIES

The hard question for jurisdictions is when to require the next fire station as additional development occurs. Citygate agrees with the Commission on Fire Accreditation International in its 4th Edition "Creating and Evaluating Standards of Response Coverage" that the next station(s) becomes necessary when multiple factors are too far out of response and outcome expectations. This would be that not only is distance is exceeded from the nearest fire station, but that a significant number of units is beyond a reasonable coverage area, and multi unit coverage is weak and perhaps there is a high number of simultaneous calls for service that pull existing stations away from the new areas. Thus the Fire Accreditation Community has come up with the following decision matrix to help elected officials:

CHOICES	**DISTANCE**	**RESPONSE TIME**	**PERCENT OF CALLS**	**BLDG INVENTORY**
Maintain status quo	All Risks WITHIN 1.5 miles	First due Co. is within four minutes total reflex time, 90 percent of the time.	100 percent in district	Existing inventory and infill.
Temporary facilities and minimal staffing	Risks 1.5 to 3.0 miles from existing station	First due co. exceeds four minutes travel time 10 percent of the time, but never exceeds 8 minutes.	More than 10 percent of calls are in adjacent area	New area has 25 percent of same risk distribution as in initial area.
Permanent station Needed	Risk locations exceeding four miles from the station	*First due co. exceeds four minutes travel time, 20-25 percent of the time;* some calls less than 8 minutes.	More than 20-25 percent of calls are in outlying area	New area has 35 percent of same risk distribution as in initial area of coverage
Permanent station Essential	Outlying risk locations exceeding five miles from the first station	First due Co. exceeds four minutes travel time 30 percent of the time. Some calls less than 10 minutes	More than 30 percent of calls are in outlying area	New area has 50 percent of same risk distribution as in initial area.

Other communities have placed a value on how many units and people should be allowed past a fire stations travel point. Some have said none, others have allowed considerable growth. It all depends on how much risk and neighborhood *inequity* of coverage a given body of elected officials deems prudent.

Currently, the Southport area contains approximately 7,600 units with an estimated population of 16,000 only served by one fire station south of the deep water ship channel. By the first of 2007, Station 45 will come on line and help the area. Over the latest 12 month period, there were already 922 calls for service in the Southport area.

In Southport the following is the unit estimations for the planned development areas:

Project	RR/RE du	LR du	MR du	HR du	MU du	Totals
Yarbrough	0	543	1262	539	660	3,004
Harbor Pointe	14	452	932	652	0	2,050
Parks at Southport	0	420	545	975	110	2,050
River Park	26	728	1352	682	0	2,788
University Park	5	927	976	450	0	2,358
TOTALS	**45**	**3,070**	**5,067**	**3,298**	**770**	**12,250**

At 2.1 people per unit which is the existing Southport average occupancy rate, a maximum number of 12,250 units could generate approximately 25,725 more people and when the existing 16,000 population base is added, the Southport area at build out could be a community of 41,725 residents. It should be noted that the City's General Plan includes a policy to limit build out in Southport to a maximum population yield of 40,000 persons.

If there are three fire stations in Southport, with four crews (one engine and one truck at Station 45) then the on-duty staffing at build out would be twelve firefighters, plus the nine firefighters in the three stations north of the deep water ship channel. A force of twelve firefighters in Southport for a population of ±40,000 plus or minus is not excessive by any modern measure.

City staff estimates the Southport area project phasing may look like:

1st phase - Harbor Pointe project.

2nd phase - The Parks, if approved; Yarbrough, northern portion;
River Park, northern portion.

3rd phase - Yarbrough, southern portion; River Park, remaining portion; beginning of Seaway development.

4th phase - Seaway, remaining portion; University Park, if annexed.

If this phasing were to occur and keeping in mind the thresholds table from the page above, Citygate would recommend that West Sacramento strive for station additions or relocations as 20-25% of a newly developed area exceed 4-minutes travel from a fire station. Thus as these areas develop on top of existing areas:

1. Station 45 be opened before any significant development occurs in Harbor Pointe or any other Southport plan area.

2. Yarbrough and The Parks at Southport occurring close together trigger the need for the re-location of Station 42, and new Station 46. This should occur when there are 25% of the additional units beyond the 4-minute reach of current Station 42 and new Station 45.

3. If Yarbrough or River Park starts with or after The Parks at Southport, then new Station 46 is needed for multi-unit coverage in all of Southport.

4. If Station 43 is relocated before Seaway and or The Parks at Southport begins, then Station 46 should open when those projects start for effective primary unit coverage.

