Volume II – Appendices

CITY OF MERCED
WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Draft Environmental Impact Report

SCH No. 2005101135

Prepared by:
City of Merced

August 2006

Volume II – Appendices

CITY OF MERCED WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Draft Environmental Impact Report

SCH No. 2005101135

Prepared by:
City of Merced

August 2006

8950 Cal Center Drive
Building 3, Suite 300
Sacramento, CA 95826
916.564.4500
www.esassoc.com

Los Angeles

Oakland

Orlando

Petaluma

San Francisco

Seattle

Tampa

205087

ESA

TABLE OF CONTENTS

City of Merced Wastewater Treatment Plant Expansion Project Draft Environmental Impact Report

Appendix A
Notice of Preparation and Initial Study

ESA

Notice of Preparation

Form B

To: (SCH) State Clearinghouse
(Agency)
1400 Tenth Street
(Address)
Sacramento, CA 95812-3044

Subject: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:		**Consulting Firm (If applicable):**	
Agency Name	City of Merced Dept. Public Works	Firm Name	Environmental Science Associates
Street Address	678 West 18th Street	Street Address	8950 Cal Center Dr., #300
City/State/Zip	Merced, CA 95340	City/State/Zip	Sacramento, CA 95825
Contact	David Tucker	Contact	Richard Hunn

The City of Merced will be the Lead Agency and will prepare an environmental impact report 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 for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study is attached.

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.

Please send your response to Dave Tucker at the address shown above. We will need the name for a contact person in your agency.

Project Title: Merced Waste Water Treatment Plant Expansion Project

Project Location: Merced (City (nearest)) Merced (County)

Project Description: (brief)

Expansion of the WWTP to serve up to 20 million gallons pending in conjuction with treatment upgrades necessary to satisfy waste discharge requirements.

Date 10/28/2005

Signature Richard Hunn for David Tucker

Title

Telephone (209) 385-6846

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

January 2000

CITY OF MERCED WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Initial Study

Prepared for:
City of Merced
Department of Public Works

October 2005

CITY OF MERCED WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Initial Study

Prepared for:
City of Merced
Department of Public Works

October 2005

8950 Cal Center Drive
Building 3, Suite 300
Sacramento, CA 95826
916.564.4500
www.esassoc.com

Los Angeles

Oakland

Orlando

Petaluma

San Francisco

Seattle

Tampa

205087

TABLE OF CONTENTS

Initial Study

Page

List of Figures

Section I
PROJECT BACKGROUND AND INTRODUCTION

1. PROJECT INFORMATION

Project Title:	**City of Merced** **Wastewater Treatment Plant Expansion Project**
Applicant:	City of Merced
Property Owner(s)	City of Merced
Lead Agency:	City of Merced
Responsible Agencies:	- Central Valley Regional Water Quality Control Board - State Water Resources Control Board - San Joaquin Valley Unified Air Pollution Control District - California Department of Fish and Game - Merced County Public Works and Planning Departments
Comments Due By:	November 28, 2005
Contact Person:	David Tucker P.E., City Engineer City of Merced 678 West 18th Street, Merced, CA 95340 *Phone*: (209) 385-6846 *Fax*: (209) 385-6211 *Email:* tuckerd@cityofmerced.org
Additional Documents	All of the documents cited and relied upon in the preparation of this Initial Study are available at the City of Merced Planning Department and are hereby incorporated into the record for this Initial Study.

2. INTRODUCTION

The City of Merced (City) operates a wastewater treatment plant (WWTP) serving the urban land uses within the city limits. The WWTP is about 1.5 miles south of the city limits in a rural portion of Merced County. Figure 1 shows the relative location of the WWTP in relation to the City urban area.

The City of Merced is proposing to upgrade and expand the capacity of its WWTP facilities (Project) to serve planned wastewater loads generated within the City's Specific Urban Development Plan (SUDP) area and to comply with current and anticipated effluent quality regulatory limits. The proposed Project would initially increase the WWTP's capacity to 15 million gallons per day (mgd) through a series of improvements. Ultimately, the Project would reach a capacity of 20 mgd with additional improvements as needed to meet future wastewater loads.

Project Objectives

The Project's objective is to provide sufficient capacity to meet wastewater loads generated by planned population growth and development within the City's WWTP service area, consistent with the City's General Plan (1997) and other applicable land use plans. The Project will also include additional levels of treatment sufficient to meet current and future effluent quality regulatory limits and to replace aged facilities with improved wastewater treatment technologies and processes capable of meeting applicable regulatory requirements.

3. BACKGROUND INFORMATION AND PROJECT DESCRIPTION

Project Background

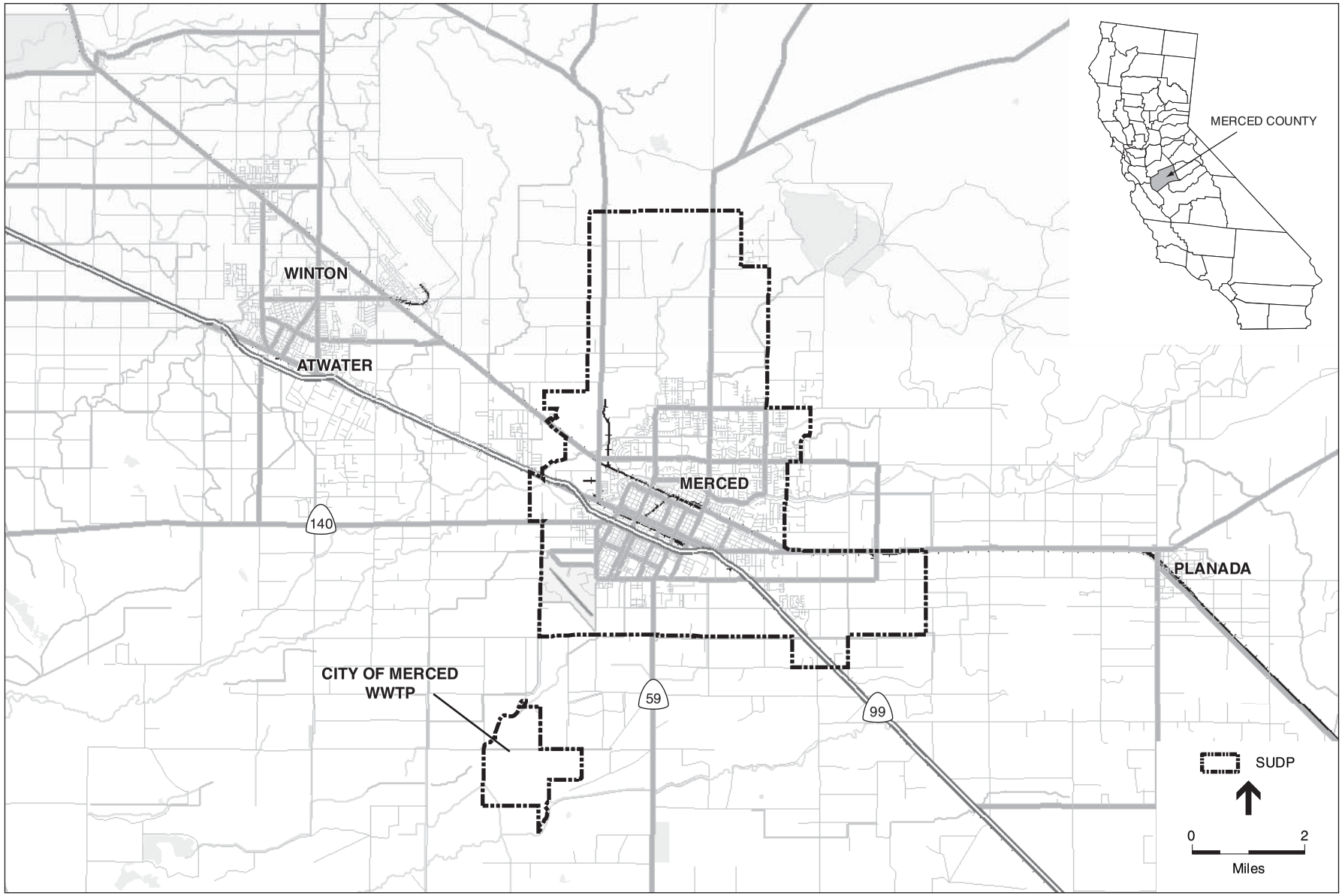
The WWTP was built in the late 1970s and has undergone a series of improvements, in 1974 through 1980 and again in 1994. The City prepared an environmental impact report (EIR) in 1994 that addressed improving the WWTP and expanding its capacity to 20 mgd. In 1998, digester enhancements and a liquid chlorine disinfection system were implemented.

The City is currently permitted to discharge up to 10 mgd of secondary treated effluent from the WWTP to Hartley Slough and the Merced Wildlife Management Area.

Further expansion of the WWTP is necessary to accommodate increased demands for wastewater service associated with the 1997 SUDP Update and the 2001 University of California-Merced Long Range Development Plan.

Project Location

The WWTP is in Township 8 South, Range 13 East (Mount Diablo Baseline and Principal Meridian) on Gove Road. It is about 1.5 miles south of the city limits in a rural area supporting agricultural land uses. The facilities occupy approximately 11.3 acres of the 1,335-acre City-owned property (Figure 2). The Merced Municipal Airport is over 1.5 miles north of the WWTP site.



SOURCE: ESRI, 2005; City of Merced; and ESA, 2005

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 1
Regional Location Map

SOURCE: GlobeXplorer, 2001; and ESA, 2005

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2

City of Merced WWTP Property

Current WWTP Operations

The WWTP currently provides secondary-level wastewater treatment and discharges treated effluent to Hartley Slough and the Merced Wildlife Management Area. The secondary wastewater treatment process consists of the following four steps:

- Inflow to the WWTP is sent to the primary clarifier, where settleable solids are separated from the waste stream
- Wastewater is sent to a digester, where microorganisms decompose organic material
- Treated wastewater is sent to a secondary clarifier for final clarification
- Treated wastewater is disinfected before its discharge into Hartley Slough

The most stringent operating conditions determine the reliable capacity of the WWTP, including peak month flows, loads (influent strength), and colder temperatures. A key factor in successful wastewater treatment is the operation of the aeration basins and their ability to reduce or eliminate biological oxygen demand of the wastewater.

Current Permits

The WWTP is subject to the regulatory authority of the Central Valley Regional Water Quality Control Board (CVRWQCB), which issues waste discharge requirements (WDR) in association with the requirements under the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permit. The plant's operations are currently regulated under WDR No. 5-00-246 (NPDES Permit No. CA0079219), issued in 2000. The plant is currently operating under Mandatory Penalty Complaint No. R5-2004-0537 in response to permit violations for total residual chlorine, a Group II pollutant, and total coliform, a Group I pollutant.

Project Description

As a consequence of planned growth and development in the SUDP and the provisions of the WWTP's amended WDR and NPDES permit, the City is proposing to expand the WWTP and install improvements to the plant. The proposed expansion will include new treatment facilities that will increase the WWTP's capacity, initially to 15 mgd and ultimately to 20 mgd, in addition to improving effluent quality to disinfected-tertiary treatment levels. As part of this process, the City is conducting engineering studies and preparing plans to meet anticipated effluent quality limits that will be imposed by the CVRWQCB.

15 Mgd Capacity Improvements

The new treatment processes include denitrification sufficient to comply with a limitation of 10 milligrams per liter (mg/L) nitrate-nitrogen, coagulation/filtration, ultra-violet disinfection, and

effluent reaeration. The facilities to be constructed include a new headworks, an influent pump station, septage/debris receiving stations, a blower building, and a 95-foot-diameter primary clarifier. The expansion of the plant's headworks and administrative building (Figure 3) will require obtaining approximately 45.3 acres of land north and east of the WWTP. The expansion area will not be annexed into the City. It will remain in Merced County's jurisdiction and require a conditional use or similar administrative permit. Constructing facilities in the proposed expansion area will require the realignment of three privately owned agricultural drains, which will be rerouted to Hartley Slough. As depicted in Figure 3, lands within the west-central portion of the WWTP property are proposed for land-application of biosolids.

The Project includes changing the current point of effluent discharge to Hartley Slough about one-quarter mile upstream of the outfall channel that runs parallel to Miles Creek (Figure 3).

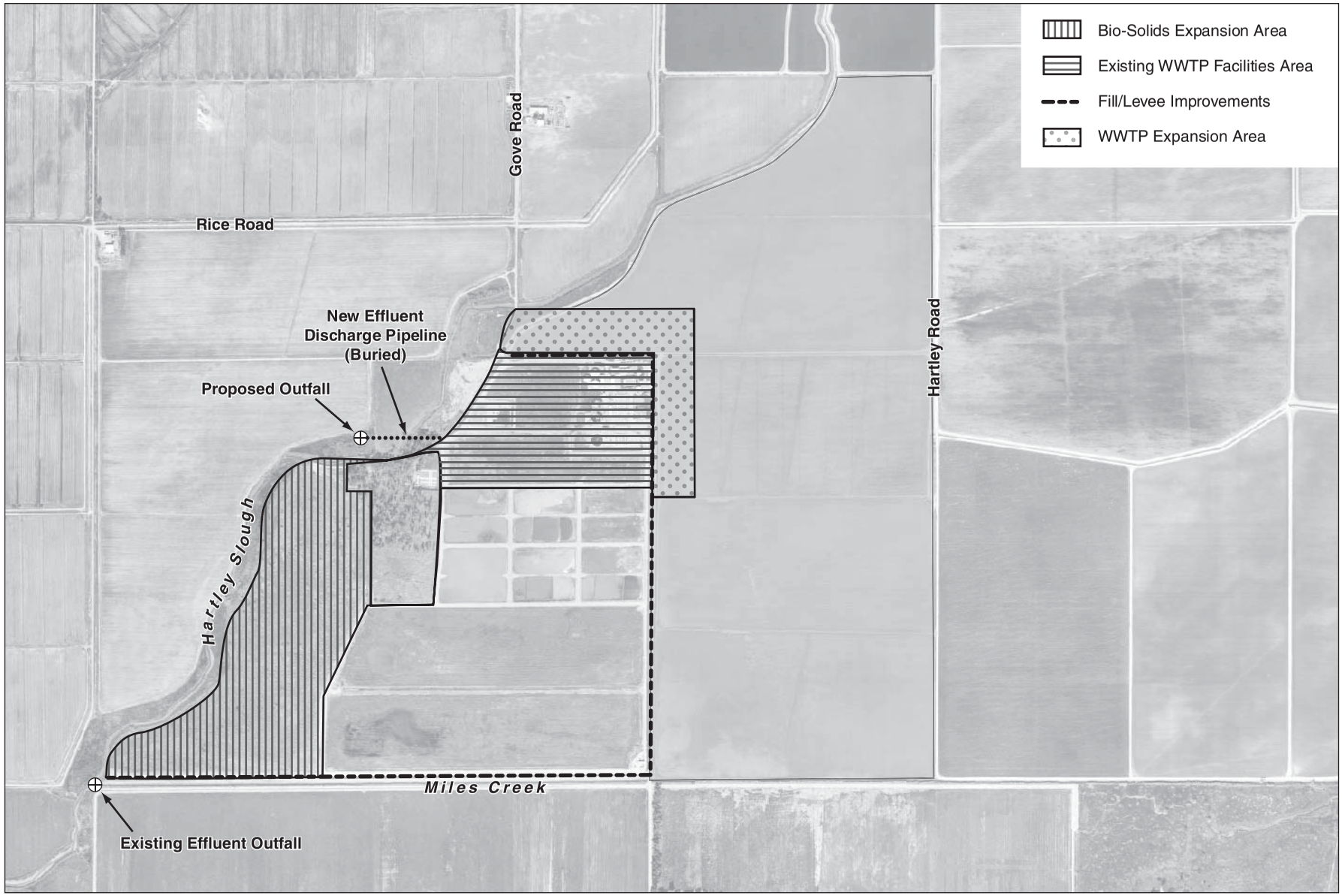
The City is studying two biosolids disposal options for the expanded WWTP. The first option is to dispose of the biosolids onsite using disposal rates and methods that would allow the biosolids to be classified as Class A Exceptional Quality biosolids. The second option is to transport all biosolids to a suitable offsite disposal area, such as the Forward Landfill in San Joaquin County. The City will select one or both methods for biosolids disposal during the preparation of the WWTP EIR.

20 Mgd Capacity Improvements

Specific improvements that would increase the WWTP's rated capacity to 20 mgd include additional UV disinfection, effluent cooling, primary digesters, and membrane filtration. Additional required facilities consist of a primary and secondary clarifier, a reactor basin, an aeration basin, and other ancillary facilities.

Construction Schedule

Construction of the Project is scheduled to begin in October 2006. Initial improvements, scheduled to be completed by late 2007, would allow the WWTP to operate at 11.5 mgd. Upon the completion of additional facilities and improvements by late 2008, along with approval by the CVRWQCB, the WWTP would be able to operate at 15 mgd. Completion of all proposed improvements is scheduled for 2013, when the WWTP would be able to operate at a rated capacity of 20 mgd.



SOURCE: GlobeXplorer, 2001; and ESA, 2005

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 3

Wastewater Treatment Plant Expansion Area

4. ENVIRONMENTAL SETTING

Land Use

The City supports a variety of land uses including commercial, residential, and agricultural activities. Its WWTP is on an approximately 1,685-acre City-owned property. The City's General Plan has designated the land at the WWTP site for public uses (City of Merced, 1997a). Adjacent Merced County land generally consists of open space, wildlife habitat, and land in agricultural production.

Figure 2 shows the WWTP site, including the land immediately adjacent to its boundaries. The County of Merced General Plan has designated these surrounding lands for agricultural land uses with a minimum parcel size of 20 acres (County of Merced, 1997a).

Surface Waters

The WWTP site lies within the San Joaquin River watershed and is bounded by several local waterways tributary to the river. The plant is partly on lands adjacent to Hartley Slough, Owens Creek, Miles Creek, and Duck Slough. Treated effluent discharged from the WWTP is conveyed to Hartley Slough by an unlined effluent discharge ditch, as shown in Figure 2. The point of discharge is immediately upstream of the confluence of Miles Creek and Hartley Slough. Hartley Slough drains into Owens Creek about 1.5 miles west of the WWTP and ultimately into the San Joaquin River.

About 20 percent of the treated effluent is used to sustain the Merced Wildlife Management Area by maintaining wetland areas for associated wildlife and waterfowl. The remaining 80 percent is discharged to Hartley Slough. The treated effluent in Hartley Slough is subsequently diverted for agricultural purposes during the irrigation season.

Water Quality

Water quality of Hartley Slough upstream of the WWTP is largely influenced by agricultural activities and channel management that has included removing riparian vegetation (City of Merced, 1994). Hartley Slough and Owens Creek are not identified as impaired water bodies according to the 2002 California Section 303(d) List and TMDL Priority Schedule. However, downstream of the plant, the San Joaquin River is identified as an impaired waterbody for the following contaminants: boron, chlorpyrifos, DDT (di(para-chloro-phenyl)-trichloroethane), diazinon, electrical conductivity, Group A pesticides, mercury, and unknown toxicity (USEPA, 2003).

5. PURPOSE AND LEGAL BASIS FOR THE INITIAL STUDY

This Initial Study serves as the initial environmental compliance document for the proposed expansion of the WWTP. As described in Section 15063 of the California Environmental Quality Act guidelines (14 CCR 15000 *et seq.*), the purpose of an Initial Study is to determine if a project may have a significant effect on the environment.

Section III of this Initial Study presents the analyses of whether the Project would cause any significant environmental impacts.

6. FINDINGS AND CONCLUSIONS

Potential Environmental Effects of the Project

Based on the initial findings and conclusions of the environmental checklist, provided in Section III, it is concluded that implementation of the Project could have a significant adverse effect on the environment. The City will be preparing an EIR for the Project to provide an expanded discussion on the following topics:

- Land use and planning
- Aesthetics
- Biological resources
- Hydrology and water quality
- Geology and soils
- Hazards and hazardous materials
- Mineral resources
- Noise and acoustics
- Population and housing
- Public services
- Recreation
- Transportation and traffic
- Utilities and service systems
- Agriculture resources
- Air quality
- Growth-inducing effects

Potential Cumulative Effects

The Project could have effects on agricultural resources, air quality, and biological resources that are potentially significant and, when considered in combination with the effects of other projects, could contribute to cumulative effects on the environment. However, a majority of these effects would be mitigated by the design of the Project and the standardized mitigation measures that the City would adopt as part of the environmental review process. A cumulative impact assessment for these resource topics will be provided in the EIR for the Project.

The Project would facilitate the continued population growth and development in the City of Merced and the adjacent lands that would be served by the WWTP, thereby indirectly contributing to the secondary effects of growth. These effects generally include increased traffic, degradation of air and water quality, loss of productive agricultural lands, and increased demand on public services (County of Merced, 2001). These topics will be discussed more extensively in the EIR.

References

City of Merced. 1994. *Draft Environmental Impact Report: City of Merced Wastewater Treatment Plant Expansion.* SCH# 9211209. June 1994.

City of Merced. 1997a. *Merced Vision 2015 General Plan.*

City of Merced. 1997b. *Merced Vision 2015 General Plan: Final Program Environmental Impact Report.* SCH# 95082050. April 1997.

County of Merced. 2004. University Community Plan EIR, 2004.

ECO:LOGIC. 2005. *City of Merced Wastewater Treatment Plant Expansion: Report of Waste Discharge.* April 2005.

UC Merced. 2001. *UC Merced Long Range Development Plan EIR, 2001.*

USEPA, 2003. U.S. Environmental Protection Agency. 2003. 2002 California Section 303(d) List and TMDL Priority Schedule.

Section II
CEQA DETERMINATION OF IMPACT

DETERMINATION: (To be completed by Lead Agency)
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 in 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 a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, 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 EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

By: David Tucker P.E. *Date:* _____

Title: City Engineer *Representing:* City of Merced

Signature: John C Cunnett For

Approved by: Jack D. Lesch *Date:* 10/21/05

Title: Director of Development Services/ Environmental Coordinator *Representing:* City of Merced

Signature: Jack D Lesch

Distributed for Public Review— October 18 2005.

Section III
ENVIRONMENTAL CHECKLIST
EVALUATION OF ENVIRONMENTAL IMPACTS

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the proposed Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☒ Agriculture Resources	☒ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards and Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☒ Mandatory Findings of Significance	

Evaluation of Environmental Impacts

Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. 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 within a state 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 which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Threshold and Conclusion:

Items 1a: A significant impact would be one that has a substantially adverse effect on a scenic vista. With regard to these issues, the Project would have **no impact.**

Item 1b: A significant impact would be one that would substantially damage scenic resources within a state scenic highway. With regard to these issues, the Project would have **no impact.**

Item 1c: A significant impact would be one that would substantially degrade the visual character of an area. With regard to these issues, the Project would have a **less than significant impact.**

Item 1d: A significant impact would be one that has a substantially adverse effect by producing a new source of substantial light or glare. With regard to this issue, the Project would have a **less than significant impact with mitigation.**

Analysis:

The Project site lies in the western San Joaquin Valley and is characterized by generally level topography. The foothill region of the Sierra Nevada, 30 miles to the east, is the nearest significant topographic feature. In this context, the site does not contribute to and is not a part of a designated scenic vista nor does the Project site obstruct an important vista. The Project neither contains nor is adjacent to a county- or state-designated scenic corridor. The Project includes the construction of additional treatment structures similar in color and hue to the current structures as part of the WWTP's overall improvement. New lighting sources at the proposed WWTP entrance would produce a new source of light or glare, which could affect daytime or nighttime views in the area. Further analysis of these issues and the anticipated mitigation measures will be presented in the EIR.

Agricultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURE RESOURCES In determining whether impacts to 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 as an optional model to use in assessing impacts on agriculture and farmland. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), 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 a Williamson Act contract?	☐	☐	☒	☐
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☒	☐	☐	☐

Threshold and Conclusion:

Item 2a: A significant impact would be one that converts farmland designated as "prime," "unique" 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 nonagricultural uses. The development of the Project would cause a **potentially significant impact**.

Item 2b: A significant impact would also occur if the Project conflicts with agricultural zoning and/or an active Williamson Act contract. With regard to this issue, the Project would have **a less than significant impact**.

Item 2c: A significant impact would occur if the Project involves other changes in the environment that because of their location or nature, could result in the conversion of farmland to a nonagricultural use. With regard to this issue, the Project would have **a potentially significant impact**.

Analysis:

The WWTP expansion would convert 45.3 acres of farmland designated as "prime" or "farmland of statewide importance" on the maps prepared pursuant to the 2002 Farmland Mapping and Monitoring Program of the California Resources Agency to the nonagricultural use of an expansion of the WWTP. The Project would not conflict with an active Williamson Act contract. It would include applying processed sludge to onsite agricultural lands, thereby limiting the types of crops that could otherwise be grown. Additionally, it would create additional wastewater treatment capacity, which would indirectly enable development in other portions of Merced County. This development could result in the further conversion of farmland to nonagricultural uses. These issues will be discussed further in the EIR.

Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY Where 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 non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Threshold and Conclusion:

Item 3a: A significant impact would be one that conflicts with or obstructs implementation of the applicable air quality plan. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation** for construction and operation of the Project.

Item 3b: A significant impact would be one that contributes substantially to the ozone air quality non-attainment status. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation** for construction and operation of the Project.

A significant impact would be one that contributes substantially to the PM_{10} air quality non-attainment status. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation** for construction and operation of the Project.

Item 3c: A significant impact would be one that results in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation** for construction and operation of the Project.

Item 3d: A significant impact would be one that exposes sensitive receptors to substantial pollutant concentrations. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation** for construction and operation of the Project.

Item 3e: A significant impact would be one that creates objectionable odors affecting a substantial number of people. With regard to this issue, the Project would have a **less than significant impact** for construction and operation of the Project.

Analysis:

The Project is not expected to significantly alter growth patterns, thereby conflicting with an applicable air quality implementation plan. The Project would contribute new emissions of criteria air pollutants, which could potentially violate air quality standards or result in a cumulatively considerable net increase of a criteria air pollutant. Construction emissions would vary in volume and duration; however, short-term continuous emissions could potentially add to cumulatively considerable air quality impacts. Additional analysis of these impacts will be presented in the EIR along with appropriate mitigation measures.

The Project would not result in a result in substantial increase in objectionable odors that could affect a substantial number of people.

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. 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, 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, marsh, vernal pool, coastal, 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?	☐	☐	☐	☒

Threshold and Conclusion:

Item 4a: A significant impact would be one that has a substantial adverse effect on any candidate, sensitive, or special-status species. With regard to this issue, the Project would have a **potentially significant impact**.

Item 4b: A significant impact would be one that adversely affects riparian habitat or other sensitive natural community. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 4c: A significant impact would be one that adversely affects wetlands. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 4d: A significant impact would be one that impedes the use of a native wildlife nursery site or interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors. With regard to this issue, the Project would have a **potentially significant impact**.

Item 4e: A significant impact would be one that or conflicts with local ordinances and policies protecting local biological resources. With regard to this issue, the Project would have **no impact**.

Item 4f: A significant impact would be one that conflicts with any conservation plan. With regard to this issue, the Project would have **no impact**.

Analysis:

Implementation of the Project could potentially affect special-status species that may inhabit the Project area and modify terrestrial, aquatic, wetland, or riparian habitat. The area surrounding the WWTP is known to contain habitat that supports several raptor special-status species. Hartley Slough and Miles Creek are known to support some fish and other aquatic life. The effluent canals may support migratory or native fish species, and therefore, any construction or modifications to the effluent canals could present potentially significant impacts, which will be discussed further in the EIR. A search of the California Natural Diversity Database (CNDDB) returned no occurrences of special-status species in the immediate Project area. Most of the WWTP expansion features would be limited to the footprint of the current WWTP; however, construction of the new outfall and bridge would occur within Hartley Slough. Therefore, impacts and habitat modifications to wetlands, riparian, and other biological resources will be discussed further in the EIR along with any appropriate mitigation measures.

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES— Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §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?	☐	☒	☐	☐

Threshold and Conclusion:

Item 5a: A significant impact would be one that would cause a substantial adverse change in the significance of any historic resource as defined in Section 15064.5 of the CEQA Guidelines. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 5b: A significant impact would be one that would cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5 of the CEQA Guidelines. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 5c: A significant impact would be one that would destroy a unique paleontological resource or site or a unique geologic feature as defined by Section 15064.5 of the CEQA Guidelines. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 5d: A significant impact would be one that disturbs human remains. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Analysis:

Because the Project consists of constructing new structures and other physical features, the potential for encountering cultural, historic, or prehistoric resources during Project construction exists. A cultural resources investigation for the WWTP site and the 380-acre parcel northwest of the WWTP was conducted for the 1994 City of Merced WWTP Expansion EIR. Information from the 1994 cultural resources assessment and further analysis will be presented in the EIR along with appropriate mitigation measures for identified impacts.

Geology and Soils

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. 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:				
i) 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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site 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 where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Threshold and Conclusion:

Item 6a: A significant impact would be one that exposes people or structures to loss, injury or death resulting from surface rupture or earthquake, liquefaction, or landslides. With regard to this issue, the Project would have a **less than significant impact**.

Item 6b: A significant impact would be one that results in substantial soil erosion or loss of topsoil. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 6c: A significant impact would be one where geologic materials or soil becomes unstable as a result of the Project and results in landslide or other movement. With regard to this issue, the Project would have **no impact**.

Item 6d: A significant impact would occur if the Project is placed on expansive soils and creates substantial risk to life or property. With regard to this issue, the Project would have a **less than significant impact**.

Item 6e: A significant impact would occur if septic tanks or systems are utilized in the Project and the soil is unable to support their use. With regard to this issue, the Project would have **no impact**.

Analysis:

Implementation of the Project would not create a geologic hazard or expose a population to increased geologic hazards. A review of Special Publication 42 for areas in the vicinity of the Project indicates that the site is not in an Alquist-Priolo Earthquake Fault Zone (CGS Special Publication 42, 1999). The nearest mapped active earthquake fault is the San Andreas Fault, over 50 miles away. Because the fault lies a substantial distance from the Project site, the risk of strong ground shaking and/or related ground failure is considered relatively low as compared to other localities in California.

Ground-disturbing activities, including removal of vegetation, can increase water runoff rates and concentrate flows that may result in accelerated erosion. The eroded material could degrade the water quality in Hartley Slough and, to a lesser extent, the San Joaquin River. As required by Section 402 of the Clean Water Act, the City will be required to prepare and implement a Storm Water Pollution Prevention Plan for the Project, which would include mitigation measures to control accelerated erosion and sedimentation.

If the geotechnical investigation encounters expansive soils, standard engineering practices will be incorporated into the Project to protect structures from the effects associated with those soils.

The ability of onsite soils to receive disposed biosolids will be assessed to determine the potential for environmental impact.

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. 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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which 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) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project 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?	☐	☐	☐	☒

Threshold and Conclusion:

Item 7a: A significant impact would be one that produces a substantial risk to the public from routine transportation, use, or disposal of hazardous material, or from reasonably foreseeable accidental release of such material. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 7b: A significant impact would be one that creates 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. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 7c: A significant impact would be one that emits hazardous emissions or handles hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. With regard to this issue, the Project would have **no impact**.

Item 7d: A significant impact would be one that is located on a listed contamination site and exposes the public or the environment to the hazard. With regard to this issue, the Project would have **no impact**.

Item 7e: A significant impact would be one that results in a safety hazard for people residing or working within two miles of a public airport. With regard to this issue, the Project would have **no impact**.

Item 7f: A significant impact would be one that results in a safety hazard for people residing or working in the vicinity of a private airstrip. With regard to this issue, the Project would have **no impact**.

Item 7g: A significant impact would be one that impairs the implementation of or interferes with an emergency response or evacuation plan. With regard to this issue, the Project would have **no impact**.

Item 7h: A significant impact would be one that exposes people or structures to a significant risk of wildland fires. With regard to this issue, the Project would have **no impact**.

Analysis:

A database search conducted for the Project site revealed the presence of the Merced City Municipal Dump at 2401 Rice Road, about 0.75 miles from the WWTP. The expansion Project would not encroach onto this property.

As an optional part of the Project, treated biosolids would be transported from the WWTP to the Forward Sanitary Landfill near Stockton, California. Alternatively, biosolids may be retained and disposed of onsite.

Potential impacts associated with the transport of hazardous materials, including chemicals, fuels, and solvent, or the accidental release of hazardous materials will be analyzed further in the EIR.

The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The Project is not within two miles of a public airport or public use airport or private airstrip and would not interfere with aviation. It would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; therefore, no impacts are anticipated.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. 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 such that there would be 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 which 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 which would result in substantial erosion or siltation on- 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 which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which 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 which 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?	☐	☐	☒	☐
j) Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒

Threshold and Conclusion:

Item 8a: A significant impact would occur if the Project violated any water quality standards or waste discharge requirements. With regard to this issue, the Project would have **no impact**.

Item 8b: A significant impact would occur if the Project would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in

aquifer volume or a lowering of the local groundwater table level. With regard to this issue, the Project would have a **less than significant impact**.

Item 8c: A significant impact would be one that substantially alters drainage and surface flows in a manner that may result in substantial erosion or siltation on- or offsite. With regard to this issue, the Project would have a **less than significant impact**.

Item 8d: A significant impact would result if the drainage pattern of the site or area would be substantially altered in a manner that would increase surface runoff and result in flooding on- or offsite. With regard to this issue, the Project would have a **less than significant impact**.

Item 8e: A significant impact would result if the Project created or contributed runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provided substantial additional sources of polluted runoff. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 8f: A significant impact would result if the Project otherwise substantially degraded water quality. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 8g: A significant impact would occur if the Project placed housing within a 100-year flood hazard area. With regard to this issue, the Project would have **no impact**.

Item 8h: A significant impact would occur if the Project placed structures within a 100-year flood hazard area such that Project structures would impede or redirect floodwaters. With regard to this issue, the Project would have a **less than significant impact**.

Item 8i: A significant impact would occur if people or structures were exposed to a significant risk of loss, injury or death as a result of flooding or the failure of a levee or dam. With regard to this issue, the Project would have a **less than significant impact**.

Item 8j: A significant impact would occur from inundation by seiche, tsunami, or mudflow. With regard to this issue, the Project would have **no impact**.

Analysis:

The Project would improve the quality of the WWTP's effluent discharge through the addition of new treatment processes. The Project would meet waste discharge requirements mandated by the Central Valley Regional Water Quality Control Board. An additional analysis of issues associated with meeting water quality standards will be presented in the EIR; however, it is anticipated that no adverse water quality impacts would occur.

The Project would not substantially deplete or interfere with groundwater supplies and recharge in the area. The Project site is in the Merced Subbasin of the San Joaquin Valley Groundwater Basin, where groundwater elevations encroach within 10 to 15 feet of the ground surface. Further analysis of

groundwater resources will be presented in the EIR; however, it is anticipated that impacts would remain less than significant.

The Project would not substantially alter the site's drainage pattern in a manner that would result in siltation, erosion, or additional polluted runoff sources. Construction activities at the new outfall would take place in the levee and in the banks of Hartley Slough. Further analysis of these issues will be presented in the EIR.

The Project would not exceed the capacity of existing or planned stormwater drainage systems. It does not involve the construction of residential housing and, therefore, would not place housing within a 100-year flood hazard area.

The Project would place new structures at the WWTP within a 100-year flood hazard area. The Project includes facility improvements along Hartley Slough, including a new bridge and outfall, in addition to new levees north and east of the WWTP. Due to the large footprint of the current WWTP, the actual increase in area protected by the new levee would be minimal, and therefore, the Project is not anticipated to significantly impede or redirect flood flows or increase the risks of flooding or levee failure. Additional analysis will be presented in the EIR.

Land Use and Planning

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9.	**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 the 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?	☐	☐	☐	☒

Threshold and Conclusion:

Item 9a: A significant impact would occur if the Project physically divided an established community. With regard to this issue, the Project would have **no impact**.

Item 9b: A significant impact would occur if the Project conflicted with an applicable General Plan policy or regulation of an agency with jurisdiction over the Project. With regard to this issue, the Project would have a **less than significant impact.**

Item 9c: A significant impact would occur if the Project conflicted with an applicable habitat conservation plan. With regard to this issue, the Project would have **no impact**.

Analysis:

The Project would not divide an established community. The Project area is surrounded by parcels larger than 40 acres, of which the majority are in agricultural production. Neither a habitat conservation plan nor a natural communities conservation plan has been adopted for the Project area, and therefore, the Project would not conflict with an adopted habitat conservation plan or a natural communities conservation plan. The Project involves adjacent lands into the WWTP boundary. Lane use entitlements from the County and City may be required to operate those portions of the WWTP within the A-1 zone. Further analysis of effects to land use and planning will be presented in the EIR.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. 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?	☐	☐	☐	☒

Threshold and Conclusion:

Item 10a: A significant impact would occur if the Project resulted in the loss of availability of a mineral resource of value to the region and state. With regard to this issue, the Project would have **no impact**.

Item 10b: A significant impact would occur if the Project resulted in the loss of availability of a locally important mineral resource recovery site delineated in an applicable land use plan. With regard to this issue, the Project would have **no impact**.

Analysis: There are no known mineral resources or designated mineral resource recovery sites that would be affected by the Project. According to the Department of Conservation, Division of Mines and Geology Mineral Resource Zone (MRZ) Map in Merced County, the Project area is zoned as MRZ-3a SG-8. Areas classified as MRZ-3a SG-8 include fine- to coarse-grained terrace and fan deposits of the Pleistocene Riverbank Formation. The Riverbank Formation is mined for concrete aggregate in other areas of California, but no history of production from this formation in Merced County was found in a study conducted by the Department of Conservation in 1999 (DMG, 1999) It is anticipated that no impacts would occur.

Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. NOISE—Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Threshold and Conclusion:

Item 11a: A significant impact would occur if the Project resulted in the exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance or applicable standards of other agencies. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 11b: A significant impact would result if the Project exposed persons to or generated excessive ground-borne vibration or ground-borne noise levels. With regard to this issue, the Project would have **no impact**.

Item 11c: A significant impact would result if the Project caused a substantial permanent increase in ambient noise levels. With regard to this issue, the Project would have a **less than significant impact**.

Item 11d: A significant impact would result if the Project caused a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels without the Project. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 11e: A significant impact would be one that exposes people residing or working in the vicinity of a public airport or public use airport to excessive noise levels. With regard to this issue, the Project would have **no impact**.

Item 11f: A significant impact would be one that exposes people residing or working in the vicinity of a private airstrip to excessive noise levels. With regard to this issue, the Project would have **no impact**.

Analysis: Construction activities associates with the Project could potentially exceed City or Merced County noise thresholds. The Merced County standard for residential land uses is 65 dBA Ldn[1] for exterior noise levels and 45 dBA Ldn for interior noise levels. The County refers to the State Land Use Compatibility Guidelines for the acceptable noise level at parks, which is listed as 70 dBA Ldn. Further analysis of these issues and appropriate mitigation will be presented in the EIR.

The Project would add equipment that would produce minor increases in the amount of noise generated by the WWTP. However, the change from baseline noise conditions due to operation of the Project would not vary significantly. Further analysis of these issues will be presented in the EIR; however, it is anticipated that this impact would remain less than significant.

Project construction could potentially result in a temporary or periodic increase in ambient noise levels within the Project vicinity. Noise increases would be temporary and would not be significantly louder than the current conditions. Further analysis of these issues will be presented in the EIR.

[1] Ldn is a 24-hour day and night A-weighted noise exposure level that accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10 p.m. and 7 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noise.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. POPULATION AND HOUSING— Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Threshold and Conclusion:

Item 12a: A significant impact would result if the Project induces substantial population growth in an area. With regard to this issue, the Project would have a **potentially significant impact**.

Item 12b: A significant impact would result if the Project displaced substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere. With regard to this issue, the Project would have **no impact**.

Item 12c: A significant impact would result if the Project displaced substantial numbers of people, necessitating the construction of replacement housing elsewhere. With regard to this issue, the Project would have **no impact**.

Analysis:

The Project would not directly induce or create any new population in the City of Merced or adjacent lands. The proposed WWTP expansion Project would result in an increase in capacity that would facilitate continued planned population growth in the City's SUDP. Impacts associated with population growth were analyzed in the City's certified General Plan EIR (1997). Further analysis of the secondary effects of growth (e.g., agricultural land conversion) will be presented in the EIR.

The Project would not displace any existing housing or people necessitating the construction of replacement housing elsewhere. Further analysis of these issues will be presented in the EIR; however, it is anticipated that no impacts would occur.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. PUBLIC SERVICES— Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Threshold and Conclusion:

Item 13a: The Project would have a significant environmental impact if construction of the Project resulted in an increased demand for emergency service public facilities that are needed to maintain adequate service levels and would create a substantial adverse physical impact. With regard to this issue, the Project would have **no impact**.

The Project would have a significant environmental impact if additional public school facilities are needed to maintain adequate service levels for the Project, and these facilities create a substantial adverse physical impact. With regard to this issue, the Project would have **no impact**.

The Project would have a significant environmental impact if additional parks are needed to maintain adequate service levels for the Project, and these facilities create a substantial adverse physical impact. With regard to this issue, the Project would have **no impact**.

The Project would have a significant environmental impact if construction of other public facilities that are needed to maintain adequate service levels for the Project creates a substantial adverse physical impact. With regard to this issue, the Project would have **no impact**.

Analysis: The expansion of the WWTP is not anticipated to directly increase the need for public services, government facilities, or resources, nor would it generate any additional demands for public services that would require new or altered facilities, including police and fire protection. Further analysis of these issues will be presented in the EIR; however, it is anticipated that no impacts would occur.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. RECREATION:				
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Threshold and Conclusion:

Item 14a: A significant impact would result if the Project increased the use or accelerated the physical deterioration of recreational facilities. With regard to this issue, the Project would have **no impact**.

Item 14b: A significant impact would result if the Project included recreational facilities that might adversely affect the physical environment due to construction or expansion. With regard to this issue, the Project would have **no impact**.

Analysis:

The expansion of the WWTP would not adversely affect any recreational parks, facilities, or recreational opportunities. The Project would not require the construction of any new recreational facilities that may have an adverse impact on the environment. Access to the Merced Wildlife Management Area will be maintained to allow for permitted hunting within the wildlife area to the south. Further analysis of these issues will be presented in the EIR.

Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. TRANSPORTATION/TRAFFIC— Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☒	☐	☐
b) Exceed, either individually or cumulatively, 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 due to 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)?	☐	☐	☐	☒

Threshold and Conclusion:

Item 15a: A significant impact would result if the Project caused an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation.**

Item 15b: A significant impact would result if the Project caused level of service ratings (individually or cumulatively) to be exceeded. With regard to this issue, the Project would have a **less than significant impact.**

Item 15c: A significant impact would result if the Project resulted in substantial safety risks due to changes in air traffic patterns. With regard to this issue, the Project would have **no impact.**

Item 15d: A significant impact would result if the Project produced hazards to safety from design features or incompatible uses. With regard to this issue, the Project would have **no impact**.

Item 15e: A significant impact would result if the Project resulted in inadequate emergency access. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item 15f: A significant impact would result if the Project results in inadequate parking. With regard to this issue, the Project would have **no impact**.

Item 15g: A significant impact would result if the Project conflicted with alternative transportation policies, plans, or programs. With regard to this issue, the Project would have **no impact**.

Analysis:

Operation of the Project will not affect traffic or vehicle circulation, roadway capacities, or air traffic patterns and operations. Following construction, the WWTP expansion would not result in an increase in traffic that is substantial in relation to the current traffic load and capacity of the street system. During construction, emergency vehicle access to the WWTP will be maintained. Impacts to the local transportation system during construction are expected to be minimized through the application of standardized traffic control measures. Further analysis of transportation-related impacts will be provided in the EIR.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. 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 storm water 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 are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which 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?	☐	☐	☐	☒

Threshold and Conclusion:

Item 16a: A significant impact would result if the Project resulted in violation of requirements established by the Regional Water Quality Control Board. With regard to this issue, the Project would have **no impact**.

Item 16b: A significant impact would result if the Project adversely affected the environment due to construction of existing or new water or wastewater treatment facilities that would cause significant adverse impacts. With regard to this issue, the Project would have **no impact**.

Item 16c: A significant impact would result if the Project required construction of new storm-drain facilities that would cause significant adverse impacts. With regard to this issue, the Project would have **no impact**.

Item 16d: A significant impact would result if the Project demands a water supply that is unavailable from existing entitlements and resources. With regard to this issue, the Project would have **no impact**.

Item 16e: A significant impact would occur if the Project results in a determination by the wastewater treatment provider that it has inadequate capacity. With regard to this issue, the Project would have **no impact**.

Item 16f: A significant impact would result if the Project creates a disposal need that cannot be accommodated by a landfill. With regard to this issue, the Project would have a **less than significant impact**.

Item 16g: A significant impact would result if the Project is unable to comply with federal, state and local statutes and regulations related to solid waste. With regard to this issue, the Project would have **no impact**.

Analysis:

The purpose and intent of the Project is to comply with waste discharge requirements established by the Regional Water Quality Control Board. New drainage infrastructure would be constructed in accordance with City regulations. The Project will comply with federal, state, and local statutes and regulations related to solid waste. Further analysis of these issues will be provided in the EIR.

Section IV
MANDATORY FINDINGS OF SIGNIFICANCE

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulative considerable? ("Cumulative 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 which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Threshold and Conclusion:

Item a) The Project does not have the potential to degrade the quality of the environment by reducing habitat, threatening to eliminate any plant or animal community, or eliminating important examples of California history or prehistory. With regard to this issue, the Project would have a **less than significant impact with mitigation incorporation**.

Item b) The Project could potentially contribute incremental effects that would be cumulatively considerable when considered in combination with other past, present, or foreseeable future projects. With regard to this issue, the Project would have a **potentially significant impact**.

Item c) The Project would not result in environmental impacts that would have a direct or indirect adverse effect on human beings. With regard to this issue, the Project would have **no impact**.

Analysis:

The Project could degrade the quality of the environment by reducing habitat, threatening to eliminate any plant or animal community, or eliminating important examples of California history or prehistory. Further analysis and discussion of these issues will be provided in the EIR. However, it is anticipated, that the installation of new treatment facilities and state-of-the-art technologies at the WWTP will

enhance the wastewater treatment system and provide sufficient capacity to avoid system upsets that may otherwise occur. This improvement will, in turn, potentially improve effluent quality.

The Project could potentially contribute to incremental effects that would be cumulatively considerable when considered in combination with other past, present, or foreseeable future projects. The Project's cumulative effects to air quality and important farmlands and its contribution to potential growth-inducing effects will be evaluated in the EIR.

The Project will not result in environmental impacts that would have a direct or indirect adverse effect on human beings. Further analysis of this issue will be provided in the EIR.

Appendix B
Written Comments Received on the NOP

ESA

103014

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

Notice of Preparation

October 31, 2005

To: Reviewing Agencies

Re: Wastewater Treatment Plant Expansion Project
SCH# 2005101135

Attached for your review and comment is the Notice of Preparation (NOP) for the Wastewater Treatment Plant Expansion Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

David Tucker
City of Merced
678 W. 18th Street
Merced, CA 95340

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Associate Planner, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2005101135
Project Title Wastewater Treatment Plant Expansion Project
Lead Agency Merced, City of

Type NOP Notice of Preparation

Description The City of Merced is proposing to upgrade and expand the capacity of its WWTP facilities to serve planned wastewater loads generated within the City and to comply with current and anticipated effluent quality regulatory limits.