5. Southern Yarbrough and a University Park annexation really push the need for the southerly relocation of Station 42.

The dilemma the City will face is financing the staffing of Station 46 so close to the opening of Station 45. While The Parks and Seaway projects really push the earlier opening of this station, in reality all the proposed projects do as the third Southport station is needed for effective multi-unit coverage and to provide depth for primary single unit response as simultaneous calls for service occur.

Thus in Citygate's opinion, the City could consider some type of assessment district financing to require all the major developments in Southport to contribute for a finite period of time to the staffing cost of Station 46. The time frame could reasonably be from when the City requires the station to be staffed to when the project is fully sold out and thus the General Fund should have the necessary revenue capacity to carry the station.

As River Park, Yarbrough and The Parks at Southport all push the need for Station 46 and the relocation of Station 42, they could be required to advance their development impact fees per unit for the entire project to the initial project occupancy so the City can gain the capital construction funding for the stations.

Appendix I

Air Quality Technical Information—Carbon Monoxide Modeling

Appendix I

Air Quality Technical Information—Carbon Monoxide Modeling

Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term “Gaussian dispersion” refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian (“normal”) statistical distribution. Horizontal and vertical mixing generally occur at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

The CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes), and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such cross wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a “mixing cell” approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates which are a function of various meteorological and ground surface conditions.

Modeling Procedures

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared for this project by DKS Associates (DKS Associates 2005). CO emissions were modeled for base year (2002) and future year (2025) with and without project conditions. Free flow traffic speeds were adjusted to reflect congested speeds using methodology from the Highway Capacity Manual (Transportation Research Board 2000). CO modeling was conducted at the 3rd Street/Tower Bridge Gateway, Jefferson Boulevard/US 50 EB Ramps, Jefferson Boulevard/Lake Washington Boulevard, and Southport Parkway/Lake Washington Boulevard intersections, as these intersections have the worst volume to capacity (V/C) ratios, and highest traffic volumes of any intersections analyzed in the project area.

Vehicle Emission Rates

Vehicle emission rates were determined using the California Air Resources Board's EMFAC2002 (version 2.2) emission rate program. EMFAC2002 modeling procedures followed the guidelines recommended by Caltrans (California Department of Transportation 2003). The program assumed Yolo County regional traffic data operating during the winter months. A mean January temperature of 3.33 degrees Centigrade and humidity of 30% were assumed.

Receptor Locations

CO concentrations were estimated at 4 receptor locations located at each of the intersections analyzed, for a total of 28 receptors. The receptors were placed 100 feet from the center of each intersection diagonal to represent a worst case scenario, and located 142 feet from each other. Receptor heights were set at 5.9 feet.

Meteorological Conditions

Meteorological inputs to the CALINE4 model were determined using methodology recommended in Air Quality Technical Analysis Notes (California Department of Transportation 1988). The meteorological conditions used in the modeling represent a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. The meteorological inputs include: 1.0 meters per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 10 degrees, ambient temperature of 3.33 degrees Centigrade, altitude above sea level of 15.8 meters, and a mixing height of 1,000 meters.

Background Concentrations and Eight-Hour Values

A background concentration of 5.0 ppm was added to the modeled cumulative 1-hour values, while a background concentration of 3.6 ppm was added to the modeled cumulative 8-hour values. Background concentration data for 1- and 8-hour values were obtained from the EPA's Air Data webpage (U.S. Environmental Protection Agency 2006). Maximum 1- and 8-hour values for the years 2002-2004 were averaged to obtain a background concentration. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.6. Background concentrations for future year (2025) conditions were assumed to be the same as those for the current year. Actual 1- and 8 hour background concentrations in future years would likely be lower than those used in the CO modeling analysis because the trend in CO emissions and concentrations is decreasing because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

References

Benson, P. E. 1989. CALINE4---a dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA.

California Department of Transportation. 1988. Air Quality Technical Analysis Notes. Sacramento, CA.

California Department of Transportation. 2003. Draft Use OF EMFAC 2002 to Replace CT-EMFAC: A Users Guide. February 27

DKS Associates. 2005. Draft Super Cumulative Traffic Study: Analysis of Six Combined Development Projects in Southport Area. Prepared for City of West Sacramento, West Sacramento, CA. October 6Transportation Research Board. 2000. Highway Capacity Manual. Washington, D.C.

U.S. Environmental Protection Agency. 2006. Air Data. Last Revised: January 3, 2006. Available: <http://www.epa.gov/air/data/reports.html>. Accessed: January 11, 2006.