Lead Agency Contact

Name David Tucker
Agency City of Merced
Phone (209) 385-6846 **Fax**
email
Address 678 W. 18th Street
City Merced **State** CA **Zip** 95340

Project Location

County Merced
City Merced
Region
Cross Streets Gove Road
Parcel No. Multiple
Township 8 **Range** 13 **Section** **Base** MDB&M

Proximity to:

Highways 99
Airports Merced Municipal
Railways
Waterways Hartley Slough
Schools
Land Use Public / Agriculture

Project Issues Agricultural Land; Biological Resources; Flood Plain/Flooding; Growth Inducing

Reviewing Agencies Resources Agency; Department of Conservation; Department of Water Resources; Department of Parks and Recreation; Native American Heritage Commission; Department of Health Services; Department of Fish and Game, Region 4; California Highway Patrol; Caltrans, Division of Aeronautics; State Lands Commission; Caltrans, District 10; Integrated Waste Management Board; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Bd., Region 5 (Fresno)

Date Received 10/28/2005 **Start of Review** 10/28/2005 **End of Review** 11/28/2005

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Merced **SCH#** [illegible]

Resources Agency

- [x] **Resources Agency** Nadell Gayou
- [ ] **Dept. of Boating & Waterways** David Johnson
- [ ] **California Coastal Commission** Elizabeth A. Fuchs
- [ ] **Colorado River Board** Gerald R. Zimmerman
- [x] **Dept. of Conservation** Roseanne Taylor
- [ ] **California Energy Commission** Roger Johnson
- [ ] **Dept. of Forestry & Fire Protection** Allen Robertson
- [ ] **Office of Historic Preservation** Wayne Donaldson
- [x] **Dept of Parks & Recreation** Environmental Stewardship Section
- [ ] **Reclamation Board** DeeDee Jones
- [ ] **S.F. Bay Conservation & Dev't. Comm.** Steve McAdam
- [x] **Dept. of Water Resources** Resources Agency Nadell Gayou
- [ ] _____ Conservancy

Fish and Game

- [ ] **Depart. of Fish & Game** Scott Flint Environmental Services Division
- [ ] **Fish & Game Region 1** Donald Koch
- [ ] **Fish & Game Region 2** Banky Curtis
- [ ] **Fish & Game Region 3** Robert Floerke
- [x] **Fish & Game Region 4** Mike Mulligan
- [ ] **Fish & Game Region 5** Don Chadwick Habitat Conservation Program
- [ ] **Fish & Game Region 6** Gabrina Gatchel Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M** Tammy Allen Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M** George Isaac Marine Region

Other Departments

- [ ] **Food & Agriculture** Steve Shaffer Dept. of Food and Agriculture
- [ ] **Depart. of General Services** Public School Construction
- [ ] **Dept. of General Services** Robert Sleppy Environmental Services Section
- [x] **Dept. of Health Services** Veronica Rameriz Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission** Debby Eddy
- [ ] **Office of Emergency Services** Dennis Castrillo
- [ ] **Governor's Office of Planning & Research** State Clearinghouse
- [x] **Native American Heritage Comm.** Debbie Treadway
- [ ] **Public Utilities Commission** Ken Lewis
- [x] **State Lands Commission** Jean Sarino
- [ ] **Tahoe Regional Planning Agency (TRPA)** Cherry Jacques

Business, Trans & Housing

- [x] **Caltrans - Division of Aeronautics** Sandy Hesnard
- [ ] **Caltrans - Planning** Terri Pencovic
- [x] **California Highway Patrol** John Olejnik Office of Special Projects
- [ ] **Housing & Community Development** Lisa Nichols Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1** Rex Jackman
- [ ] **Caltrans, District 2** Marcelino Gonzalez
- [ ] **Caltrans, District 3** Katherine Eastham
- [ ] **Caltrans, District 4** Tim Sable
- [ ] **Caltrans, District 5** David Murray
- [ ] **Caltrans, District 6** Marc Birnbaum
- [ ] **Caltrans, District 7** Cheryl J. Powell
- [ ] **Caltrans, District 8** Dan Kopulsky
- [ ] **Caltrans, District 9** Gayle Rosander
- [x] **Caltrans, District 10** Tom Dumas
- [ ] **Caltrans, District 11** Mario Orso
- [ ] **Caltrans, District 12** Bob Joseph

Cal EPA

Air Resources Board

- [ ] Airport Projects Jim Lerner
- [ ] Transportation Projects Kurt Karperos
- [ ] Industrial Projects Mike Tollstrup
- [x] **California Integrated Waste Management Board** Sue O'Leary
- [x] **State Water Resources Control Board** Jim Hockenberry Division of Financial Assistance
- [ ] **State Water Resources Control Board** Student Intern, 401 Water Quality Certification Unit Division of Water Quality
- [ ] **State Water Resouces Control Board** Steven Herrera Division of Water Rights
- [ ] **Dept. of Toxic Substances Control** CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1** Cathleen Hudson North Coast Region (1)
- [ ] **RWQCB 2** Environmental Document Coordinator San Francisco Bay Region (2)
- [ ] **RWQCB 3** Central Coast Region (3)
- [ ] **RWQCB 4** Jonathan Bishop Los Angeles Region (4)
- [ ] **RWQCB 5S** Central Valley Region (5)
  - [x] **RWQCB 5F** Central Valley Region (5) Fresno Branch Office
  - [ ] **RWQCB 5R** Central Valley Region (5) Redding Branch Office
- [ ] **RWQCB 6** Lahontan Region (6)
  - [ ] **RWQCB 6V** Lahontan Region (6) Victorville Branch Office
- [ ] **RWQCB 7** Colorado River Basin Region (7)
- [ ] **RWQCB 8** Santa Ana Region (8)
- [ ] **RWQCB 9** San Diego Region (9)

- [ ] **Other** _____

Last Updated on 08/10/05

MERCED IRRIGATION DISTRICT

November 8, 2005

Bill King, Principal Planner
City Of Merced
678 West 18th Street
Merced, California 95340

Subject: Merced Waste Water Treatment Plant Expansion Project

Dear Mr. King:

The Merced Irrigation District (MID) has reviewed the above referenced applications and offers the following comments:

1. MID operates and maintains the Hartley Slough located within an undetermined width easement as recorded in Volume 181, Official Records, Page 147 and Volume 199, Official Records, Page 75, Merced County Records. This facility mostly parallels the west boundary of the subject property.

2. MID operates and maintains the Paden Drain located within a prescriptive easement. This facility parallels the north side of the project site. This drain was physically relocated by the landowner without prior notification to MID. The 70-foot wide easement where the drain was located is still in place and may be impacted by the expansion.

3. MID operates and maintains Miles Creek located within a 70-foot wide easement as recorded in Volume 216, Official Records, Page 379, Merced County Records. This facility is located at the south line of Section 10 of the subject property.

4. MID operates and maintains the Hartley Lateral located within a 40-foot wide easement through the project site and a 60-foot wide easement just north of the project site as recorded in Volume 181, Official Records, Page 147 and Volume 765, Official Records, Page 200, respectively, Merced County Records. This facility mostly parallels the Hartley Slough on the south side thereof.

5. MID operates and maintains an underground electrical line within a 15-foot wide easement that serves power to the City of Merced WWTF. This line enters the sewer plant from the north.

744 West 20th Street P.O. BOX 2288 Merced, California 95344-0288
Administration / Electric Services (209) 722-5761 / FAX (209) 722-6421 / Water Resources Engineering (209) 722-5761 / FAX (209) 726-4176
Finance \ Billing Dept. (209) 722-3041 / FAX (209) 722-1457 / Irrigation Operations (209) 722-2720 / FAX (209) 722-1457

MID respectfully requests that the City require the following, as conditions of approval:

1. Any future crossings over MID facilities will require the City and MID to execute a "Joint Use Agreement".

2. If the expansion involves the relocation of any MID facilities, MID would ask for an appropriate width deeded easement from the City pertaining to any relocated facilities.

3. A signature block will be provided for MID on all Improvement Plans.

4. A "Construction Agreement" between the City and the MID shall be executed for any work associated with MID facilities.

Thank you for the opportunity to comment on the above referenced application. If you have any questions, please contact me at 722-5761.

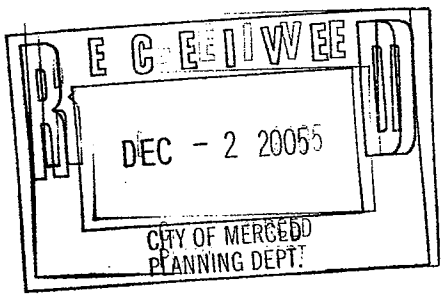
Sincerely,

Rory Randol
Facilities Specialist

cc: Garith Krause, General Manager
Ted Selb, Deputy General Manager
Robert Acker, Director of Facilities and Streams
Hicham ElTal, Assistant General Manager - Water Resources Engineering
Ron Price, Associate Engineer - Water Resources
Tim Wendt - Electrical Services

Merced County
Farm Bureau

December 2, 2005



City of Merced
Bill King
Principal Planner
678 West 18th Street
Merced, CA 95340

Re: Notice of Preparation of a Draft EIR for the Wastewater Treatment Plant

Dear Bill:

Thank you for the opportunity to review the Notice of Preparation of a Draft EIR on the expansion of the existing wastewater treatment plant.

Comments:

- Consider mitigation for the conversion of ag land.
- Analyze the growth impacts that the expansion will provide and what is already committed with annexations and projects in the pipeline. With more growth, the pavement expands covering more land inhibiting recharge possibilities. You use more water and have more discharge. While agricultural production uses water it is producing a product which is than put into the economic system. It also offers recharge to our underground aquifers in the process. Housing development in-particular is a resource user and producer of waste that is costly to process.
- Study the impacts of the sludge on land and discharge that will be put into the creeks adjacent to the treatment plant. The East San Joaquin Water Quality Coalition's main impact during their sampling season last year and this year has been e-coli. The source has not been identified but Duck Slough and Dutchman's Creek at Gurr Road have issues. I will forward you the Summary Annual Report 2005.

Please keep the Merced County Farm Bureau informed of this project.

Sincerely,

Diana Westmoreland Pedrozo

Diana Westmoreland Pedrozo
Executive Director
209-723-3001 office
209-564-2686 cell
209-722-3814 fax
mcfb@pacbell.net

Community Systems Associates, Inc.
"the leader in facilitating community facilities consensus"
3367 Corte Levanto, Costa Mesa, California 92626
(714) 838-9900 (714) 838-9998 fax
ecommunitysys@earthlink.net

December 6, 2005

Mr. Bill King
Merced Planning & Permitting Division
City of Merced
678 West 18th Street
Merced, California 95340

Subject: **Comments of the Weaver Union School District**

City of Merced Wastewater Treatment Plant Expansion
Notice of Preparation of a Draft EIR
Initial Study

Dear Mr. King;

This letter is submitted by Community Systems Associates, Inc. on behalf of the Weaver Union School District ("WUSD"), and is presented as the formal position of the District on the project as described herein. Community Systems Associates, Inc. is the retained consultant of the Weaver Union School District and this letter has been authorized to be presented to the City of Merced.

The District is in receipt of the City of Merced ("City") Notice of Preparation of a Draft Environmental Impact Report ("DEIR") and the accompanying Initial Study ("Initial Study") dated November 4, 2005 with regards to the proposed City of Merced Wastewater Treatment Plan ("Proposal") consisting of the expansion of the current facility from 10 mgd of secondary treated effluent to 20 mgd ("Project"). The Project is located at the current facilities on 11.3 acres approximately 1.5 miles south of the City limits.

The Notice requests the District's comments relative to the preparation of a DEIR as required by CEQA. The District is a responsible and affected agency that will be impacted by the development of the Project. The District has been invited by the City to offer comments with regards to the environmental review of the Project between November 7, 2005 and December 7, 2005.

This letter is intended to address the Proposal, and is further intended to present the District's comments with regards to the impacts of the Proposal and the subsequent

development of the Project on the District, in order to protect the administrative and legal remedies of the District.

The District is not opposed to growth and development of the City, the community, and the District. However, the District does have the fiduciary responsibility and obligation to protect the interest of the constituents, students, and employees of the District from the consequences of project-specific and cumulative growth and the capability of the District to address these consequences in a viable manner without placing an unreasonable financial and physical burden on the community. To this end, the District is obligated and has committed to pursue all administrative and legal remedies. An aspect of pursuing its administrative remedies is to seek through the City's informal and informal processes, the cooperation and partnership with the City and local decision-makers.

The District remains committed to their intent to seek a cooperative, coordinated, and collaborative dialogue with the City of Merced.

The District has recently taken a strong stand with regards to the mitigation of impacts caused by ALL new development within the territory of the District. To this end, the District now is actively participating in the entitlement process of all development applications and related proposals and documentation as presented before the Planning Commission and City Council of the City of Merced, the Board of Supervisors of the County of Merced, and the Local Agency Formation Commission of the County of Merced, and intends to offer written and oral testimony as to the impacts of such similar proposals on the District.

The District requests that the City conduct a comprehensive review of the Project and provide the qualitative and quantitative analysis of the project-specific and cumulative effects the Project will have on the District. To this end, the District would ask that the Initial Study be prepared in compliance with the California Environmental Quality Act ("CEQA"), the CEQA Guidelines, and the City of Merced environmental guidelines and be distributed for review. Of critical importance is the growth inducing consequences of the Project on the District.

The District believes that its comments are warranted with regards to this Project due to the fact that the Project is a "growth inducing" activity initiated by the City and in light of the evidence that has been previously provided by the District that there are inadequate school facilities to accommodate the unprecedented growth that the City has previously and continues to approve.

The District has previously provided the City with evidence that it is and will continue to be overcrowded. Overcrowded schools have a variety of the consequences, which include but are not limited to:

1) Deteriorated educational relationships between students and teachers resulting in reduced test scores;

2) Student emotional, social and psychological problems in the classroom, in the yards, and in the community;

3) Lower moral on the part of the teachers and employees and a lack of trust and confidence by the parents;

4) Inability to conduct some activities due to physical limitations or results in having to change normal operations of the school to abnormal operations;

5) Increased traffic and circulation problems around schools and increased bussing throughout the community;

6) Bussing results in the need for the District to spend educational funds on busses, bus operations, and bus drivers; and

7) The need to re-direct general funds revenues needed for salaries and employee benefits, and operational and administrative changes that are inefficient.

All of these are considered environmental impacts under CEQA and the CEQA Guidelines.

The Initial Study states:

> "The expansion of the WWTP is not anticipated to directly increase the need for public services, governmental facilities, or resources, not would it generate an additional demands for public services that would require new or altered facilities, including police, and fire protection. Further analysis of these issues will be presented in the EIR; however, it is anticipated that no impacts would occur."

The District notes that the City has suggested that the Project will not have a "direct" impact on public facilities and services, including schools. However, the District would suggest that the Project is growth inducing in that the Project is necessary for growth to continue beyond the current capacity of the wastewater treatment facility. This is substantiated by the statements set forth in the Initial Study.

The CEQA Guidelines define an environmental "effect" as follows:

> "15358. Effects
>
> Effects" and "impacts" as used in these Guidelines are synonymous.

(a) Effects include:

1) Direct or primary effects which are caused by the project and occur at the same time and place.

(2) Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects 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.

(b) Effects analyzed under CEQA must be related to a physical change."

The Guidelines go on to state under the discussion of effect:

"Discussion: Confusion has arisen in interpreting CEQA because the law uses the terms "effects" and "impacts" without making clear whether the words have different or identical meanings. This section is intended to eliminate that confusion and to use the federal definition of the term from the NEPA regulations to the extent that the statutes are similar. Subsection (a) is identical to part of Section 1508.8 in the NEPA regulations, but subsection (b) is different because CEQA is more focused on physical changes than is NEPA."

The District suggest that the Project includes "growth-inducing effects" 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". These growth inducing effects will indirectly impact the District through additional students requiring school facilities beyond those currently provided by the District.

Section 15126 of the Guidelines states:

"15126. Consideration and Discussion of Environmental Impacts

All phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation. The subjects listed below shall be discussed as directed in Sections 15126.2, 15126.4 and 15126.6, preferably in separate sections or paragraphs of the EIR. If they are not discussed separately, the EIR shall include a table showing where each of the subjects is discussed.

(a) Significant Environmental Effects of the Proposed Project.

(b) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented.

(c) Significant Irreversible Environmental Changes Which Would be Involved in the Proposed Project Should it be Implemented.

(d) Growth-Inducing Impact of the Proposed Project. (emphasis added)

(e) The Mitigation Measures Proposed to Minimize the Significant Effects.

(f) Alternatives to the Proposed Project.

Section 15126.2 of the CEQA Guidelines sets for the provisions with regards to the consideration and discussion of significant environmental impacts, and states:

> "(a) The Significant Environmental Effects of the Proposed Project. An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected. For example, an EIR on a subdivision astride an active fault line should identify as a significant effect the seismic hazard to future occupants of the subdivision. The subdivision would have the effect of attracting people to the location and exposing them to the hazards found there.

(b) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented. Describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.

(c) Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented. 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.

(d) Growth-Inducing Impact of the Proposed Project. Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. (emphasis added)

The discussion under this section states:

"Discussion: This section describes how an EIR must identify and focus on the significant environmental effects, unavoidable significant environmental effects, significant irreversible environmental changes, and **growth-inducing impacts which may result from a project**. Subsection (a) reiterates the baseline discussion contained in section 15125. Subsection (d), discussing growth-inducing impacts, clarifies that the construction of new facilities may be important because that construction itself may have significant effects." (emphasis added)

The CEQA Guidelines are clear that the explanation of growth inducing impacts is a significant issue to discuss in an EIR.

The District would suggest that the finding that the Proposal could not have a significant effect on the environment can not be supported by the contents of this letter with regards to school impacts. The District would suggest that there are potentially significant impacts on the District, the facilities of the District, and the students, employees, and constituents of the District resulting from the growth inducing factors of the Project. As such, there is at least one potentially significant impact and therefore an EIR should be required. It is the District's conclusion that an Environmental Impact Report should be required to fulfill the intent and requirements of CEQA and the CEQA Guidelines, and that the DEIR should provide a comprehensive discussion of the growth inducing impacts of the Project.

The District suggests that the Proposal is required to be in compliance with the City of Merced Vision 2015 General Plan ("General Plan"). The latest version of the General Plan was adopted by the Merced City Council on April 7, 1997. The General Plan Goals Policies and Implementation Actions as contained in the originally adopted General Plan have not been amended since 1997. The General Plan does contain Appendix A which sets forth General Plan Amendments approved by the City since April 1997. Although an Updated Housing Element was adopted on December 15, 2003 and minor text revisions to the Housing Element on June 21, 2004, there does not appear to be any other amendments to the various elements of the General Plan. Therefore, all projects and proposals relating to the development of the Community are required to comply and conform to the language as set forth in the City's General Plan date April 1997, as amended.

The concept of consistency is used regularly throughout State statues in order to ensure that decision-making by local agencies are congruent with the planning and policy guides of the local jurisdictions. As stated in the General Plan, "The General Plan shall be utilized as a whole. One section is not to be used at the expense of others, but all of them shall be used together, with flexibility. Employed in this way, the General Plan becomes a powerful tool for ensuring consistency of City actions, while remaining responsive to he changing needs of the times. When optional elements are added to the general plan, they have the same status as a mandated element, and no single chapter or subject supersedes the other."

Therefore, the Project needs to be in compliance with ALL goals, policies, and implementation actions, together with the land use map and the other chapters of the General Plan for it to be found to be consistent with the General Plan. The District would suggest that the Project and the EIR needs to provide adequate evidence to support this finding of consistency.

The District suggests that the analysis of the Project consider in full and complete detail the Project's consistency with the Goals, Policies, and Implementation Programs as set forth herein and as further contained in the General Plan as they relate to growth inducing impact of the Project on school facility issues and other issues such as noise, traffic, other infrastructure, etc.

The EIR prepared on the Project should provide the data and qualitative and quantitative analysis that provides evidence that the Project complies with the Goals, Policies, and Implementation Programs that are set forth in the General Plan. To make findings of General Plan consistency and not set forth the data and qualitative and quantitative analysis would be in violation of the provisions of CEQA and the CEQA Guidelines and would further be in violation of the other Planning and Zoning Laws of the State of California and the City.

The District acknowledges that SB 50 may constrain the ability of the City of Merced to address the District's school facility issues. However, the City has a responsibility to serve the Community in a way that protects their interests. One way to attain this is to insure that all applications, all projects, all proposals, and all applicants fully and complete comply with any and all provisions of local and State laws. The second is to consider those areas within and outside of SB 50 that permits the City to take a more proactive and assertive roles in addressing public facilities and services.

SB 50 was adopted in August 1998 by the California State Legislature as a result of lobbying efforts of the California Building Industry Association ("CBIA") to limit and constrain school districts from taking their previous actions to seek full mitigation of school impacts pursuant to applicable laws and to deny the right of local decisions-makers to not approve certain projects due to the impacts that they might cause. This was "eleventh-hour" legislation that came as a result of compromises between the CBIA and a limited number of Districts which were then suggested to represent the State-wide school community interests. It was also a compromise by those school districts to get what they wanted, which was a significant State-wide bond issue. Many of the Districts affected by growth today were not even a part of this so called "State-wide school community".

The legislation was an attempt to create a theoretical "three-legged stool" of financing with the State through State Bond fund grants providing one-third, the development community through statutory development fees providing one-third, and the local community through local financing techniques providing one-third. Although this was not stated in the legislation, this was the apparent intent of the legislation. Today, school districts know that the intent did not come to fruition.

The system was and is flawed. First, it anticipated that local communities could and would approve ballot measures or fund other local revenue sources to finance their portion of the one-third. Because of bonding capacity limitations, lack of voter approvals

to support existing communities subsidizing new residential developments, and the overall lack of voter approval of local bond measures, the one-third financing has not materialized in many school districts and communities. Second, the statutory development fee was based on a theoretical cost of school facilities which was the equal in all school districts and jurisdictions throughout the State. It did not acknowledge 1) the differences in costs of school construction from one location to another; 2) the differences in the cost of land or the increasing value of land in one location over another; and 3) the differences in design and development standards from school district to school district. In essence, it established a consistent and constant statutory development fee without considering the differences from community to community. Third, it did not contemplate that school districts with unprecedented growth would have different needs then areas that were growing at much slower rates, or the socio-economic difference of communities and the implications that this would have as communities transformed as a result of new development and growth reaching out to them. Finally, it did not contemplate the need for interim facilities and District-wide support facilities that would be required as a result of increasing student enrollments.

As time has run its course since 1998, these flaws have created wider gaps in the funding of schools. The State's share, except for inflationary adjustments has generally remained constant. The statutory development fee share, except for inflationary adjustments has generally remained constant. So, the gap has increased in the local share portion. The burden has become greater at the local share level. And, the Districts with the greatest consequences are the Districts that have the least resources to address the gap.

So regardless of the theoretical financial model and legal statutes of SB 50, the actual implementation and the real world financial parameters have proven that SB 50 has failed. Even the State of California Legislative Analysts Office has acknowledged this situation. But even with this failure and it being knowledge by the development community and local legislative decision-makers, SB 50 continues to be the position that developers and local decision-makers fall back on.

The development community suggests that the issues school districts raise with regards to the limitation of SB 50 needs to be addressed in the State legislature and through the Governors Office. Local decision-makers within cities and counties suggest the same. However, it is the same development community and CBIA representatives who suggest that SB 50 is sacred and that they will lobby against such changes. This has been seen in the political arena for many years and is continuing today. And, it is the same local decision-makers who do not want to get in the middle between the development community and the school districts for fear of the political consequences that may be brought upon them by the development community.

So, the District acknowledges the following which sets forth applicable provisions of SB 50. And, the District suggests that SB 50 does not serve the District or the Community,

and that the City needs to take the initiative to look at what it can do legally to address the consequences of unprecedented growth without adequate measures to address the school district and student enrollment consequences. Failure to do so would fly in the face of the responsibilities and obligations of the City to protect the public services and facilities of the Community. One such measure would be to establish growth management policies and requirements with regards to the approval of projects which would benefit from the expansion of the Wastewater Treatment Plan.

The provisions of SB 50 and/or the California Environmental Quality Act do not prevent the City from offering a transparent presentation of the specific school facility and financial impacts on the District, or the cumulative and growth inducing impacts the Project along with other developments within the District would have on the District's school facilities.

The District offers the following findings with regards to the Project:

1. School facilities and public services offered by the District will not adequately be available to the area to which the Project applies, and can not be provided in an efficient and orderly manner in accordance with the planning, financing, development, and operational policies and requirements of the District.

2. School facilities and services currently offered by the District are inadequate District-wide because of the current over-crowding of the District and the lack of adequate facilities to accommodate projected and proposed enrollments. The Project sets forth no adequate financial plan which sets forth the resources and implementation provisions to support the finding that adequate school facilities for both existing and proposed land uses within the Community will be available to accommodate the student generated by the growth inducting effects of the Project.

3. The City of Merced has no plan of services that demonstrates that needed public services and facilities will be available for the growth inducing effects of the Project, including sufficient revenue sources for those facilities and services.

4. City of Merced has provided no qualitative or quantitative analysis which substantiates that school facility financial resources and implementation provisions provided by the City of the District will address the growth inducing effects of the Project.

It is the finding of the District that an EIR with detailed discussion of the growth inducing effects on the District needs to be prepared to comply with CEQA or the CEQA

Guidelines and needs to provide a full and complete disclosure of the Project and the mitigated and unmitigated impacts of the Project on the District. In addition, the findings and conclusions in the EIR need to be supported by factual quantitative and qualitative analysis based on data offered by the District or obtained by the City.

Based on the data, analysis and comments contained herein, the District finds that the Project will have project-specific and cumulative significant unmitigated impact on the District that will adversely affect the community directly resulting from the growth inducing effects of the Project on the Community. This will result in the need for the District to consider the possible implementation of operational and administrative measures, including but not limited to 1) busing of student outside the Community; 2) placing the Community schools on a year-round calendar or double session calendar; 3) loading classrooms and current schools in excess of State and District standards; and/or 4) reducing the quality of school construction and development to standards lower then acceptable to the District and the Community. These consequences will have further additional consequences on the quality of education offered to the students within the District. These operational and administrative measures and their direct and indirect consequences should be evaluated and fully disclosed in an EIR on the Project.

It is recommended that the City has the legal responsibility and obligation to disclose such conclusions to the Community through the decision-making process and the review of environmental documentation. Although legally, the City may be limited as to the mitigation measures that can be applied to address the impacts caused by the Project on the District, SB 50 does not limit or preclude the requirements of CEQA that a full and complete disclosure of the impacts of the Project be offered in an EIR and that the unmitigated impacts and subsequently the direct and indirect consequences be identified. This level of transparency is necessary in the decision-making process and provides the Community and the decision-makers with full disclosures. In addition, their may be other provisions of law which require full and complete disclosure following the approvals of the Project and which may be appropriately considered in the decision-making process.

The District would request that Draft EIR be prepared to a level of detail that would fully and completely disclose the project specific and cumulative impacts, and the growth inducing effects of the Project on the District. The District looks forward to reviewing the contents of the forthcoming Draft EIR.

Thank you for your support, assistance and consideration.

Sincerely,

Community Systems Associates, Inc.
on behalf of the
Weaver Union School District

Mr. Marshall B. Krupp
President

MBK:mbk
Merced-wastewater treatment plan1206.mbk

Cc: Mr. Steven Becker, Superintendent
Weaver Union School District
3076 East Childs Avenue
Merced, California 95340

Community Systems Associates, Inc.
"the leader in facilitating community facilities consensus"
3367 Corte Levanto, Costa Mesa, California 92626
(714) 838-9900 (714) 838-9998 fax
ecommunitysys@earthlink.net

December 6, 2005

Mr. Bill King
Merced Planning & Permitting Division
City of Merced
678 West 18th Street
Merced, California 95340

Subject: **Comments of the Merced Union High School District**

City of Merced Wastewater Treatment Plant Expansion
Notice of Preparation of a Draft EIR
Initial Study

Dear Mr. King;

This letter is submitted by Community Systems Associates, Inc. on behalf of the Merced Union High School District ("MUHSD"), and is presented as the formal position of the District on the project as described herein. Community Systems Associates, Inc. is the retained consultant of the Merced Union High School District and this letter has been authorized to be presented to the City of Merced.

The District is in receipt of the City of Merced ("City") Notice of Preparation of a Draft Environmental Impact Report ("DEIR") and the accompanying Initial Study ("Initial Study") dated November 4, 2005 with regards to the proposed City of Merced Wastewater Treatment Plan ("Proposal") consisting of the expansion of the current facility from 10 mgd of secondary treated effluent to 20 mgd ("Project"). The Project is located at the current facilities on 11.3 acres approximately 1.5 miles south of the City limits.

The Notice requests the District's comments relative to the preparation of a DEIR as required by CEQA. The District is a responsible and affected agency that will be impacted by the development of the Project. The District has been invited by the City to offer comments with regards to the environmental review of the Project between November 7, 2005 and December 7, 2005.

This letter is intended to address the Proposal, and is further intended to present the District's comments with regards to the impacts of the Proposal and the subsequent

development of the Project on the District, in order to protect the administrative and legal remedies of the District.

The District is not opposed to growth and development of the City, the community, and the District. However, the District does have the fiduciary responsibility and obligation to protect the interest of the constituents, students, and employees of the District from the consequences of project-specific and cumulative growth and the capability of the District to address these consequences in a viable manner without placing an unreasonable financial and physical burden on the community. To this end, the District is obligated and has committed to pursue all administrative and legal remedies. An aspect of pursuing its administrative remedies is to seek through the City's informal and informal processes, the cooperation and partnership with the City and local decision-makers.

The District remains committed to their intent to seek a cooperative, coordinated, and collaborative dialogue with the City of Merced.

The District has recently taken a strong stand with regards to the mitigation of impacts caused by ALL new development within the territory of the District. To this end, the District now is actively participating in the entitlement process of all development applications and related proposals and documentation as presented before the Planning Commissions and City Councils of the Cities of Merced, Atwater, and Livingston, the Board of Supervisors of the County of Merced, and the Local Agency Formation Commission of the County of Merced, and intends to offer written and oral testimony as to the impacts of such similar proposals on the District.

The District requests that the City conduct a comprehensive review of the Project and provide the qualitative and quantitative analysis of the project-specific and cumulative effects the Project will have on the District. To this end, the District would ask that the Initial Study be prepared in compliance with the California Environmental Quality Act ("CEQA"), the CEQA Guidelines, and the City of Merced environmental guidelines and be distributed for review. Of critical importance is the growth inducing consequences of the Project on the District.

The District believes that its comments are warranted with regards to this Project due to the fact that the Project is a "growth inducing" activity initiated by the City and in light of the evidence that has been previously provided by the District that there are inadequate school facilities to accommodate the unprecedented growth that the City has previously and continues to approve.

The District has previously provided the City with evidence that it is and will continue to be overcrowded. Overcrowded schools have a variety of the consequences, which include but are not limited to:

1) Deteriorated educational relationships between students and teachers resulting in reduced test scores;

2) Student emotional, social and psychological problems in the classroom, in the yards, and in the community;

3) Lower moral on the part of the teachers and employees and a lack of trust and confidence by the parents;

4) Inability to conduct some activities due to physical limitations or results in having to change normal operations of the school to abnormal operations;

5) Increased traffic and circulation problems around schools and increased bussing throughout the community;

6) Bussing results in the need for the District to spend educational funds on busses, bus operations, and bus drivers; and

7) The need to re-direct general funds revenues needed for salaries and employee benefits, and operational and administrative changes that are inefficient.

All of these are considered environmental impacts under CEQA and the CEQA Guidelines.

The Initial Study states:

> "The expansion of the WWTP is not anticipated to directly increase the need for public services, governmental facilities, or resources, not would it generate an additional demands for public services that would require new or altered facilities, including police, and fire protection. Further analysis of these issues will be presented in the EIR; however, it is anticipated that no impacts would occur."

The District notes that the City has suggested that the Project will not have a "direct" impact on public facilities and services, including schools. However, the District would suggest that the Project is growth inducing in that the Project is necessary for growth to continue beyond the current capacity of the wastewater treatment facility. This is substantiated by the statements set forth in the Initial Study.

The CEQA Guidelines define an environmental "effect" as follows:

> "15358. Effects
>
> Effects" and "impacts" as used in these Guidelines are synonymous.

(a) Effects include:

1) Direct or primary effects which are caused by the project and occur at the same time and place.

(2) Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects 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.

(b) Effects analyzed under CEQA must be related to a physical change."

The Guidelines go on to state under the discussion of effect:

"Discussion: Confusion has arisen in interpreting CEQA because the law uses the terms "effects" and "impacts" without making clear whether the words have different or identical meanings. This section is intended to eliminate that confusion and to use the federal definition of the term from the NEPA regulations to the extent that the statutes are similar. Subsection (a) is identical to part of Section 1508.8 in the NEPA regulations, but subsection (b) is different because CEQA is more focused on physical changes than is NEPA."

The District suggest that the Project includes "growth-inducing effects" 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". These growth inducing effects will indirectly impact the District through additional students requiring school facilities beyond those currently provided by the District.

Section 15126 of the Guidelines states:

"15126. Consideration and Discussion of Environmental Impacts

All phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation. The subjects listed below shall be discussed as directed in Sections 15126.2, 15126.4 and 15126.6, preferably in separate sections or paragraphs of the EIR. If they are not discussed separately, the EIR shall include a table showing where each of the subjects is discussed.

(a) Significant Environmental Effects of the Proposed Project.

(b) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented.

(c) Significant Irreversible Environmental Changes Which Would be Involved in the Proposed Project Should it be Implemented.

(d) Growth-Inducing Impact of the Proposed Project. (emphasis added)

(e) The Mitigation Measures Proposed to Minimize the Significant Effects.

(f) Alternatives to the Proposed Project.

Section 15126.2 of the CEQA Guidelines sets for the provisions with regards to the consideration and discussion of significant environmental impacts, and states:

> "(a) The Significant Environmental Effects of the Proposed Project. An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected. For example, an EIR on a subdivision astride an active fault line should identify as a significant effect the seismic hazard to future occupants of the subdivision. The subdivision would have the effect of attracting people to the location and exposing them to the hazards found there.

(b) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented. Describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.

(c) Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented. 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.

(d) Growth-Inducing Impact of the Proposed Project. Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. (emphasis added)

The discussion under this section states:

"Discussion: This section describes how an EIR must identify and focus on the significant environmental effects, unavoidable significant environmental effects, significant irreversible environmental changes, and **growth-inducing impacts which may result from a project**. Subsection (a) reiterates the baseline discussion contained in section 15125. Subsection (d), discussing growth-inducing impacts, clarifies that the construction of new facilities may be important because that construction itself may have significant effects." (emphasis added)

The CEQA Guidelines are clear that the explanation of growth inducing impacts is a significant issue to discuss in an EIR.

The District would suggest that the finding that the Proposal could not have a significant effect on the environment can not be supported by the contents of this letter with regards to school impacts. The District would suggest that there are potentially significant impacts on the District, the facilities of the District, and the students, employees, and constituents of the District resulting from the growth inducing factors of the Project. As such, there is at least one potentially significant impact and therefore an EIR should be required. It is the District's conclusion that an Environmental Impact Report should be required to fulfill the intent and requirements of CEQA and the CEQA Guidelines, and that the DEIR should provide a comprehensive discussion of the growth inducing impacts of the Project.

The District suggests that the Proposal is required to be in compliance with the City of Merced Vision 2015 General Plan ("General Plan"). The latest version of the General Plan was adopted by the Merced City Council on April 7, 1997. The General Plan Goals Policies and Implementation Actions as contained in the originally adopted General Plan have not been amended since 1997. The General Plan does contain Appendix A which sets forth General Plan Amendments approved by the City since April 1997. Although an Updated Housing Element was adopted on December 15, 2003 and minor text revisions to the Housing Element on June 21, 2004, there does not appear to be any other amendments to the various elements of the General Plan. Therefore, all projects and proposals relating to the development of the Community are required to comply and conform to the language as set forth in the City's General Plan date April 1997, as amended.

The concept of consistency is used regularly throughout State statues in order to ensure that decision-making by local agencies are congruent with the planning and policy guides of the local jurisdictions. As stated in the General Plan, "The General Plan shall be utilized as a whole. One section is not to be used at the expense of others, but all of them shall be used together, with flexibility. Employed in this way, the General Plan becomes a powerful tool for ensuring consistency of City actions, while remaining responsive to he changing needs of the times. When optional elements are added to the general plan, they have the same status as a mandated element, and no single chapter or subject supersedes the other."

Therefore, the Project needs to be in compliance with ALL goals, policies, and implementation actions, together with the land use map and the other chapters of the General Plan for it to be found to be consistent with the General Plan. The District would suggest that the Project and the EIR needs to provide adequate evidence to support this finding of consistency.

The District suggests that the analysis of the Project consider in full and complete detail the Project's consistency with the Goals, Policies, and Implementation Programs as set forth herein and as further contained in the General Plan as they relate to growth inducing impact of the Project on school facility issues and other issues such as noise, traffic, other infrastructure, etc.

The EIR prepared on the Project should provide the data and qualitative and quantitative analysis that provides evidence that the Project complies with the Goals, Policies, and Implementation Programs that are set forth in the General Plan. To make findings of General Plan consistency and not set forth the data and qualitative and quantitative analysis would be in violation of the provisions of CEQA and the CEQA Guidelines and would further be in violation of the other Planning and Zoning Laws of the State of California and the City.

The District acknowledges that SB 50 may constrain the ability of the City of Merced to address the District's school facility issues. However, the City has a responsibility to serve the Community in a way that protects their interests. One way to attain this is to insure that all applications, all projects, all proposals, and all applicants fully and complete comply with any and all provisions of local and State laws. The second is to consider those areas within and outside of SB 50 that permits the City to take a more proactive and assertive roles in addressing public facilities and services.

SB 50 was adopted in August 1998 by the California State Legislature as a result of lobbying efforts of the California Building Industry Association ("CBIA") to limit and constrain school districts from taking their previous actions to seek full mitigation of school impacts pursuant to applicable laws and to deny the right of local decisions-makers to not approve certain projects due to the impacts that they might cause. This was "eleventh-hour" legislation that came as a result of compromises between the CBIA and a limited number of Districts which were then suggested to represent the State-wide school community interests. It was also a compromise by those school districts to get what they wanted, which was a significant State-wide bond issue. Many of the Districts affected by growth today were not even a part of this so called "State-wide school community".

The legislation was an attempt to create a theoretical "three-legged stool" of financing with the State through State Bond fund grants providing one-third, the development community through statutory development fees providing one-third, and the local community through local financing techniques providing one-third. Although this was not stated in the legislation, this was the apparent intent of the legislation. Today, school districts know that the intent did not come to fruition.

The system was and is flawed. First, it anticipated that local communities could and would approve ballot measures or fund other local revenue sources to finance their portion of the one-third. Because of bonding capacity limitations, lack of voter approvals

to support existing communities subsidizing new residential developments, and the overall lack of voter approval of local bond measures, the one-third financing has not materialized in many school districts and communities. Second, the statutory development fee was based on a theoretical cost of school facilities which was the equal in all school districts and jurisdictions throughout the State. It did not acknowledge 1) the differences in costs of school construction from one location to another; 2) the differences in the cost of land or the increasing value of land in one location over another; and 3) the differences in design and development standards from school district to school district. In essence, it established a consistent and constant statutory development fee without considering the differences from community to community. Third, it did not contemplate that school districts with unprecedented growth would have different needs then areas that were growing at much slower rates, or the socio-economic difference of communities and the implications that this would have as communities transformed as a result of new development and growth reaching out to them. Finally, it did not contemplate the need for interim facilities and District-wide support facilities that would be required as a result of increasing student enrollments.

As time has run its course since 1998, these flaws have created wider gaps in the funding of schools. The State's share, except for inflationary adjustments has generally remained constant. The statutory development fee share, except for inflationary adjustments has generally remained constant. So, the gap has increased in the local share portion. The burden has become greater at the local share level. And, the Districts with the greatest consequences are the Districts that have the least resources to address the gap.

So regardless of the theoretical financial model and legal statutes of SB 50, the actual implementation and the real world financial parameters have proven that SB 50 has failed. Even the State of California Legislative Analysts Office has acknowledged this situation. But even with this failure and it being knowledge by the development community and local legislative decision-makers, SB 50 continues to be the position that developers and local decision-makers fall back on.

The development community suggests that the issues school districts raise with regards to the limitation of SB 50 needs to be addressed in the State legislature and through the Governors Office. Local decision-makers within cities and counties suggest the same. However, it is the same development community and CBIA representatives who suggest that SB 50 is sacred and that they will lobby against such changes. This has been seen in the political arena for many years and is continuing today. And, it is the same local decision-makers who do not want to get in the middle between the development community and the school districts for fear of the political consequences that may be brought upon them by the development community.

So, the District acknowledges the following which sets forth applicable provisions of SB 50. And, the District suggests that SB 50 does not serve the District or the Community,

and that the City needs to take the initiative to look at what it can do legally to address the consequences of unprecedented growth without adequate measures to address the school district and student enrollment consequences. Failure to do so would fly in the face of the responsibilities and obligations of the City to protect the public services and facilities of the Community. One such measure would be to establish growth management policies and requirements with regards to the approval of projects which would benefit from the expansion of the Wastewater Treatment Plan.

The provisions of SB 50 and/or the California Environmental Quality Act do not prevent the City from offering a transparent presentation of the specific school facility and financial impacts on the District, or the cumulative and growth inducing impacts the Project along with other developments within the District would have on the District's school facilities.

The District offers the following findings with regards to the Project:

1. School facilities and public services offered by the District will not adequately be available to the area to which the Project applies, and can not be provided in an efficient and orderly manner in accordance with the planning, financing, development, and operational policies and requirements of the District.

2. School facilities and services currently offered by the District are inadequate District-wide because of the current over-crowding of the District and the lack of adequate facilities to accommodate projected and proposed enrollments. The Project sets forth no adequate financial plan which sets forth the resources and implementation provisions to support the finding that adequate school facilities for both existing and proposed land uses within the Community will be available to accommodate the student generated by the growth inducting effects of the Project.

3. The City of Merced has no plan of services that demonstrates that needed public services and facilities will be available for the growth inducing effects of the Project, including sufficient revenue sources for those facilities and services.

4. City of Merced has provided no qualitative or quantitative analysis which substantiates that school facility financial resources and implementation provisions provided by the City of the District will address the growth inducing effects of the Project.

It is the finding of the District that an EIR with detailed discussion of the growth inducing effects on the District needs to be prepared to comply with CEQA or the CEQA

Guidelines and needs to provide a full and complete disclosure of the Project and the mitigated and unmitigated impacts of the Project on the District. In addition, the findings and conclusions in the EIR need to be supported by factual quantitative and qualitative analysis based on data offered by the District or obtained by the City.

Based on the data, analysis and comments contained herein, the District finds that the Project will have project-specific and cumulative significant unmitigated impact on the District that will adversely affect the community directly resulting from the growth inducing effects of the Project on the Community. This will result in the need for the District to consider the possible implementation of operational and administrative measures, including but not limited to 1) busing of student outside the Community; 2) placing the Community schools on a year-round calendar or double session calendar; 3) loading classrooms and current schools in excess of State and District standards; and/or 4) reducing the quality of school construction and development to standards lower then acceptable to the District and the Community. These consequences will have further additional consequences on the quality of education offered to the students within the District. These operational and administrative measures and their direct and indirect consequences should be evaluated and fully disclosed in an EIR on the Project.

It is recommended that the City has the legal responsibility and obligation to disclose such conclusions to the Community through the decision-making process and the review of environmental documentation. Although legally, the City may be limited as to the mitigation measures that can be applied to address the impacts caused by the Project on the District, SB 50 does not limit or preclude the requirements of CEQA that a full and complete disclosure of the impacts of the Project be offered in an EIR and that the unmitigated impacts and subsequently the direct and indirect consequences be identified. This level of transparency is necessary in the decision-making process and provides the Community and the decision-makers with full disclosures. In addition, their may be other provisions of law which require full and complete disclosure following the approvals of the Project and which may be appropriately considered in the decision-making process.

The District would request that Draft EIR be prepared to a level of detail that would fully and completely disclose the project specific and cumulative impacts, and the growth inducing effects of the Project on the District. The District looks forward to reviewing the contents of the forthcoming Draft EIR.

Thank you for your support, assistance and consideration.

Sincerely,

Community Systems Associates, Inc.
on behalf of the
Merced Union High School District

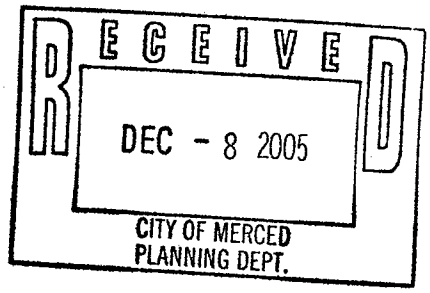
Mr. Marshall B. Krupp
President

MBK:mbk
Merced-wastewater treatment plan11206.mbk

Cc: Dr. Robert Fore, Superintendent
Merced Union High School District
3430 "A" Street
Atwater, California 95301

Community Systems Associates, Inc.
"the leader in facilitating community facilities consensus"
3367 Corte Levanto, Costa Mesa, California 92626
(714) 838-9900 (714) 838-9998 fax
ecommunitysys@earthlink.net

December 6, 2005



Mr. Bill King
Merced Planning & Permitting Division
City of Merced
678 West 18th Street
Merced, California 95340

Subject: **Comments of the Merced City School District**

City of Merced Wastewater Treatment Plant Expansion
Notice of Preparation of a Draft EIR
Initial Study

Dear Mr. King;

This letter is submitted by Community Systems Associates, Inc. on behalf of the Merced City School District ("MCSD"), and is presented as the formal position of the District on the project as described herein. Community Systems Associates, Inc. is the retained consultant of the Merced City School District and this letter has been authorized to be presented to the City of Merced.

The District is in receipt of the City of Merced ("City") Notice of Preparation of a Draft Environmental Impact Report ("DEIR") and the accompanying Initial Study ("Initial Study") dated November 4, 2005 with regards to the proposed City of Merced Wastewater Treatment Plan ("Proposal") consisting of the expansion of the current facility from 10 mgd of secondary treated effluent to 20 mgd ("Project"). The Project is located at the current facilities on 11.3 acres approximately 1.5 miles south of the City limits.

The Notice requests the District's comments relative to the preparation of a DEIR as required by CEQA. The District is a responsible and affected agency that will be impacted by the development of the Project. The District has been invited by the City to offer comments with regards to the environmental review of the Project between November 7, 2005 and December 7, 2005.

This letter is intended to address the Proposal, and is further intended to present the District's comments with regards to the impacts of the Proposal and the subsequent

development of the Project on the District, in order to protect the administrative and legal remedies of the District.

The District is not opposed to growth and development of the City, the community, and the District. However, the District does have the fiduciary responsibility and obligation to protect the interest of the constituents, students, and employees of the District from the consequences of project-specific and cumulative growth and the capability of the District to address these consequences in a viable manner without placing an unreasonable financial and physical burden on the community. To this end, the District is obligated and has committed to pursue all administrative and legal remedies. An aspect of pursuing its administrative remedies is to seek through the City's informal and informal processes, the cooperation and partnership with the City and local decision-makers.