Appendix J

Air Quality Technical Information—Criteria Pollutants Modeling

Appendix J

Air Quality Technical Information—Criteria Pollutants Modeling

Emissions of Criteria Pollutants

The primary operational emissions associated with the proposed project are CO, PM10, and ozone precursors (ROG and NO_X) emitted as vehicle exhaust. The effects of localized CO emissions were evaluated through CO dispersion modeling, as described below. The effects of project specific emissions of criteria pollutants (CO, PM10 and ozone precursors) were evaluated through modeling conducted using the ARB's EMFAC2002 (version 2.2) emission rate program and traffic data provided by the project traffic engineers.

The EMFAC2002 (Version 2.2) Model

Emissions of criteria pollutants (CO, PM10 and ozone precursors) were evaluated using the ARB's EMFAC2002 (version 2.2) emission rate program and vehicle activity data. The EMission FACtors (EMFAC) model calculates emission rates from all motor vehicles, such as passenger cars to heavy-duty trucks, operating on highways, freeways and local roads in California. It can estimate emission rates of 1965 and newer vehicles, and provides emission rates for gasoline, diesel or electricity powered vehicles. The EMFAC emissions inventory estimates are made for over one hundred different technology groups and are reported for ten broad vehicle classes segregated by usage and weight.

Emission inventories associated with the proposed project are estimated by applying emission rate data from EMFAC model to vehicle activity data. EMFAC can analyze up to 45 model years for each vehicle class within each calendar year; for 24 hourly periods; for each month of the year; and for each district, basin, county and subcounty in California. EMFAC estimates emission factors and emission inventories for the following primary pollutants:

- **Hydrocarbons.** Hydrocarbons can be expressed as TOG (total organic gases), ROG (reactive organic gases), THC (total hydrocarbon), or CH4 (methane). The THC class includes compounds with hydrogen and carbon atoms only; carbonyls and halogens are not included in the class. The TOG class includes all organic gases emitted into the atmosphere. The ROG class is same as EPA's VOC (volatile organic compounds) definition and does not contain compounds exempt from regulation.

- **Carbon monoxide (CO).**
- **Nitrogen oxides (NO_X).**
- **Carbon dioxide (CO_2).**
- **Particulate matter (PM).** PM estimates are provided for total suspended particulate, particulate matter 10 microns or less in diameter (PM10), and particulate matter 2.5 microns or less in diameter (PM2.5).
- **Fuel consumption.** Although, this is not a pollutant, fuel consumption is calculated based on he emissions of CO, CO2 and THC using the carbon balance equation.
- **Oxides of sulfur (SO_X).** Emissions of oxides of sulfur are a function of the sulfur content of fuel. The model calculates these emissions by multiplying the fuel consumption by the weight fraction of sulfur in a gallon of fuel.
- **Lead (Pb).** Lead emissions are also a function of the lead content in fuel. Hence, the model calculates lead by multiplying the fuel consumption by the number of grams of lead per gallon.

Modeling Procedures

Roadway and Traffic Conditions

Modeled traffic volumes and operating conditions were obtained from the traffic data prepared by the project traffic engineers, DKS Associates (DKS Associates 2005). Emissions of ozone precursors (ROG and NO_X), CO, and PM10 for were modeled for base year (2002) and future year (2025) with and without project conditions. Traffic data used in the model included peak hour vehicle miles traveled (VMT) and average speed. The data used for emissions modeling is summarized in Table J-1.

Table J-1. Traffic Inputs for EMFAC2002 Modeling

	Roadway speeds (miles per hour)			Vehicle miles traveled		
Roadway type	Base Year	Cumulative no project	Cumulative with project (3 Bridges)	Base Year	Cumulative no project	Cumulative with project (3 Bridges)
Surface Street/Ramp	27	25	25	415,503	1,119,633	1,245,060
Freeway/HOV Lane	56	48	48	677,880	987,173	992,255
All Roadways	40	32	32	1,093,383	2,106,806	2,237,316

Source: DKS Associates 2005.

Vehicle Emission Rates

Vehicle emission rates were determined using the ARB’s EMFAC2002 (version 2.2) emission rate program. Free flow traffic speeds for selected roadway segments were adjusted to reflect congested speeds using methodology from the Highway Capacity Manual (Transportation Research Board 2000). The program assumed Yolo County regional traffic data operating during the winter months for CO and summer for ozone precursors and PM10, as CO concentrations are typically higher during the colder winter months, and ozone concentrations are typically higher during the warmer summer months. A mean January temperature of 3.33 degrees Centigrade, mean July temperature of 33.9 degrees Centigrade, and humidity of 30% were assumed.

References

DKS Associates. 2005. Draft Super Cumulative Traffic Study: Analysis of Six Combined Development Projects in Southport Area. Prepared for City of West Sacramento, West Sacramento, CA. October 6

Transportation Research Board. 2000. Highway Capacity Manual. Washington, D.C.