The District remains committed to their intent to seek a cooperative, coordinated, and collaborative dialogue with the City of Merced.

The District has recently taken a strong stand with regards to the mitigation of impacts caused by ALL new development within the territory of the District. To this end, the District now is actively participating in the entitlement process of all development applications and related proposals and documentation as presented before the Planning Commission and City Council of the City of Merced, the Board of Supervisors of the County of Merced, and the Local Agency Formation Commission of the County of Merced, and intends to offer written and oral testimony as to the impacts of such similar proposals on the District.

The District requests that the City conduct a comprehensive review of the Project and provide the qualitative and quantitative analysis of the project-specific and cumulative effects the Project will have on the District. To this end, the District would ask that the Initial Study be prepared in compliance with the California Environmental Quality Act ("CEQA"), the CEQA Guidelines, and the City of Merced environmental guidelines and be distributed for review. Of critical importance is the growth inducing consequences of the Project on the District.

The District believes that its comments are warranted with regards to this Project due to the fact that the Project is a "growth inducing" activity initiated by the City and in light of the evidence that has been previously provided by the District that there are inadequate school facilities to accommodate the unprecedented growth that the City has previously and continues to approve.

The District has previously provided the City with evidence that it is and will continue to be overcrowded. Overcrowded schools have a variety of the consequences, which include but are not limited to:

1) Deteriorated educational relationships between students and teachers resulting in reduced test scores;

2) Student emotional, social and psychological problems in the classroom, in the yards, and in the community;

3) Lower moral on the part of the teachers and employees and a lack of trust and confidence by the parents;

4) Inability to conduct some activities due to physical limitations or results in having to change normal operations of the school to abnormal operations;

5) Increased traffic and circulation problems around schools and increased bussing throughout the community;

6) Bussing results in the need for the District to spend educational funds on busses, bus operations, and bus drivers; and

7) The need to re-direct general funds revenues needed for salaries and employee benefits, and operational and administrative changes that are inefficient.

All of these are considered environmental impacts under CEQA and the CEQA Guidelines.

The Initial Study states:

> "The expansion of the WWTP is not anticipated to directly increase the need for public services, governmental facilities, or resources, not would it generate an additional demands for public services that would require new or altered facilities, including police, and fire protection. Further analysis of these issues will be presented in the EIR; however, it is anticipated that no impacts would occur."

The District notes that the City has suggested that the Project will not have a "direct" impact on public facilities and services, including schools. However, the District would suggest that the Project is growth inducing in that the Project is necessary for growth to continue beyond the current capacity of the wastewater treatment facility. This is substantiated by the statements set forth in the Initial Study.

The CEQA Guidelines define an environmental "effect" as follows:

> "15358. Effects
>
> Effects" and "impacts" as used in these Guidelines are synonymous.

(a) Effects include:

1) Direct or primary effects which are caused by the project and occur at the same time and place.

(2) Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects 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.

(b) Effects analyzed under CEQA must be related to a physical change."

The Guidelines go on to state under the discussion of effect:

"Discussion: Confusion has arisen in interpreting CEQA because the law uses the terms "effects" and "impacts" without making clear whether the words have different or identical meanings. This section is intended to eliminate that confusion and to use the federal definition of the term from the NEPA regulations to the extent that the statutes are similar. Subsection (a) is identical to part of Section 1508.8 in the NEPA regulations, but subsection (b) is different because CEQA is more focused on physical changes than is NEPA."

The District suggest that the Project includes "growth-inducing effects" 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". These growth inducing effects will indirectly impact the District through additional students requiring school facilities beyond those currently provided by the District.

Section 15126 of the Guidelines states:

"15126. Consideration and Discussion of Environmental Impacts

All phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation. The subjects listed below shall be discussed as directed in Sections 15126.2, 15126.4 and 15126.6, preferably in separate sections or paragraphs of the EIR. If they are not discussed separately, the EIR shall include a table showing where each of the subjects is discussed.

(a) Significant Environmental Effects of the Proposed Project.

(b) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented.

(c) Significant Irreversible Environmental Changes Which Would be Involved in the Proposed Project Should it be Implemented.

(d) Growth-Inducing Impact of the Proposed Project. (emphasis added)

(e) The Mitigation Measures Proposed to Minimize the Significant Effects.

(f) Alternatives to the Proposed Project.

Section 15126.2 of the CEQA Guidelines sets for the provisions with regards to the consideration and discussion of significant environmental impacts, and states:

"(a) The Significant Environmental Effects of the Proposed Project. An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected. For example, an EIR on a subdivision astride an active fault line should identify as a significant effect the seismic hazard to future occupants of the subdivision. The subdivision would have the effect of attracting people to the location and exposing them to the hazards found there.

(b) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented. Describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.

(c) Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented. 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.

(d) Growth-Inducing Impact of the Proposed Project. Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. (emphasis added)

The discussion under this section states:

"Discussion: This section describes how an EIR must identify and focus on the significant environmental effects, unavoidable significant environmental effects, significant irreversible environmental changes, and **growth-inducing impacts which may result from a project**. Subsection (a) reiterates the baseline discussion contained in section 15125. Subsection (d), discussing growth-inducing impacts, clarifies that the construction of new facilities may be important because that construction itself may have significant effects." (emphasis added)

The CEQA Guidelines are clear that the explanation of growth inducing impacts is a significant issue to discuss in an EIR.

The District would suggest that the finding that the Proposal could not have a significant effect on the environment can not be supported by the contents of this letter with regards to school impacts. The District would suggest that there are potentially significant impacts on the District, the facilities of the District, and the students, employees, and constituents of the District resulting from the growth inducing factors of the Project. As such, there is at least one potentially significant impact and therefore an EIR should be required. It is the District's conclusion that an Environmental Impact Report should be required to fulfill the intent and requirements of CEQA and the CEQA Guidelines, and that the DEIR should provide a comprehensive discussion of the growth inducing impacts of the Project.

The District suggests that the Proposal is required to be in compliance with the City of Merced Vision 2015 General Plan ("General Plan"). The latest version of the General Plan was adopted by the Merced City Council on April 7, 1997. The General Plan Goals Policies and Implementation Actions as contained in the originally adopted General Plan have not been amended since 1997. The General Plan does contain Appendix A which sets forth General Plan Amendments approved by the City since April 1997. Although an Updated Housing Element was adopted on December 15, 2003 and minor text revisions to the Housing Element on June 21, 2004, there does not appear to be any other amendments to the various elements of the General Plan. Therefore, all projects and proposals relating to the development of the Community are required to comply and conform to the language as set forth in the City's General Plan date April 1997, as amended.

The concept of consistency is used regularly throughout State statues in order to ensure that decision-making by local agencies are congruent with the planning and policy guides of the local jurisdictions. As stated in the General Plan, "The General Plan shall be utilized as a whole. One section is not to be used at the expense of others, but all of them shall be used together, with flexibility. Employed in this way, the General Plan becomes a powerful tool for ensuring consistency of City actions, while remaining responsive to he changing needs of the times. When optional elements are added to the general plan, they have the same status as a mandated element, and no single chapter or subject supersedes the other."

Therefore, the Project needs to be in compliance with ALL goals, policies, and implementation actions, together with the land use map and the other chapters of the General Plan for it to be found to be consistent with the General Plan. The District would suggest that the Project and the EIR needs to provide adequate evidence to support this finding of consistency.

The District suggests that the analysis of the Project consider in full and complete detail the Project's consistency with the Goals, Policies, and Implementation Programs as set forth herein and as further contained in the General Plan as they relate to growth inducing impact of the Project on school facility issues and other issues such as noise, traffic, other infrastructure, etc.

The EIR prepared on the Project should provide the data and qualitative and quantitative analysis that provides evidence that the Project complies with the Goals, Policies, and Implementation Programs that are set forth in the General Plan. To make findings of General Plan consistency and not set forth the data and qualitative and quantitative analysis would be in violation of the provisions of CEQA and the CEQA Guidelines and would further be in violation of the other Planning and Zoning Laws of the State of California and the City.

The District acknowledges that SB 50 may constrain the ability of the City of Merced to address the District's school facility issues. However, the City has a responsibility to serve the Community in a way that protects their interests. One way to attain this is to insure that all applications, all projects, all proposals, and all applicants fully and complete comply with any and all provisions of local and State laws. The second is to consider those areas within and outside of SB 50 that permits the City to take a more proactive and assertive roles in addressing public facilities and services.

SB 50 was adopted in August 1998 by the California State Legislature as a result of lobbying efforts of the California Building Industry Association ("CBIA") to limit and constrain school districts from taking their previous actions to seek full mitigation of school impacts pursuant to applicable laws and to deny the right of local decisions-makers to not approve certain projects due to the impacts that they might cause. This was "eleventh-hour" legislation that came as a result of compromises between the CBIA and a limited number of Districts which were then suggested to represent the State-wide school community interests. It was also a compromise by those school districts to get what they wanted, which was a significant State-wide bond issue. Many of the Districts affected by growth today were not even a part of this so called "State-wide school community".

The legislation was an attempt to create a theoretical "three-legged stool" of financing with the State through State Bond fund grants providing one-third, the development community through statutory development fees providing one-third, and the local community through local financing techniques providing one-third. Although this was not stated in the legislation, this was the apparent intent of the legislation. Today, school districts know that the intent did not come to fruition.

The system was and is flawed. First, it anticipated that local communities could and would approve ballot measures or fund other local revenue sources to finance their portion of the one-third. Because of bonding capacity limitations, lack of voter approvals

to support existing communities subsidizing new residential developments, and the overall lack of voter approval of local bond measures, the one-third financing has not materialized in many school districts and communities. Second, the statutory development fee was based on a theoretical cost of school facilities which was the equal in all school districts and jurisdictions throughout the State. It did not acknowledge 1) the differences in costs of school construction from one location to another; 2) the differences in the cost of land or the increasing value of land in one location over another; and 3) the differences in design and development standards from school district to school district. In essence, it established a consistent and constant statutory development fee without considering the differences from community to community. Third, it did not contemplate that school districts with unprecedented growth would have different needs then areas that were growing at much slower rates, or the socio-economic difference of communities and the implications that this would have as communities transformed as a result of new development and growth reaching out to them. Finally, it did not contemplate the need for interim facilities and District-wide support facilities that would be required as a result of increasing student enrollments.

As time has run its course since 1998, these flaws have created wider gaps in the funding of schools. The State's share, except for inflationary adjustments has generally remained constant. The statutory development fee share, except for inflationary adjustments has generally remained constant. So, the gap has increased in the local share portion. The burden has become greater at the local share level. And, the Districts with the greatest consequences are the Districts that have the least resources to address the gap.

So regardless of the theoretical financial model and legal statutes of SB 50, the actual implementation and the real world financial parameters have proven that SB 50 has failed. Even the State of California Legislative Analysts Office has acknowledged this situation. But even with this failure and it being knowledge by the development community and local legislative decision-makers, SB 50 continues to be the position that developers and local decision-makers fall back on.

The development community suggests that the issues school districts raise with regards to the limitation of SB 50 needs to be addressed in the State legislature and through the Governors Office. Local decision-makers within cities and counties suggest the same. However, it is the same development community and CBIA representatives who suggest that SB 50 is sacred and that they will lobby against such changes. This has been seen in the political arena for many years and is continuing today. And, it is the same local decision-makers who do not want to get in the middle between the development community and the school districts for fear of the political consequences that may be brought upon them by the development community.

So, the District acknowledges the following which sets forth applicable provisions of SB 50. And, the District suggests that SB 50 does not serve the District or the Community,

and that the City needs to take the initiative to look at what it can do legally to address the consequences of unprecedented growth without adequate measures to address the school district and student enrollment consequences. Failure to do so would fly in the face of the responsibilities and obligations of the City to protect the public services and facilities of the Community. One such measure would be to establish growth management policies and requirements with regards to the approval of projects which would benefit from the expansion of the Wastewater Treatment Plan.

The provisions of SB 50 and/or the California Environmental Quality Act do not prevent the City from offering a transparent presentation of the specific school facility and financial impacts on the District, or the cumulative and growth inducing impacts the Project along with other developments within the District would have on the District's school facilities.

The District offers the following findings with regards to the Project:

1. School facilities and public services offered by the District will not adequately be available to the area to which the Project applies, and can not be provided in an efficient and orderly manner in accordance with the planning, financing, development, and operational policies and requirements of the District.

2. School facilities and services currently offered by the District are inadequate District-wide because of the current over-crowding of the District and the lack of adequate facilities to accommodate projected and proposed enrollments. The Project sets forth no adequate financial plan which sets forth the resources and implementation provisions to support the finding that adequate school facilities for both existing and proposed land uses within the Community will be available to accommodate the student generated by the growth inducting effects of the Project.

3. The City of Merced has no plan of services that demonstrates that needed public services and facilities will be available for the growth inducing effects of the Project, including sufficient revenue sources for those facilities and services.

4. City of Merced has provided no qualitative or quantitative analysis which substantiates that school facility financial resources and implementation provisions provided by the City of the District will address the growth inducing effects of the Project.

It is the finding of the District that an EIR with detailed discussion of the growth inducing effects on the District needs to be prepared to comply with CEQA or the CEQA

Guidelines and needs to provide a full and complete disclosure of the Project and the mitigated and unmitigated impacts of the Project on the District. In addition, the findings and conclusions in the EIR need to be supported by factual quantitative and qualitative analysis based on data offered by the District or obtained by the City.

Based on the data, analysis and comments contained herein, the District finds that the Project will have project-specific and cumulative significant unmitigated impact on the District that will adversely affect the community directly resulting from the growth inducing effects of the Project on the Community. This will result in the need for the District to consider the possible implementation of operational and administrative measures, including but not limited to 1) busing of student outside the Community; 2) placing the Community schools on a year-round calendar or double session calendar; 3) loading classrooms and current schools in excess of State and District standards; and/or 4) reducing the quality of school construction and development to standards lower then acceptable to the District and the Community. These consequences will have further additional consequences on the quality of education offered to the students within the District. These operational and administrative measures and their direct and indirect consequences should be evaluated and fully disclosed in an EIR on the Project.

It is recommended that the City has the legal responsibility and obligation to disclose such conclusions to the Community through the decision-making process and the review of environmental documentation. Although legally, the City may be limited as to the mitigation measures that can be applied to address the impacts caused by the Project on the District, SB 50 does not limit or preclude the requirements of CEQA that a full and complete disclosure of the impacts of the Project be offered in an EIR and that the unmitigated impacts and subsequently the direct and indirect consequences be identified. This level of transparency is necessary in the decision-making process and provides the Community and the decision-makers with full disclosures. In addition, their may be other provisions of law which require full and complete disclosure following the approvals of the Project and which may be appropriately considered in the decision-making process.

The District would request that Draft EIR be prepared to a level of detail that would fully and completely disclose the project specific and cumulative impacts, and the growth inducing effects of the Project on the District. The District looks forward to reviewing the contents of the forthcoming Draft EIR.

Thank you for your support, assistance and consideration.

Sincerely,

Community Systems Associates, Inc.
on behalf of the
Merced City School District

Mr. Marshall B. Krupp
President

MBK:mbk
Merced-wastewater treatment plan1206.mbk

Cc: Mr. Steve Shields
Assistant Superintendent
Merced City School District
444 West 23rd Street
Merced, California 95340

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

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

Flex your power!
Be energy efficient!

November 14, 2005

10-MER-59-PM 13.13
NOP for WWTP
SCH #2005101135

Mr. David Tucker
City of Merced
Planning Department
678 W. 18th Street
Merced, CA 95340

Dear Mr. Tucker:

The California Department of Transportation (Department) appreciates the opportunity to review and comment on the Notice of Preparation (NOP) for the Wastewater Treatment Plant (WWTP) Expansion Project. The proposed project is to upgrade and expand the capacity of its WWTP facilities to serve planned wastewater loads. The proposed site is located at 10260 Gove Road, in the rural portion of Merced County. The Department has the following comments:

The Department looks forward to reviewing the Draft Environmental Impact Report (DEIR) for further analysis of transportation related impacts that it will provide.

Caltrans encourages contacting the Native American Heritage Commission: 915 Capitol Mall, Room 364, Sacramento, California, 95814, Telephone (916) 657-5390 for advice on consulting with Native Americans regarding any cultural concerns within the project area.

If you have any questions or would like to discuss these comments in more detail, please contact Dec Maddox at (209) 942-6022 (email: dec_maddox@dot.ca.gov) or me at (209) 941-1921. We look forward to continuing to work with you in a cooperative manner.

Sincerely,

TOM DUMAS, Chief
Office of Intermodal Planning

cc: Scott Morgan
State Clearinghouse

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Alan C. Lloyd, Ph.D.
Secretary for Environmental Protection

Fresno Branch Office
1685 E Street, Fresno, California 93706
(559) 445-5116 • Fax (559) 445-5910
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

6 December 2005

Mr. David Tucker
City of Merced
678 W. 18th Street
Merced, CA 95340

NOTICE OF PREPARATION FOR THE MERCED WASTEWATER TREATMENT PLANT EXPANSION PROJECT ENVIRONMENTAL IMPACT REPORT, SCH# 2005101135, CITY OF MERCED, MERCED COUNTY

Your request for comments on the Notice of Preparation (NOP) for the City of Merced Wastewater Treatment Plant (WWTP) Expansion Project was received on 3 November 2005. The City of Merced proposes to expand the WWTP capacity from 10 million gallons per day (mgd) to 15 mgd initially and ultimately to 20 mgd. The City also proposes to implement tertiary treatment in addition to various other treatment process upgrades. Our comments are presented below.

BIOSOLIDS DISPOSAL

The City currently applies biosolids to its 580-acre Industrial Wastewater Disposal Site (regulated under Waste Discharge Requirements Order No. 97-034) south of the WWTP. The Initial Study indicates the City is studying two biosolids disposal options. One option is onsite disposal, which includes expanding the existing biosolids application area by approximately 80 acres. The expanded acreage borders the east bank of Hartley Slough on the west-central portion of the WWTP property. The other option is to transport all biosolids to an offsite disposal facility, such as the Forward Landfill in San Joaquin County.

Both options should be evaluated in the Environmental Impact Report (EIR). The biosolids application impact analysis should include a thorough technical evaluation of the existing groundwater monitoring data to quantify background quality, assimilative capacity, and impacts from all discharges (e.g., wastewater, biosolids, industrial wastewater, etc.) to the WWTP property and the Industrial Wastewater Disposal Site. The assimilative capacity of the soils in the expanded biosolids application area should also be evaluated given that the area was used for food processing waste solids disposal (e.g., peach pits). The EIR should include a complete antidegradation analysis to satisfy the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution 68-16) (see Antidegradation Analysis section below).

The EIR should evaluate the flood potential (i.e., frequency and extent of flooding) for all land disposal areas within the WWTP property (including expanded biosolids application acreage along Hartley Slough) and the potential for waste constituents to impact surface water quality during flood events. Control measures to mitigate flood impacts should be identified and evaluated for effectiveness.

ANTIDEGRADATION ANALYSIS

In addition to an antidegradation analysis for biosolids disposal options, the EIR should include an antidegradation analysis for all other WWTP waste discharges to surface water and groundwater. The antidegradation directives of Resolution 68-16 apply to surface water and groundwater and require that the high quality waters of the State be maintained "consistent with the maximum benefit to the people of the State." High quality waters refer to "background" water quality conditions (i.e., the best known quality of the receiving waters since 1968 upgradient of the project and unaffected by other discharges of waste constituents). Resolution 68-16 requires implementation of Best Practicable Treatment or Control (BPTC) to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the State. BPTC is the level of treatment technologically achievable using "best efforts" and employing proper operation and maintenance. An antidegradation analysis is required before a discharger can use any assimilative capacity of a receiving water, and under no circumstances does Resolution 68-16 allow activities which result in water quality less than prescribed by State policies.

The Antidegradation Analysis, at a minimum, must include the following:

1. A comparison of the background receiving water quality to applicable water quality objectives and to the projected impact(s) caused by **all** waste discharges from the WWTP. Narrative and numeric water quality objectives for surface water and groundwater are contained in the *Water Quality Control Plan, Fourth Edition, for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan). If background water quality is better than the water quality as defined by the water quality objectives, the background water quality shall be maintained unless the City can demonstrate (1) degradation is consistent with maximum benefit to the people of the State, (2) degradation will not unreasonably affect beneficial uses or result in water quality less than prescribed by State policies, and (3) its impact will not result in water quality lower than that prescribed in State policies.
2. A study of the long-term and short-term economic and social costs, tangible and intangible, of waste discharges from the WWTP compared to the benefits. The study must consider the economic costs and the financial ability of the City to pay for the necessary treatment and/or control measures to maintain background water quality. Both costs to beneficiaries of the proposed project as well as the affected public must be considered. In order for the Regional Board to allow degradation, the City must provide a socioeconomic analysis demonstrating that maintaining the background water quality would cause a significant adverse impact on the community.
3. An evaluation of proposed alternative control and/or disposal measures which might reduce, eliminate, or compensate for negative impacts caused by waste discharges from the WWTP. Acceptance of any degradation, to the extent there is any remaining assimilative capacity, requires implementation of BPTC.

The antidegradation analysis must also consider that monitoring data shows the unlined sludge drying beds have caused groundwater in the vicinity of the proposed biosolids application expansion area to

exceed water quality objectives for salts and nitrogen compounds. A preliminary review of monitoring data obtained within the City's Industrial Wastewater Disposal Site also indicates degradation of groundwater with salts. Therefore, little to no assimilative capacity appears to remain in these specific areas.

SALINITY IMPACTS TO THE SAN JOAQUIN RIVER

The San Joaquin River between the south Delta boundary and Mendota Pool is listed in accordance with Section 303(d) of the Clean Water Act for exceeding salinity (among other parameters) objectives. The Clean Water Act requires the development of a Total Maximum Daily Load (TMDL) for waters identified on the 303(d) list. A Basin Plan amendment to implement a TMDL for salt and boron in the lower San Joaquin River was adopted by the Regional Board in September 2004, and it is currently making its way through the approval process. The amendment includes waste load allocations for point sources that are designed to meet existing salt and boron water quality objectives.

The EIR should evaluate the discharge's impact on the salt TMDL developed for the lower San Joaquin River. Specifically, the EIR should examine the total and relative salt loads to the San Joaquin River under varying hydrologic conditions. The EIR should also include an analysis of salt sources within the collection system and present an examination of the following elements:

1. Economic feasibility of potential salt control options including source abatement, pretreatment processes and treatment options,
2. Proposed actions to control salt discharges, and
3. Proposed long-term monitoring program.

CONSTRUCTION STORM WATER PERMIT

Since the project will disturb more than one acre, compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 for Discharges of Storm Water Associated With Construction Activity will be required for potential discharges to surface waters, including ephemeral and intermittent drainages. Before construction begins, the City must submit a Notice of Intent (NOI) to comply with the permit, a site map, and an appropriate fee to the State Water Resources Control Board and a Storm Water Pollution Prevention Plan (SWPPP) must be prepared. The SWPPP must contain at a minimum all items listed in Section A of the General Permit including descriptions of measures taken to prevent or eliminate unauthorized non-storm water discharges, and both temporary (e.g., fiber rolls, silt fences, etc.) and permanent (e.g., vegetated swales, riparian buffers, etc.) best management practices (BMPs) that will be implemented to prevent pollutants from discharging with storm water into waters of the United States.

DREDGE AND FILL ACTIVITIES WITHIN WATERS OF THE UNITED STATES

The Initial Study indicates that relocating the effluent outfall would require construction activities in the levee and banks of Hartley Slough. If these activities or other activities related to the project will result in the discharge of dredged or fill material into navigable waters or wetlands (jurisdictional waters), the City must obtain a permit pursuant to Section 404 of the Clean Water Act from the US Army Corps of Engineers and a Section 401 Water Quality Certification from this office. The Regional Board will

review the Section 401 certification application to ensure that discharges will not violate water quality standards. If the project will result in the discharge of dredged or fill material into wetlands that are determined by the Corps to be non-jurisdictional, the City will not be required to obtain a Section 401 Water Quality Certification, but may be required to submit a report of waste discharge (RWD) if the wetlands are waters of the State. The Regional Board will either prescribe waste discharge requirements (WDRs) that will incorporate measures to mitigate potentially significant impacts to water quality and potential public nuisances or issue a waiver of WDRs. For more information regarding Section 404 permitting, contact the Sacramento District of the Corps of Engineers at (916) 557-5250.

We appreciate the opportunity to comment on the subject NOP. If you have any questions concerning this matter, please contact Matt Scroggins at (559) 445-6042.

W. DALE HARVEY
Senior Engineer
RCE No. 55628

MSS

cc: State Clearinghouse, Office of Planning and Research

Lydia Miller, President
San Joaquin Raptor Rescue Center
P.O. Box 778
Merced, CA 95341
(209) 723-9283, ph. & fax
raptorctr@bigvalley.net

Steve Burke
Protect Our Water (POW)
3105 Yorkshire Lane
Modesto, CA 95350
(209) 523-1391, ph. & fax
pow98@sbcglobal.net

City of Merced Dept. Public Works
David Tucker
678 West 18th Street
Merced, Ca 95340
209-385-6846

December 5, 2005
via email

Re: NOP of DEIR, Merced Waste Water Treatment Plant Expansion Project

Dear Mr. Tucker,

We would like to be kept informed about the progress of the City sewer expansion project through the CEQA process, because we might be making comments on it at the appropriate time.

Respectfully submitted,

Lydia M Miller

Steve Burke

Cc: Interested parties

Appendix C

List of Special-Status Plant Species Potentially Found in Area

ESA

APPENDIX C

Special-Status Species; Habitats on Wastewater Treatment Plant Project Site

Special-Status Species Potentially Occurring in Project Area

The "Potential for Occurrence" category is defined as follows:

- **Unlikely:** The Project site and/or immediate area do not support suitable habitat for a particular species or the Project site is outside the species' known range.

- **Low Potential:** The Project site and/or immediate area provide only limited habitat for a particular species. In addition, the known range for a particular species may be outside the Project area.

- **Medium Potential:** The Project site and/or adjacent areas that could be affected by the Project provide suitable habitat for a particular species, but the species has not been documented in the Project area.

- **High Potential:** The Project site and/or immediate area provide ideal habitat conditions for a particular species and/or the species has been documented in the Project area.

TABLE C-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	Blooming Period	General Habitat	Potential for Occurrence
Astragalus tener var. *tener* Alkali milk-vetch	FSC/--/1B	March - June	Generally found in playas, valley and foothill grasslands with adobe clay and alkaline soils and vernal pools; up to 200 feet in elevation	Unlikely: Typically associated with vernal pools, which are not present at the Project Site.
Atriplex cordulata Heartscale	FSC/--/1B	April - October	Alkali scrub, alkali seasonal wetlands and grassland. Often found in the sandy soils of alkaline flats and scalds in the Central Valley; up to 1,200 feet in elevation	Medium: Potential habitat present in the alkali scrub, seasonal wetland, and grassland.
Atriplex depressa Brittlescale	FSC/--/1B	May - October	Alkali scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools with alkaline and clay soils; up to 1,100 feet in elevation	Medium: Potential habitat present in the alkali scrub, seasonal wetland, and grassland.
Atriplex minuscula Lesser saltscale	FSC/--/1B	May - October	Alkali scrub, playas, and valley and foothill grassland with sandy, alkaline soils; up to 650 feet in elevation	Medium: Potential habitat present in the alkali scrub and grassland.
Atriplex persistens Vernal pool smallscale	FSC/--/1B	June - October	Alkaline vernal pools; up to 400 feet in elevation.	Unlikely: Vernal pool habitat not present in the Project Site.
Atriplex subtilis Subtle orache	SLC/--/1B	June - October	Valley and foothill grassland; up to 350 feet in elevation	Medium: Potential habitat present in the grassland.
Castilleja campestris ssp. *succulenta* Succulent owl's-clover	FT/SE/1B	April - May	Vernal pools, often with acidic soils; up to 2500 feet in elevation	Unlikely: Vernal pool habitat not present in the Project Site.
Chamaesyce hooveri Hoover's spurge	FT/--/1B	July - August	Vernal pools; up to 850 feet in elevation	Unlikely: Vernal pool habitat not present in the Project Site.
Cordylanthus mollis ssp. *hispidus* Hispid bird's-beak	FSC/--/1B	June - September	Meadows and seeps, playas, and valley and foothill grassland with alkaline soils; up to 500 feet in elevation	Medium: Potential habitat present in the grassland and seasonal wetland.
Cryptantha hooveri Hoover's cryptantha	SLC/--/1A	April – May	Valley and foothill grassland, often in sandy soils; up to 500 feet in elevation	Unlikely: Sandy soils do not occur in the Project Site.

TABLE C-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	Blooming Period	General Habitat	Potential for Occurrence
Delphinium recurvatum Recurved larkspur	FSC/--/1B	March - May	Alkali scrub, cismontane woodland, and valley and foothill grassland with alkaline soils; up to 2,500 feet in elevation	Medium: Potential habitat present in the alkali scrub and grassland.
Downingia pusilla Dwarf downingia	--/--/2	March - May	Lake margins, vernal pools, and wet places, sometimes playas and grasslands; up to 1500 feet in elevation	Unlikely: Vernal pool habitat not present in the Project Site.
Eryngium racemosum Delta button-celery	--/SE/1B	June – September	Riparian scrub habitats; often found on clay soils in seasonally inundated floodplains; up to 100 feet in elevation	Unlikely: Riparian scrub habitat is not present in the Project Site.
Eryngium spinosepalum Spiny-sepaled button-celery	FSC/--/1B	April – May	Valley and foothill grassland and vernal pools; up to 850 feet in elevation	Unlikely: Typically associated with vernal pools, which are not present at the Project Site.
Navarretia nigelliformis ssp. *radians* Shining navarretia	--/--/1B	May - July	Cismontane woodland, valley and foothill grassland, and vernal pools; up to 3,300 feet in elevation	Medium: Potential habitat present in the grassland.
Navarretia prostrata Prostrate navarretia	FSC/--/1B	April - July	Coastal scrub, valley and foothill grassland with alkaline soils, and vernal pools or mesic areas; up to 2,500 feet in elevation	Medium: Potential habitat present in the grassland and seasonal wetland.
Neostapfia colusana Colusa grass	FT/SE/1B	May - August	Vernal pools, often associated with adobe clay soils; up to 650 feet in elevation	Unlikely: Vernal pool habitat not present in the Project Site.
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT/SE/1B	April - September	Vernal pools; up to 650 feet in elevation	Unlikely: Vernal pool habitat not present in the Project Site.
Orcuttia pilosa Hairy Orcutt grass	FE/SE/1B	May- September	Vernal pools; up to 650 feet in elevation	Unlikely: Vernal pool habitat not present in the Project Site.
Phacelia ciliata var. *opaca* Merced phacelia	FSC/--/1B	February – May	Valley and foothill grassland, often associated with adobe or clay soils of valley floors, open hills, or alkaline flats; up to 500 feet in elevation	Medium: Potential habitat present in the grassland.

TABLE C-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	Blooming Period	General Habitat	Potential for Occurrence
Sagittaria sanfordii Sanford's arrowhead (=Valley sagittaria)	FSC/--/1B	May - October	Marshes and swamps, assorted shallow freshwater features; up to 2,000 feet in elevation	Medium: Potential habitat present in Hartley Slough.
Trichocoronis wrightii var. *wrightii* Wright's trichocoronis	--/--/2	May - September	Occurs on alkaline substrates under vernally flooded conditions in riparian, meadow, marsh and vernal pool habitats, up to 1,427 feet in elevation.	Low: Flooded conditions are limited to the seasonal wetland habitat, but this area may remain flooded for long durations

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)

FC = Candidate for Federal Listing
FD = Federal Delisted
FE = Listed as Endangered by the Federal Government
FPD = Federal Proposed for Delisting
FPT = Proposed for Listing as Threatened
FSC = Federal Species of Special Concern
FT = Listed as Threatened by the Federal Government
SLC = Species of Local Concern
-- = No listing

STATE: (California Department of Fish and Game)

SE = Listed as Endangered by the State of California
CFP = California Fully Protected
SR = Listed as Rare by the State of California (plants only)
CSC = California Species of Special Concern
ST = Listed as Threatened by the State of California
-- = No listing

CNPS: (California Native Plant Society)

List 1A = Presumed extinct in California
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California but more common elsewhere
-- = No listing

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Invertebrates			
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.	Unlikely: No vernal pools occur within the Project Site or immediate area.
Branchinecta longiantenna Longhorn fairy shrimp	FE/--/--	Lifecycle restricted to vernal pools with clear to rather turbid water.	Unlikely: No vernal pools occur within the Project Site or immediate area.
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pools, swales, and other seasonal aquatic habitats in grasslands.	Unlikely: No vernal pools occur within the Project Site or immediate area.
Branchinecta mesovallensis Midvalley fairy shrimp	FSC/--/--	Lifecycle restricted to vernal pools in the Central Valley	Unlikely: No vernal pools occur within the Project Site or immediate area.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on blue elderberry shrubs (*Sambucus mexicana*) below 3,000 feet in elevation.	High: May occur in the 30 elderberry shrubs detected onsite by ESA (ESA 2005).
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Life cycle restricted to vernal pools.	Unlikely: No vernal pools occur within the Project Site or immediate area.
Linderiella occidentalis California linderiella fairy shrimp	FSC/--/--	Lifecycle restricted to vernal pools.	Unlikely: No vernal pools occur within the Project Site or immediate area.
Lytta molesta Molestan blister beetle	FSC/--/--	Lifecycle restricted to vernal pools.	Unlikely: No vernal pools occur within the Project Site or immediate area.

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Fish			
Hypomesus transpacificus Delta smelt	FT/ST/--	Sacramento/San Joaquin Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Unlikely: Project Area is located outside the known range of species and does not contain suitable habitat.
Lampetra ayresi River lamprey	FSC/CSC/--	Lower Sacramento River, San Joaquin River, and Russian River. May also occur in coastal streams north of San Francisco Bay.	Unlikely: Species' range does not include the Project Area. In addition, the waterways in the Project Area lack spawning habitat, suitable ammocoete habitat, and have predatory carp.
Lampetra tridentate Pacific lamprey	FSC/--/--	Estuaries and nearby ocean areas, migrates upstream to spawn.	Unlikely: Species' range does not include the Project Area. In addition, the waterways in the Project Area lack spawning habitat, suitable ammocoete habitat, and have predatory carp.
Mylopharodon conocephalus Hardhead	--/CSC/--	Prefers deep clear pools (>1 m) with sand/gravel/boulder substrate and slow-moving water in undisturbed streams at 10-1,450 meters elevation. Needs well oxygenated water, 17-21 deg. C. Always found in association with Sacramento squawfish and usually with Sacramento suckers.	Low: Limited marginal habitat exists in the channels on the Project study area.
Oncorhynchus mykiss irideus Central Valley steelhead	FT/--/--	Spawns in Sacramento River and tributaries where gravelly substrate and shaded riparian habitat occurs.	Unlikely: The Project Area is located outside the range of the species ESU and does not contain suitable habitat.
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon	FT/ST/--	Occurs in the Sacramento River watershed and spawns in a few select tributaries with flowing water, cool temperatures, and suitably sized cobble.	Unlikely: The Project Area is located outside the range of the species ESU and does not contain suitable habitat.
Oncorhynchus tshawytscha Winter-run Chinook salmon, Sacramento River	FE/SE/--	Spawns in Sacramento River where gravelly substrate and adequate flow conditions occur.	Unlikely: The Project Area is located outside the range of the species ESU and does not contain suitable habitat.
Oncorhynchus tshawytscha Central Valley fall/late fall-run Chinook salmon	FSC/CSC/--	This population occurs in the Sacramento and San Joaquin Rivers and their tributaries, and spawns in cool flowing water with suitably sized cobble.	Unlikely: The Project Area is located outside the range of the species ESU and does not contain suitable habitat.

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Pogonichthys macrolepidotus Sacramento splittail	FSC, FD/CSC/--	Delta and associated marshes. Requires flooded vegetation for spawning and juvenile foraging habitat. Historic range includes all of San Joaquin Valley.	Medium: They have been found below the confluence of the San Joaquin and Merced Rivers, which is below the Project Area. The Project Area provides suitable habitat in the tule rush along Hartley Slough.
Spirinchus thaleichthys Longfin smelt	FSC/CSC/--	Found in all major bays and estuaries from San Francisco Bay northward.	Unlikely: Project Area is out of species' range.
Amphibians			
Ambystoma californiense California tiger salamander	FT/CSC/--	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.	Unlikely: The Project Area does not contain suitable habitat.
Rana aurora draytonii California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation; forages in nearby uplands within about 200 feet.	Low: Although there is ample emergent vegetation along Hartley Slough, the presence of predatory carp within the slough likely precludes the presence of this species.
Spea (=Scaphiopus) hammondii Western spadefoot toad	FSC/CSC/--	Breed in shallow, temporary pools formed by winter rains. Takes refuge in burrows.	Unlikely: The Project Area does not contain suitable habitat.
Reptiles			
Anniella pulchra pulchra Silvery legless lizard	FSC/CSC/--	Burrows in loose soils (sand, loam, or humus) associated with drainages and valley bottoms. Prefers coastal dunes, chaparral, beaches, pine-oak woodland, sycamores, and cottonwoods with sparse vegetation. Does not occur in soils disturbed by agriculture or human activity (CDFG, 1994). Year-round range includes the western portion of Merced County (Vindum, 1997).	Low: Although the Project study area has sandy loamy soils in the alkali scrub and grassland habitats, it is not the preferred habitat for this species. The Project study area is just beyond the species' range and previous soil disturbance in this area also reduce likelihood for this species to occur.
Emys (=Clemmys) marmorata Western pond turtle	FSC/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying.	Medium: May occur in Hartley Slough or adjacent effluent conveyance ditch.
Gambelia (=Crotaphytus) sila) sila Blunt-nosed leopard lizard	FE/SE, CFP/--	Occurs in open valley and foothill grasslands, valley saltbush scrub, and alkali playa communities of the San Joaquin Valley, Carrizo Plain, and Cuyama Valley. Uses small mammal burrows for refuge.	Medium: The Project Area provides suitable habitat in the alkali scrub vegetation community.

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Phrynosoma coronatum frontale California horned lizard	FSC/CSC/--	Nests in loose soil within riparian and oak woodland habitats.	Unlikely: The Project Area does not contain suitable habitat.
Thamnophis gigas Giant garter snake	FT/ST/--	Freshwater marsh, low gradient streams, drainage canals, and irrigation ditches; uplands within about 200 feet of aquatic habitat.	Medium: May occur in Hartley Slough, adjacent effluent conveyance ditch, or within adjacent Miles Creek.
Birds			
Agelaius tricolor Tricolored blackbird	FSC/CSC/-- (nesting colony)	Largely endemic to California, most numerous in the Central Valley and nearby vicinity. Requires open water, protected nesting substrate, and foraging grounds within vicinity of the nesting colony.	High: May breed or forage in the Project area. Observed in the Project vicinity (CDFG unpublished data).
Athene cunicularia Burrowing owl	FSC/CSC/-- (burrow sites)	Open, dry annual or perennial grasslands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals.	Medium: May breed or forage in the irrigation ditches and agricultural fields surrounding the Project Area.
Branta canadensis leucopareia Aleutian Canada goose	FSC, FD/--/-- (wintering)	Winter resident in the Central Valley. Tends to graze in open fields near water.	Low: May occur in the winter in the wetland areas on the Project Site.
Buteo regalis Ferruginous hawk	FSC/CSC/-- (wintering)	Uncommon wintering species throughout the Central Valley. Forages for rodents over open country.	Medium: May occur in the winter in grasslands and agricultural lands in and in the vicinity of the Project Area.
Buteo swainsoni Swainson's hawk	FSC/ST/-- (nesting)	Forages in grasslands and open agricultural fields. Breeds in oak savanna and riparian areas.	High: May breed or forage in the Project Area. The CNDDB documents 7 active nests within 10 miles of the Project Area (CNDDB 2005). The nearest active nest is 3 miles from the Project Area. Another is 5 miles from the Project Area, and the remaining nests are 7.5 to 8.5 miles away.
Calypte costae Costa's hummingbird	FSC/--/--	Inhabits arid scrub and chaparral communities and edges of desert and valley foothill riparian communities. Requires herbaceous and woody plants with nectar-producing flowers, and shrubs and trees for cover.	Unlikely: Scrub communities within the Project Area do not support an abundance of nectar-producing flowers.
Carduelis lawrencei Lawrence's goldfinch	FSC/--/-- (nesting)	Breeds in open, dry woodlands, especially oaks.	Unlikely: Project Area does not contain suitable habitat.
Chaetura vauxi Vaux's swift	FSC/CSC/-- (nesting)	Nests primarily in coniferous habitats from May through August.	Unlikely: Project Area does not contain suitable habitat.

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Charadrius montanus Mountain plover	FSC/CSC/-- (wintering)	Winters in barren agricultural fields and grasslands with sparse vegetation between September and March.	Medium: May occur in the agricultural fields surrounding the Project Area.
Elanus leucurus White-tailed kite	FSC/CFP/-- (nesting)	Nests in dense oak, willow, or other tree stands near open grasslands, meadows, farmlands, and emergent wetlands for foraging.	High: May breed or forage in the eucalyptus grove and agricultural fields surrounding the Project Area. Observed during the November 2005 reconnaissance survey.
Empidonax traillii brewsteri Little willow flycatcher	FSC/SE/-- (nesting)	Wet meadow and montane riparian habitats usually at 600–2,500 meters.	Unlikely: Project Area does not contain suitable habitat.
Falco peregrinus anatum American peregrine falcon	FD/SE/-- (nesting)	Breeds on high cliffs, banks, dunes, mounds, and human-made structures near wetlands, lakes, rivers, or other sources of water.	Unlikely: Project Area does not contain suitable habitat.
Grus canadensis tabida Greater sandhill crane	--/ST, CFP/-- (nesting & wintering)	Winters in the Central Valley within annual and perennial grasslands, croplands, and freshwater emergent wetlands.	High: May occur in the winter on the Project Site in the annual grassland and surrounding agricultural lands. Observed during the November 2005 reconnaissance survey.
Haliaeetus leucocephalus Bald eagle	FT, FPD/SE, CFP/-- (nesting & wintering)	Nests near lakes, reservoirs, and large rivers. Winters near similar habitats at lower latitudes.	Unlikely: Project Area does not contain suitable habitat.
Lanius ludovicianus Loggerhead shrike	FSC/CSC/-- (nesting)	Nests in dense shrub or tree foliage; forages in scrub, open woodlands, grasslands, and croplands.	High: May breed or forage in the Project Area. Observed during the reconnaissance survey in November 2005.
Melanerpes lewis Lewis' woodpecker	FSC/--/-- nesting)	Uncommon local winter resident of oak savannas and coniferous habitat.	Unlikely: Project Area does not contain suitable habitat.
Numenius americanus Long-billed curlew	FSC/CSC/-- (nesting)	Winters in the Central Valley in croplands and wetlands, breeds in northeastern California.	Low: Species may winter in croplands in the vicinity of the Project Area.
Picoides nuttallii Nuttall's woodpecker	SLC/--/--	Uses riparian areas with adjacent oak woodland.	Unlikely: Project Area does not contain suitable habitat.

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Plegadis chihi White-faced ibis	FSC/CSC/-- (rookery site)	Nests and forages in freshwater marshes and rivers.	Low: Species may use fresh emergent wetlands in the Project Area.
Selasphorus rufus Rufous hummingbird	FSC/--/-- (nesting)	Spring migrant through California; forages in oak woodlands, riparian, and chaparral habitats; breeds in Oregon and Washington, and extreme northern California.	Unlikely: Project Area does not contain suitable habitat.
Mammals			
Ammospermophilus nelsoni San Joaquin (=Nelson's) antelope squirrel	FSC/ST/--	Occurs in the San Joaquin Valley, in arid annual grassland and shrubland communities with sparse-to-moderate shrub cover. Needs friable soils and areas free from flooding for digging burrows.	Low: Project Site contains suitable habitat but is outside species' range.
Corynorhinus (=Plecotus) townsendii townsendii Townsend's (=Pacific) western big-eared bat	FSC/CSC/--	Found throughout California, highly associated with mines and caves. Commonly feeds on moths. Maternity colony most active from May through July.	Unlikely: Project Area does not contain suitable habitat.
Dipodomys heermanni dixoni Merced kangaroo rat	FSC/--/--	Subspecies of Heerman's kangaroo rat. In annual grassland, coastal scrub, mixed and montane chaparral, and open/sparse valley foothill woodland.	Medium: Annual grassland in the Project Area provides suitable habitat.
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE/--	Subspecies of San Joaquin kangaroo rat. In sandy and saline sandy soils in annual Valley grassland, chenopod scrub, alkali sink communities. Needs open/sparse vegetation, loose soils. Extirpated in Merced, Madera, and Fresno Counties.	Unlikely: Project Area is located outside of the species' known range. Species is extirpated from Merced County.
Eumops perotis californicus Greater western mastiff-bat	FSC/CSC/--	Roosts primarily in crevices within cliffs and canyons, occasionally in buildings. Primarily feeds on moths. Maternity colonies active May through July.	Unlikely: Project Area does not contain suitable habitat.
Myotis ciliolabrum Small-footed myotis bat	FSC/--/--	Primarily found in mid to high elevations (6,000 feet). Roosts in cavities within trees and mines.	Unlikely: Project Area is located outside of the species' known range and does not contain suitable habitat.
Myotis volans Long-legged myotis bat	FSC/--/--	Primarily found in coniferous forested habitats. Mostly roosts in large diameter trees and snags.	Unlikely: Project Area does not contain suitable habitat.
Myotis yumanensis Yuma myotis bat	FSC/--/--	Often found near reservoirs. Roosts in buildings, trees, mines, caves, bridges, and rock crevices. Maternity colonies active May through July.	Unlikely: Project Area does not contain suitable habitat.

TABLE C-2
SPECIAL-STATUS ANIMAL SPECIES POTENTIALLY OCCURRING
IN THE VICINITY OF THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT

Scientific Name Common Name	Listing Status (Federal/State/ CNPS)	General Habitat	Potential for Occurrence
Perognathus inornatus inornatus San Joaquin pocket mouse	FSC/--/--	Typically found in grasslands and blue oak savanna; needs friable soils.	Medium: Annual grassland in the Project Area provides suitable habitat.
Taxidea taxus American badger	--/CSC/--	Occurs in a wide variety of open forest, shrub, and grassland habitats that have friable soils for digging.	Medium: Annual grassland in the Project Area provides suitable habitat.
Vulpes macrotis mutica San Joaquin kit fox	FE/ST/--	Annual grasslands or grassy open stages with scattered shrubby vegetation. Requires suitable prey base and loose-textured soils for burrowing.	High: Known to occur in the western San Joaquin Valley near the Project Area. The CNDDB documents 5 occurrences within 10 miles of the Project Area (CNDDB 2005). The nearest active nest is 3.5 miles from the Project Area. The remaining nests are 6.5 to 8.5 miles away.

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)

FC = Candidate for Federal Listing
FD = Federal Delisted
FE = Listed as Endangered by the Federal Government
FPD = Federal Proposed for Delisting
FPT = Proposed for Listing as Threatened
FSC = Federal Species of Special Concern
FT = Listed as Threatened by the Federal Government
SLC = Species of Local Concern
-- = No listing

STATE: (California Department of Fish and Game)

SE = Listed as Endangered by the State of California
CFP = California Fully Protected
SR = Listed as Rare by the State of California (plants only)
CSC = California Species of Special Concern
ST = Listed as Threatened by the State of California
-- = No listing

CNPS: (California Native Plant Society)

List 1A = Presumed extinct in California
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California but more common elsewhere
-- = No listing

Habitat Descriptions

Project Site Description

The Project site is located approximately 1.5 miles south of the City of Merced, in Merced County, California. Surrounding land use is largely agriculture - the Project site is surrounded by relatively level disced fields with several canals and drainage ditches within and adjacent to the fields. The Project study area encompasses approximately 178 acres of the 1,335-acre WWTP property and includes treatment facilities, sludge basins, spreading and drying fields, and an effluent channel that parallels Miles Creek and eventually connects with Hartley Slough. Other areas of the WWTP not directly used in plant operations includes a police shooting range, eucalyptus grove, and a 88-acre preserve area that includes annual grassland, alkali scrub, seasonal wetlands, and remnant orchard trees. Habitats descriptions provided in the following text are illustrated in Figure 3-2 of the EIR.

Vegetation Communities and Wildlife Habitats

The following vegetation communities occur in the Project study area. These vegetation communities are described using the California Department of Fish and Game (CDFG) *A Guide to Wildlife Habitats* (Mayer and Laudenslayer, 1988). The wildlife habitats described below generally correlate with vegetative communities. Vegetative communities are assemblages of plant species that occur together in the same area. They are defined both by species composition and relative abundance.

Annual Grassland

Approximately 24.1 acres of annual grassland occur in floodplain adjacent to a segment of Hartley Slough at the Project site. Formerly used as a peach pit disposal site several peach tree (*Prunus persica*) snags occur sporadically along the eastern edge of this plant community. Dominant plant species include soft chess (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), and common tarweed (*Hemizonia pungens* ssp. *pungens*). Non-native forbs include shortpod mustard (*Hirschfeldia incana*), milk thistle (*Silybum marianum*), perennial pepperweed *(Lepidium latifolium*), and prickly lettuce (*Lactuca serriola*).

Several wildlife species were noted using the annual grassland habitat including field mice (*Peromyscus maniculatus*), Caliornia vole (*Microtus californicus*), and a variety of birds such as northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), and goldfinches.

Alkali Scrub

Approximately 48 acres of alkali scrub occurs in the floodplain and former peach pit disposal site. Peach tree snags are scattered throughout this plant community which was later planted with big saltbush (*Atriplex lentiformis*) shrubs and Arizona cyprus (*Cupressus arizonica*) to create wildlife habitat managed for hunting by CDFG. This plant community is characterized by dense thickets of big saltbush shrubs with little to no understory, and cover ranges from continuous to

intermittent. Associated shrub and small tree species include peach trees, coyote brush (*Baccharis pilularis*), and blue elderberry (*Sambucus mexicana*).

Wildlife species using this alkali scrub habitat include coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), cottontail (*Sylvilagus audubonii*), feral cat (*Felis domesticus*), and several bird species including western scrub jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), Lincoln's sparrow (*Melospiza lincolnii*), and loggerhead shrike (*Lanius ludovicianus*).

Eucalyptus

An approximately 20.6-acre stand of eucalyptus occurs between the floodplain and the police shooting range. This habitat is characterized by a closed canopy of mature blue gum (*Eucalyptus globulus*) trees with a sparse understory of annual grasses and non-native forbs. Understory components include blue gum saplings, milkthistle, prickly lettuce, poison hemlock (*Conium maculatum*), and grasses including salt grass (*Distichlis spicata*), ripgut brome, and foxtail barley. The northern portion of this habitat was recently burned and lacks an understory, and the remaining understory appears to have been mowed sometime during the growing season. This area is being harvested and approximately one-third of the original stand has been removed.

Wildlife species using the eucalyptus are mainly bird species which feed, roost, and nest in the gum trees. Several red-tailed hawks (*Buteo jamaicensis*) were observed in the grove, but barn owl (*Tyto alba*), great-horned owl (*Bubo virginianus*), and other birds may also occur.

Ruderal

Approximately 2.7 acres of ruderal habitat occur throughout the project site. Ruderal areas are generally in disturbed or maintained areas and are characterized by a predominance of invasive non-native plant species. Dominant species are generally tall-growing invasive species such as poison hemlock, perennial pepperweed, prickly lettuce, and shortpod mustard interspersed with annual grasses such as Italian ryegrass (*Lolium multiflorum*), foxtail barley, and soft chess. The ruderal area between the alkali scrub and eucalyptus stand appears to have been recently mowed and the dominant species include fiddle dock (*Rumex pulcher*), prickly lettuce, milkthistle, but scattered big saltbush shrubs and blue elderberry are present as well. This area also has a large brush pile surrounded by dense stand of milkthistle. The ruderal area adjacent to the landfill is characterized by a dense stand of milkthistle and shortpod mustard with some downed eucalyptus trees and debris piles. The ruderal area in the northernmost portion of project site is characterized by a few mature Goodding's willow trees with open grassy areas dominated by wild oats (*Avena fatua*), Italian ryegrass, common tarweed, milkthistle, and shortpod mustard. A significant quantity of trash is present as a result of illegal dumping.

Wildlife species that use ruderal habitat are varied and may include American crow (*Corvus brachyrhynchos*), morning dove (*Zenaida macroura*), lizards, and several species of songbirds that feed on the weedy vegetation. Burrowing owl may use mowed ruderal habitat for foraging.

Disced Field

Approximately 30.6 acres of disced fields occur throughout the project site. These fields have been disced sometime during the growing season and are generally lacking vegetation. However, ruderal species have become established such as poison hemlock, Bermuda grass (*Cynodon dactylon*), amaranth (*Amaranthus* sp.), and goosefoot (*Chenopodium* sp.). Common tarweed and vegetation cover ranges from 10 to 60 percent. Just south of the eucalyptus stand, what was once an almost solid stand of poison hemlock and milkthistle has been mowed and there is a large debris pile of blue gum trees. The field immediately south of the existing facilities serves as an emergency overflow retention pond. The eastern half of this field is characterized by a mostly continuous cover of Italian ryegrass with associated species such as cheeseweed (*Malva parviflora*), goosefoot, fiddle dock, and mustard (*Brassica* sp.), but the center of this area has a few large bare areas. The western half of this field has approximately 45 percent vegetation cover with dominants including Johnson grass, field bindweed (*Convolvulus arvensis*), cheeseweed, goosefoot, and common knotweed (*Polygonum arenastrum*). A small area approximately 15 feet wide, between the edge of the alkali scrub and access roads has also been recently disced and lacks vegetation cover.

Frequently-disced fields typically provide foraging habitat for wildlife species such as great-egret (*Ardea alba*), great-blue heron (*Ardea herodus*), northern harrier, red-tailed hawk, killdeer (*Charadrius vociferus*), white-tailed kite (*Elanus leucurus*), and burrowing owl.

Landfill

Approximately 3.8 acres of the project site is a previous landfill that has been capped and is currently used for dumping. The area is lined by a gravel base and is characterized by numerous piles of concrete and asphalt rubble. Some vegetation has become established both within the landfill area and along its edges. Established vegetation is dominated by ruderal species including milkthistle, blue gum saplings, yellow starthistle (*Centaurea solstitialis*), Italian ryegrass, prickly lettuce, wild oats, foxtail barley, and shortpod mustard.

Often landfills provide foraging habitat for ubiquitous bird species such as gulls and crows. Fence lizards and a feral cat were observed in this area.

Developed Area

Approximately 27.5 acres of the project site are developed and include the WWTP facilities, paved and unpaved roads, and parking lots. The roads are sparsely to densely vegetated along the edges by ruderal species including poison hemlock, prickly lettuce, Johnson grass, and everlasting cudweed (*Gnaphalium luteo-album*). Landscaped areas within WWTP facilities include a solid groundcover of iceplant (*Carpobrotus edulis*), a row of oleander (*Nerium oldeander*) shrubs, and scattered ornamental pines (*Pinus* sp.).

Diversity of wildlife species in developed areas is typically low and limited to those species that are associated with human activity, including rock pigeon (*Columba livia*), American crow, house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*). Several California ground squirrels (*Spermophilus beecheyi*) were observed along the edge of the iceplant where the

ground slopes down into a basin. Several ground squirrel burrows were noted in this area and along the roads as well.

Fresh Emergent Marsh

Approximately 7.97 acres of fresh emergent marsh occur at the project site within the ordinary high water mark of Hartley Slough. Common plant species observed in this habitat include common tule (*Scirpus acutus*), broad-leaved cattail (*Typha latifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), common water smartweed (*Polygonum punctatum*), and common rush. This type of vegetation is also currently established within the Project site's agricultural drainage ditches, but these features are periodically maintained to remove vegetation. Therefore, the establishment of this plant community in ditches is ephemeral in nature and not considered a permanent feature.

Wildlife using the fresh emergent marsh largely includes wading birds and waterfowl species such as great blue heron, great egret, black-crown night heron (*Nycticorax nycticorax*), American coot (*Fulica americana*), and mallard (*Anas platyrhynchos*). Red-winged blackbirds (*Agelaius phoeniceus*) also use this type of habitat, as do some aquatic reptiles and amphibians such as garter snake (*Thamnophis* sp.), pond turtle (*Clemmys marmorata*), and frogs (*Rana* sp.).

Seasonal Wetland

A low-lying floodplain adjacent to Hartley Slough supports a nearly continuous cover of seasonal wetland vegetation. This feature is approximately 2.68 acres. The basin lies between the levee berm of Hartley Slough and the elevated adjacent grassland and alkali scrub habitats. This floodplain potentially acts as a detention basin for over bank flows during periods of heavy precipitation. The vegetation within the basin ranges from dense homogenous stands of perennial pepperweed to stands of perennial pepperweed, common tule, and narrow-leaved milkweed (*Asclepias fascicularis*) to areas dominated by Baltic rush, common tarweed and rabbitsfoot grass. A few mature edible fig (*Ficus carica*) trees and scattered bare areas also occur in this wetland feature.

Seasonal wetlands may support a variety of wildlife, some of which can be rare. A diversity of birds, invertebrates, some amphibian, and few reptiles may use ponded areas for food, cover, and/or breeding. Given the abundance of tall vegetation in the seasonal wetland habitat on the Project site, species such as red-winged blackbird and northern harrier are likely to be seen.

Riverine

Approximately 7.17 acres (21,769 linear feet) of riverine habitat occur at the project site in Hartley Slough, the effluent channel (Ditch D-5), and the four agricultural drainage ditches. Both Hartley Slough and the effluent channel are perennial drainages, but the agricultural ditches generally flow on an intermittent basis. Open water habitat is important habitat for wildlife species, particularly birds, such as great blue heron, great egret, mallard, American coot, belted kingfisher (*Ceryle alcycon*), and black phoebe (*Sayornis nigricans*). Several common carp (*Cyprinus carpio carpio*), mosquitofish (*Gambusia affinis*), and Sacramento pikeminnow (*Ptychocheilus grandis*) have been observed in the slough and channels at the Project site, and

garter snake may also use this habitat. Great-horned owls have been observed roosting in the fig trees on the edge of the seasonal wetland habitat.

References

California Department of Fish and Game (CDFG).1995. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA.

California Natural Diversity Database (CNDDB). 2005. *Rarefind 3* computer program. Updated August 1, 2005, expires January 1, 2006. California Department of Fish and Game, Wildlife Habitat Data Analysis Branch. Sacramento, California.

Mayer and Laudenslayer. 1988. *A Guide to Wildlife Habitats*. Sacramento, CA.

Appendix D

List of Observed Plants Species on the WWTP Site

ESA

APPENDIX D

TABLE D-1
PLANT SPECIES IDENTIFIED
IN THE MERCED WASTEWATER TREATMENT PLANT EXPANSION PROJECT AREA

Scientific Name	Common Name	Family
Agrostis sp.	Bentgrass	Poaceae
Amaranthus sp.	Amaranth	Amaranthaceae
Artemisia douglasiana	Mugwort	Asteraceae
Asclepias fascicularis	Narrow-leaved milkweed	Asclepiadaceae
Atriplex fruticulosa	Valley saltbush	Chenopodiaceae
Atriplex lentiformis	Big saltbush	Chenopodiaceae
Avena fatua	Wild oats	Poaceae
Azolla sp.	Mosquito fern	Azollaceae
Baccharis douglasii	Saltmarsh baccharis	Asteraceae
Baccharis pilularis	Coyote brush	Asteraceae
Brassica sp.	Mustard	Brassicaceae
Bromus diandrus	Ripgut brome	Poaceae
Bromus hordeaceus	Softchess	Poaceae
Carpobrotus edulis	Iceplant	Aizoaceae
Centaurea solstitialis	Yellow starthistle	Asteraceae
Chenopodium album	Lamb's quarters	Chenopodiaceae
Chenopodium sp.	Goosefoot	Chenopodiaceae
Chondrilla juncea	Skeleton weed	Asteraceae
Conium maculatum	Poison hemlock	Apiaceae
Convolvulus arvensis	Field bindweed	Convolvulaceae
Conyza canadensis	Horseweed	Asteraceae
Cupressus arizonicus	Arizona cypress	Cupressaceae
Cynodon dactylon	Bermuda grass	Poaceae
Cyperus acuminatus	Tapertip flatsedge	Cyperaceae
Cyperus eragrostis	Tall flatsedge	Cyperaceae
Datura ferox	Chinese thornapple	Solanaceae
Distichlis spicata	Salt grass	Poaceae
Echinochloa crus-gali	Barnyard grass	Poaceae
Epilobium brachycarpum	Willowherb	Onagraceae
Epilobium ciliatum	Slender willowherb	Onagraceae
Eremocarpus setigerus	Turkey mullein	Euphorbiaceae
Eucalyptus globulus	Blue gum	Myrtaceae
Euthamia occidentalis	Western goldenrod	Asteraceae
Ficus carica	Edible fig	Moraceae
Frankenia salina	Alkali heath	Frankeniaceae
Fraxinus latifolia	Oregon ash	Oleaceae

TABLE D-1
PLANT SPECIES IDENTIFIED
IN THE MERCED WASTEWATER TREATMENT PLANT EXPANSION PROJECT AREA

Scientific Name	Common Name	Family
Gnaphalium luteo-album	Everlasting cudweed	Asteraceae
Heliotropum curassavicum	Salt heliotrope	Boraginaceae
Hemizonia pungens ssp. *pungens*	Common tarweed	Asteraceae
Hirschfeldia incana	Shortpod mustard	Brassicaceae
Hordium murinum ssp. *leporinum*	Foxtail barley	Poaceae
Juglans californica ssp. *hindsii X J. nigra*	Northern California black walnut hybrid	Juglandaceae
Juncus balticus	Baltic rush	Juncaceae
Juncus effusus	Common rush	Juncaceae
Kochia californica	Rusty molly	Chenopodiaceae
Lactuca serriola	Prickly lettuce	Asteraceae
Lepidium latifolium	Perennial pepperweed	Brassicaceae
Leymus triticoides	Creeping wildrye	Poaceae
Lolium multiflorum	Italian ryegrass	Poaceae
Malva parviflora	Cheeseweed	Malvaceae
Malvella leprosa	Alkali mallow	Malvaceae
Marubium vulgare	Horehound	Lamiaceae
Melilotus alba	Sweet clover	Fabaceae
Mimulus guttatus	Common monkeyflower	Scrophulariaceae
Nasturtium aquaticum	Water cress	Brassicaceae
Nerium oleander	Oleander	Apocynaceae
Nicotinia attenuata	Coyote tobacco	Solanaceae
Nicotinia glauca	Tobacco tree	Solanaceae
Panicum sp.	Panicgrass	Poaceae
Paspalum dilatatum	Dallis grass	Poaceae
Pinus sp.	Pine	Pinaceae
Polygonum arenastrum	Common knotweed	Polygonaceae
Polygonum punctatum	Common water smartweed	Polygonaceae
Polypogon monspeliensis	Rabbitsfoot grass	Polygonaceae
Portulaca oleracea	Common purslane	Portulacaceae
Prunus persica	Peach tree	Rosaceae
Rumex crispus	Curly dock	Polygonaceae
Rumex pulcher	Fiddle dock	Polygonaceae
Salix gooddingii	Goodding's willow	Salicaceae
Sambucus mexicana	Blue elderberry	Caprifoliaceae
Scirpus acutus	Common tule	Cyperaceae
Senecio vulgaris	Common groundsel	Asteraceae
Silybum marianum	Milkthistle	Asteraceae
Sonchus arvensis	Field sow thistle	Asteraceae
Sonchus oleraceus	Common sow thistle	Asteraceae
Sorgum halapense	Johnson grass	Poaceae
Typha latifolia	Broad-leaved cattail	Typhaceae
Urtica dioica ssp. *holosericea*	Stinging nettle	Urticaceae
Vitis californica	California grape	Vitaceae
Washingtonia sp.	Fan palm	Arecaceae

Appendix E
Water Quality Data

ESA

TABLE E-1
GROUNDWATER MONITORING SUMMARY, 2001-2003

	MW1			MW2			MW3			MW4			MW5			MW6			MW7			MW8			MW9			MW10			MW11		
Constituent	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**	**Ave.**	**Min.**	**Max.**
Alkalinity, mg/L	300	250	350	298	270	330	376	270	440	281	240	300	499	440	540	586	460	660	678	460	740	338	300	390	298	280	330	364	250	420	445	360	470
Aluminum, mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.00	0.00	0.00	0.15	0.00	0.36	0.25	0.00	1.10	0.43	0.00	2.70	0.12	0.00	0.42	0.41	0.00	1.70	1.94	0.00	7.40	0.40	0.00	0.91
Ammonia, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	12	0	0	0	0	0.00	0.00
Arsenic, µg/L	8	0	10	4	0	5	9	0	13	7	0	9	9	6	19	74	58	81	53	46	60	10	6	20	19	14	24	18	16	21	5	0.00	6.00
Barium, mg/L	0.22	0.16	0.25	0.15	0.10	0.17	0.36	0.14	0.42	0.18	0.16	0.20	0.10	0.09	0.11	0.36	0.32	0.40	0.51	0.43	0.54	0.12	0.06	0.16	0.15	0.13	0.19	0.24	0.15	0.30	0.12	0.06	0.15
Bicarbonate, mg/L	300	250	350	299	270	330	376	270	440	281	240	300	499	440	540	586	460	660	678	460	740	338	300	390	298	280	330	364	250	420	445	360	470
Boron, mg/L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.1
Cadmium, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calcium, mg/L	71	51	88	50	41	61	114	48	140	74	70	78	92	86	100	129	120	140	140	130	150	50	46	53	65	59	74	98	85	120	84	76	91
Carbonate, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	251	0	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chloride, mg/L	27	19	32	9	0	14	74	9	93	61	55	66	70	62	88	107	83	140	89	82	93	77	66	100	76	67	86	97	86	110	28	21	43
Total Chromium, µg/L	8	0	12	4	0	10	6	0	20	4	0	11	2	0	8	6	0	14	8	0	20	4	2	11	4	0	8	9	2	30	7	0	11
Specific Conductance, µmhos/cm	794	620	900	608	550	680	1104	550	1300	778	690	860	1513	1400	1700	1675	1500	1800	1700	1600	1800	905	810	1000	1018	890	1300	1171	970	1400	1300	1200	1400
Copper, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	2	0	12	0	0	0	0	0	0	0	0	0	0	0	0
Fluoride, mg/L	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.3	0.2	0.0	0.7	0.1	0.0	0.5	0.2	0.0	0.5	0.2	0.0	0.5	0.2	0.0	0.4	0.0	0.0	0.2
Hardness, mg/L	323	230	400	233	190	280	493	220	600	353	330	370	584	540	640	733	670	800	749	710	790	329	290	360	303	270	360	435	370	530	388	360	420
Hydroxide, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iron, mg/L	0.00	0.00	0.00	0.02	0.00	0.18	0.03	0.00	0.15	0.01	0.00	0.06	0.19	0.00	0.41	4.28	3.80	4.80	4.66	3.60	8.50	0.17	0.00	0.60	0.55	0.00	2.30	2.94	0.00	12.00	0.58	0.00	1.40
Iron-Dissolved, mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.66	0.14	0.00	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lead, µg/L	0	0	0	1	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Magnesium, mg/L	36	26	43	26	21	32	51	25	62	41	38	43	86	76	96	100	91	110	97	93	100	50	42	59	35	30	44	46	35	56	44	42	47
Manganese, mg/L	2.00	0.00	24.00	1.84	0.00	22.00	4.07	0.00	44.00	3.33	0.00	40.00	1.29	1.20	1.40	6.75	5.70	7.50	8.13	7.20	9.20	0.46	0.29	0.88	2.41	0.00	3.70	0.07	0.05	0.08	0.00	0.00	0.00
Mercury, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nickel, µg/L	0	0	0	0	0	0	8	0	15	8	0	11	13	10	20	30	20	40	23	20	30	20	20	20	18	0	20	16	10	30	0	0	0
Nitrate (NO_3 + NO_2), mg/L	2.7	1.6	6.0	1.4	0.0	8.0	0.6	0.0	4.9	0.0	0.0	0.2	39.0	21.0	120.0	0.0	0.0	0.3	0.2	0.0	0.5	0.6	0.0	3.4	2.5	0.0	18.0	1.1	0.0	6.9	44.5	23.0	110.0
Nitrogen - Total (N) mg/L	2.3	1.4	6.0	0.7	0.0	6.0	0.1	0.0	0.5	0.6	0.0	5.1	23.3	1.7	37.0	0.7	0.0	2.0	1.6	0.0	2.9	0.7	0.0	3.4	6.2	3.8	8.1	1.2	0.0	6.9	21.5	1.3	27.0
Kjeldahl Nitrogen, mg/L	0	0	0	0	0	0	0	0	5	1	0	5	2	0	8	3	0	18	3	0	13	0	0	2	6	4	8	1	0	3	0	0	2
ortho-Phosphate, mg/L	0	0	0	0	0	0	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	0	0	0
pH	7.6	7.2	8.0	7.5	7.0	8.0	7.2	6.6	7.8	7.6	7.2	8.0	7.3	6.9	7.8	7.2	6.8	7.6	7.2	6.8	7.7	7.4	7.0	7.9	7.4	6.7	7.9	7.5	7.0	8.3	7.5	7.1	8.0
Total Phosphorus, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	4	0	34	0	0	1	1	0	2	0	0	1	2	0	5	0	0	2	3	0	23
Potassium, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	3	0	0	3	8	6	10	0	0	3	1	0	3
Total Selenium, µg/L	0	0	2	0	0	0	2	0	3	0	0	2	7	0	42	9	2	46	3	0	4	7	0	50	0	0	2	0	0	0	4	0	6
Total Silica, mg/L	61.9	49.0	64.0	55.3	0.0	64.0	53.1	42.0	62.0	59.8	49.0	64.0	55.4	53.0	60.0	55.8	53.0	58.0	61.9	58.0	75.0	73.6	68.0	84.0	68.8	58.0	74.0	71.8	60.0	98.0	65.9	63.0	71.0
Silver, µg/L	0	0	0	5	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sodium, mg/L	67	59	72	53	0	73	75	49	88	43	40	48	133	120	150	134	130	140	143	130	150	86	74	100	104	77	150	106	97	120	156	140	170
Sulfate, mg/L	79	56	90	16	0	21	116	17	160	31	25	35	111	100	120	204	170	240	169	160	180	28	19	34	108	54	210	101	30	160	114	100	130
Total Dissolved Solids, mg/L	509	430	610	396	340	510	725	340	870	493	440	680	950	880	1000	1113	1000	1200	1125	1000	1200	550	490	600	625	560	770	736	550	920	858	820	890
Total Organic Carbon, mg/L	1	1	1	1	0	2	3	1	3	1	0	1	6	0	7	13	0	18	13	0	17	2	0	6	3	0	4	3	0	4	2	0	2
Zinc, µg/L	0	0	0	6	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fecal Coliform, MPN	<1.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0	<1.0	0.0	0.0	2.6	1.1	6.9	1.1	1.1	1.1	6.5	1.0	23.0	1.4	1.1	2.2	1.4	1.1	2.2	1.4	1.1	2.2	1.3	1.0	2.2
Total Coliform, MPN	<1.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0	<1.0	0.0	0.0	4.9	1.1	16.1	1.4	1.1	2.2	8.6	1.0	23.0	3.1	1.1	9.2	3.8	1.1	12.0	3.1	1.1	9.2	1.1	1.0	1.1

Source: City of Merced 2005, ECO:LOGIC 2006

TABLE E-2
ANALYSIS OF PRIORITY POLLUTANTS IN HARTLEY SLOUGH, JANUARY 23, 2002 (µG/L UNLESS OTHERWISE NOTED)

Constituent	Lab MDL	Effluent	Receiving Water Upstream	Receiving Water Downstream
Inorganics				
Aluminum		100	240	400
Antimony	0.01	*0.3	*0.2	*.3
Arsenic	0.08	3.5	2.6	3.7
Barium		100	240	210
Beryllium	0.06	ND	ND	ND
Cadmium	0.04	*0.08	ND	ND
Chromium	0.2	1.2	1.1	2.8
Chromium VI		**ND	NS	NS
Copper	0.2	3.5	1.9	7.7
Cyanide	0.6	**ND	NS	NS
Lead	0.02	1.5	0.44	0.3
Mercury	0.00017	0.0086	0.001	0.0012
Nickel	0.2	1.4	2.5	2.1
Selenium	0.3	ND	ND	ND
Silver	0.02	0.2	ND	ND
Thallium	0.03	*0.04	ND	ND
Zinc	0.5	63	3.0	8.0

*****Estimated concentration above Method Detection Limit (MDL) and below the RL/ML (Reporting Limit/Minimum Level).
**Four discrete samples taken over twenty four hours.

NS - Not Sampled
ND = Not Detected

Asbestos				
Asbestos	0.2	<10µm	<10µm	<10µm
Volatile Organic Substances				
Acrolein	3.3	ND	ND	ND
Acrylonitrile	1.6	ND	ND	ND
Benzene	0.5	ND	ND	ND
Bromodichloromethane	0.46	0.6	ND	ND
Bromoform	0.1	ND	ND	ND
Bromomethane	0.46	ND	ND	ND
Carbon Tetrachloride	0.42	ND	ND	ND
Chlorobenzene	0.19	ND	ND	ND
Chloroethane	0.34	ND	ND	ND
2-Chloroethylvinyl ether	0.31	ND	ND	ND
Chloroform	0.24	4.6	ND	ND
Chloromethane	0.36	ND	ND	ND
Dibromochloromethane	NA	ND	ND	ND
1,2 Dichorobenzene	0.12	ND	ND	ND
1,3 Dichlorobenzene	0.16	ND	ND	ND
1,4 Dichlorobenzene	0.12	4.0	ND	ND
Dichlorodifluoromethane (F-12)	0.31	ND	ND	ND
1,1 Dichloroethane	0.28	ND	ND	ND
1,2 Dichloroethane	0.18	ND	ND	ND
1,1 Dichloroethene	0.37	ND	ND	ND
cis-1,2-Dichloroethene	0.24	ND	ND	ND
Trans-1, 2 Dichloroethylene	0.3	ND	ND	ND
1,2 Dichloropropane	0.22	ND	ND	ND

TABLE E-2
ANALYSIS OF PRIORITY POLLUTANTS IN HARTLEY SLOUGH,
JANUARY 23, 2002 (µG/L UNLESS OTHERWISE NOTED)

Constituent	Lab MDL	Effluent	Receiving Water Upstream	Receiving Water Downstream
cis-1,3-Dichloropropene	0.25	ND	ND	ND
Trans-1,3-Dichloropropene	0.22	ND	ND	ND
Dichlorotrifluoroethane	0.22	ND	ND	ND
Ethylbenzene	0.3	0.4	ND	ND
Methylene Chloride	0.38	0.5	ND	ND
Methyl-t-Butyl Ether	0.19	ND	ND	ND
Styrene	NR	ND	ND	ND
1,1,2,2 Tetrachloroethane	0.34	ND	ND	ND
Tetrachoroethene	0.32	ND	ND	ND
1,2,4 Trichlorobenzene	0.3	ND	ND	ND
Toluene	0.25	2.5	ND	ND
1,1,1 Trichloroethane	0.35	ND	ND	ND
1,1,2 Trichloroethane	0.27	ND	ND	ND
Trichloroethene	0.29	ND	ND	ND
Trichlorofluoromethane (F-11)	0.41	ND	ND	ND
Trichlorotrifluoroethane	0.48	ND	ND	ND
Vinyl Chloride	0.34	ND	ND	ND
Total Xylene Isomers	0.4	1.7	ND	ND
Semi -Volatile Organic Substances				
Benzidine	0.3	ND	ND	ND
Butyl benzyl phthalate	0.4	ND	ND	ND
4-Bromophenyl phenyl ether	0.5	ND	ND	ND
Bis 2-(1-Chloroethoxy) methane	0.3	ND	ND	ND
Bis (2-chloroethyl) ether	0.3	ND	ND	ND
Bis (2-Chloroisopropyl) ether	1.0	ND	ND	ND
2-Chloronaphthalene	0.3	ND	ND	ND
4-Chlorophenyl phenyl ether	0.4	ND	ND	ND
di-n-Butyl phthalate	0.4	ND	ND	ND
3,3 Dichlorobenzidine	0.4	ND	ND	ND
Diethyl phthalate	0.4	ND	*0.7	ND
Dimethyl phthalate	0.4	ND	ND	ND
2,4 Dinitrotoluene	0.3	ND	ND	ND
2,6 Dinitrotoluene	0.3	ND	ND	ND
di-n-Octyl phthalate	0.4	ND	ND	ND
1,2 Diphenylhydrazine	0.3	ND	ND	ND
Bis (2-Ethylhexyl) phthalate	0.284	*0.9	ND	ND
Hexachlorobenzene	0.4	ND	ND	ND
Hexachlorobutadiene	0.2	ND	ND	ND
Hexachloro-cyclopentadiene	0.1	ND	ND	ND
Hexachloroethane	0.2	ND	ND	ND
Isophorone	0.3	ND	ND	ND
Nitrobenzene	0.3	ND	ND	ND
N-Nitroso-dimethyl amine	0.4	ND	ND	ND
N-Nitroso diphenyl amine	0.4	ND	ND	ND
N-Nitroso-di n-propyl amine	0.3	ND	ND	ND
4 Chloro-3-methylphenol	0.3	ND	ND	ND
2 Chlorophenol	0.4	ND	ND	ND
2,4 Dichlorophenol	0.3	ND	ND	ND
2,4 Dimethylphenol	0.3	ND	ND	ND

TABLE E-2
ANALYSIS OF PRIORITY POLLUTANTS IN HARTLEY SLOUGH, JANUARY 23, 2002 (µG/L UNLESS OTHERWISE NOTED)

Constituent	Lab MDL	Effluent	Receiving Water Upstream	Receiving Water Downstream
2,4 Dinitrophenol	0.3	ND	ND	ND
2-Methyl-4,6-dinitrophenol	0.4	ND	ND	ND
2-Nitrophenol	0.3	ND	ND	ND
4-Nitrophenol	0.2	ND	ND	ND
Pentachlorophenol	0.4	ND	ND	ND
Phenol	0.4	ND	ND	ND
2, 4, 6 Trichlorophenol	0.2	ND	ND	ND
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	0.04	**ND**	**ND**	**ND**
Acenaphthylene	0.05	ND	ND	ND
Anthracene	0.04	ND	ND	ND
Benzo (a) anthracene	0.02	ND	ND	ND
Benzo (a) pyrene	0.03	ND	ND	ND
Benzo (b) fluoranthene	0.02	ND	ND	ND
Benzo (g, h, I) perylene	0.04	ND	ND	ND
Benzo (k) fluoranthene	0.02	ND	ND	ND
Chrysene	0.02	ND	ND	ND
Dibenzo (a, h)-anthracene	0.04	ND	ND	ND
Fluoranthene	0.02	ND	ND	ND
Fluorene	0.05	ND	ND	ND
Indeno (1,2,3,cd)-pyrene	0.04	ND	ND	ND
Naphthalene	0.05	ND	ND	ND
Phenanthrene	0.03	ND	ND	ND
Pyrene	0.02	ND	ND	ND
OCL Pesticides - PCBs				
Aldrin	0.003	ND	ND	ND
alpha-BHC	0.002	ND	ND	ND
beta-BHC	0.001	ND	ND	ND
gamma-BHC (Lindane)	0.001	ND	ND	ND
delta-BHC	0.001	ND	ND	ND
Chlordane	0.005	ND	ND	ND
4,4 – DDD	0.01	ND	ND	ND
4,4 – DDE	0.01	ND	ND	ND
4,4 – DDT	0.01	ND	ND	ND
Dieldrin	0.002	ND	ND	ND
a-Endosulfan	0.003	ND	ND	ND
b-Endosulfan	0.001	ND	ND	ND
Endosulfan Sulfate	0.001	ND	ND	ND
Endrin	0.002	ND	ND	ND
Endrin Aldehyde	0.002	ND	ND	ND
Endrin Keytone	0.002	ND	ND	ND
Heptachlor	0.003	ND	ND	ND
Heptachlor Epoxide	0.003	ND	ND	ND
Methoxychlor	0.002	ND	ND	ND
Toxaphene	0.2	ND	ND	ND
PCB 1016	0.08	ND	ND	ND
PCB 1221	0.03	ND	ND	ND
PCB 1232	0.04	ND	ND	ND
PCB 1242	0.08	ND	ND	ND

TABLE E-2
ANALYSIS OF PRIORITY POLLUTANTS IN HARTLEY SLOUGH, JANUARY 23, 2002 (µG/L UNLESS OTHERWISE NOTED)

Constituent	Lab MDL	Effluent	Receiving Water Upstream	Receiving Water Downstream
PCB 1248	0.05	ND	ND	ND
PCB 1254	0.07	ND	ND	ND
PCB 1260	0.05	ND	ND	ND
Organophosphorous Pesticides				
Chlorpyrifos (Dursban)	0.12	ND	ND	ND
Dameton - O and - S	0.12	ND	ND	ND
Diazinon	0.32	ND	ND	0.2
Disulfoton (Di-syston)	0.11	ND	ND	ND
Ethion	0.14	ND	ND	ND
Azinphos methyl (Guthion)	0.13	ND	ND	ND
Parathion methyl	0.18	ND	ND	ND
Malathion	0.17	ND	ND	ND
Parathion (Ethyl Parathion)	0.18	ND	ND	ND
Dioxin				
2, 3, 7, 8-TCDD (Dioxin)	0.847	ND	ND	ND
1,2,3,7,8-PeCDD	1.39	ND	ND	ND
1,2,3,4,7,8-HxCDD	2.01	ND	ND	ND
1,2,3,6,7,8-HxCDD	1.75	ND	ND	ND
1,2,3,7,8,9-HxCDD	3.95	ND	ND	ND
1,2,3,4,6,7,8-HpCDD	2.37	1.8	5.56	2.21
OCDD	9.67	9.09	36.9	10.6
2,3,7,8-TCDF	0.478	ND	ND	ND
1,2,3,7,8-PeCDF	3.06	ND	ND	ND
2,3,4,7,8-PeCDF	1.84	ND	ND	ND
1,2,3,4,7,8-HxCDF	2.06	0.832	ND	ND
1,2,3,6,7,8-HxCDF	2.57	ND	ND	ND
2,3,4,6,7,8-HxCDF	2.48	ND	ND	ND
1,2,3,7,8,9-HxCDF	2.04	ND	ND	ND
1,2,3,4,6,7,8-HpCDF	2.57	1.01	2.32	ND
1,2,3,4,7,8,9-HpCDF	2.38	ND	ND	ND
OCDF	4.26	3.62	5.21	3.23

* Sample specific estimated detection limit - OCDD and OCDF Estimated maximum possible concentration.

Source: ECO:LOGIC, 2005

Appendix F
Air Quality Calculations

ESA

APPENDIX F
Air Quality Criteria Pollutant and Health Risk Modeling

Criteria Pollutant Emissions Modeling

Project-related air quality impacts fall into two categories: short-term construction-related impacts and long-term operations-related impacts. Short-term construction activities would primarily result in the generation of ROG, NO_x, and PM_{10} criteria pollutants. Construction emissions were calculated with the URBEMIS 2002 model version 8.7 and an inventory of required construction equipment (see Attachment 1). Long-term operational emission sources include the WWTP facilities, haul truck trips, and the nominal vehicle emissions associated with routine inspection and maintenance of the expanded WWTP. Long-term vehicular criteria pollutant emissions (truck and worker trips) were calculated using the California Air Resources Board's (CARB) EMFAC2002 emissions model (see Attachment 2), and the long-term expanded WWTP facility emissions were estimated by scaling with respect to currently permitted emissions (see Attachment 3).

Health Risk Assessment

Dispersion modeling analysis was performed to model TAC emissions from additional haul trucks associated with biosolids transport, an additional 1,500 kilowatt emergency generator, increases in processing rates at the WWTP, the replacement of the candle flare with an enclosed flare, and the addition of two digestor gas boilers in association with the expansion project. Dispersion modeling[1] uses hourly averaged meteorological data, terrain elevation data, and emissions and source release data to compute downwind pollutant concentrations over averaging periods ranging from one hour to one year. The results allow a direct comparison of predicted concentrations of pollutants to air quality standards and other criteria such as health risks based on modeled concentrations.

The SJVUAPCD has a significance threshold for health risk exposure to toxic air contaminants (TACs) of 10 cancers per million for 70-year exposure. The SJVUAPCD's *Guide for Assessing and Mitigating Air Quality Impacts*[2] (SJVUAPCD, 2002) indicates that a primary concern is diesel engine exhaust emissions and the potential long-term health risk to sensitive receptors.

[1] Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability.

[2] San Joaquin Valley Air Pollution Control District (SJVAPCD), 2002. Guide for Assessing and Mitigating Air Quality Impacts, Technical Document: Information for Preparing Air Quality Sections in EIRs,

This section presents the methodology used for the dispersion modeling analysis and the subsequent health risk assessment. The methodology is consistent with procedures documented in the EPA *Guideline on Air Quality Models (Revised, 1993),* SJVUAPCD's *Guide for Assessing Air Quality Impacts*, and CalTrans' *Transportation Project-Level Carbon Monoxide Protocol*[3].

Dispersion Modeling Approach

This section presents the methodology used for the dispersion modeling analysis of emission sources. This section addresses all of the fundamental components of an air dispersion modeling analysis including:

- Model selection and options;
- Receptor location;
- Meteorological data; and
- Source release characteristics.

The dispersion modeling analysis estimated ambient TACs concentrations as a result of the expansion project and then determined incremental cancer risk (i.e., the change in cancer risk from the baseline to the future project conditions).

Model Selection and Options

The Industrial Source Complex-3 (ISC3)[4] model was used for the modeling analysis. The ISC3 model is an appropriate model for this analysis based on the coverage of simple, intermediate, and complex terrain. It also predicts both short-term and long-term (annual) average concentrations. The model was executed using the regulatory default options (stack-tip downwash, buoyancy induced dispersion, final plume rise), default wind speed profile categories, default potential temperature gradients, no deposition/depletion of particulate matter, and no pollutant decay. Dispersion modeling analysis tend to be conservative in their prediction of ambient concentrations. Based on observation of the area surrounding the area, rural dispersion coefficients were applied in the analysis.

Receptor Locations

Existing sensitive receptors such as residences, schools, and outdoor recreational areas were chosen as receptors analyzed. Receptors were placed at a height of 1.8 meters (typical breathing height). No terrain elevations were used (i.e., flat terrain). Irrigated pasture, row crops, various agricultural structures, dairies, and scattered rural residences dominate the land use pattern for a

http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf, adopted August 20, 1998, revised January 10, 2002.

[3] California Department of Transportation, Transportation Project-Level Carbon Monoxide Protocol, Davis, California, December 1997.

[4] United States Environmental Protection Agency, Office of Air Quality Planning and Standards, 1995. *User's Guide for the Industrial Source Complex (ISC3) Dispersion Models*, Volumes I and II. EPA-454/B-95-003a and b.

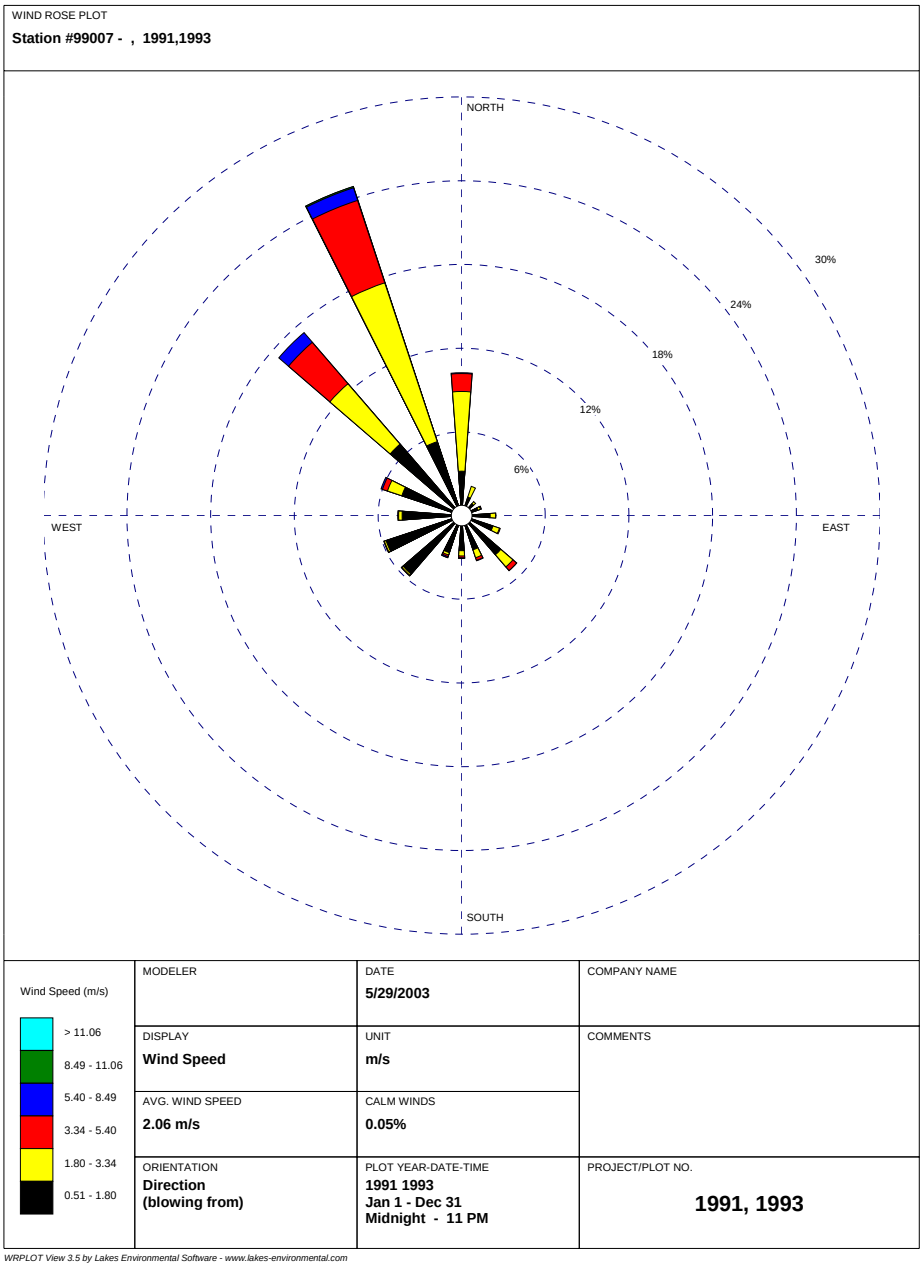
majority of the project area. The nearest sensitive receptor is a farm residence located approximately 1,350 feet to the north of the facility along Gove Road.

Meteorological Data

The rate at which emissions are dispersed in the atmosphere depends upon the intensity of the ambient turbulence, the velocity of the wind, the position relative to obstacles in the flow field, and any dilutions attributable to the source itself. The most important factor leading to plume spread in the atmosphere is the amount of ambient turbulence. In a stable atmosphere, the horizontal and vertical turbulence is very limited. The plume remains near its emission height and undergoes minimal mixing. This situation is common during the nighttime and early morning hours. If the layer below the plume height becomes neutral to unstable, the plume mixes rapidly to the surface. This is known as a fumigation condition and can cause high concentrations. This occurs for short duration during the early morning. As heating of the surface persists, a fully unstable mixing layer develops, and the plume loops up and down in response to large-scale convective eddies. A neutral stability atmosphere yields moderate amounts of turbulence and results in a cone-shaped plume. Finally, if an inversion is present below the emission height, a lofting condition exists and the plume is cut off from ground level impacts.

Surface meteorological data and upper air meteorological (mixing height) data from Firebaugh and Sacramento, California, respectively, were used for the modeling analysis (http://www.arb.ca.gov/harp/toxics/metfiles.htm). Meteorological data were obtained from CARB and used for this health risk assessment. Data from 1991 and 1993 was used and the worst case year of analysis was reported. **Figure 1** presents a windrose of the meteorological data. Note that the dominate wind direction is from the north-northwest; thus, the nearest sensitive receptor is upwind of the facility.

Figure 1
Windrose of Firebaugh, California



Source Release Characteristics

Dispersion modeling analysis was performed to model TAC emissions from haul trucks, an emergency generator, the WWTP, the replacement of the candle flare with an enclosed flare, and two digestor gas boilers in association with the expansion project. The haul trucks were separated into two emission sources; an idling area and the roadway. The emergency generator was modeled as a point source. The WWTP was modeled as an area with a height of three meters and located in the area of the clarifiers, headworks, and other processing units. The two flares and the digestor gas boilers were treated as point sources. Source locations were based on **Figure 2-3** of the Project Description.

Emission rates for the haul trucks were based on CARB's EMFAC2002[5] emission model and include promulgated regulations concerning on-road vehicles. The DPM emissions are approximately 88 percent of the emissions of exhaust PM10 from diesel powered equipment (per U.S. EPA guidance). The emission rates for the remaining emissions sources utilized information contained within existing permits, submitted permit applications for proposed equipment (dated February 20, 2006), and , EPA's *Compilation of Air Pollutant Emission Factors* (AP-42). Operational information (types of equipment, equipment size, hours of operation, and exhaust parameters) was also provided within existing permits and permit applications. The Air Quality section of this EIR provides additional information related the determination of VOC and DPM emissions for the proposed project. **Table 1** presents the exhaust parameters for the point sources. The following presents a brief description of the emissions sources which would be added or modified as a result of the expansion project.

TABLE 1
EXHAUST PARAMETERS

Source	Height (m)	Diameter (m)	Velocity (m/s)	Temperature (K)
Generator	7.92	0.36	57.3	764
Candle Flare	3.05	0.18	0.67	1033
Enclosed Flare	18.3	1.22	3.00	1033
Digestor Gas Boiler	7.92	0.36	57.3	764

m = meters.
m/s = meters per second.
K = Kelvin.

An additional emergency standby generator would supply backup power for the WWTP and supplement an existing generator. The generator would be diesel-powered and rated at 2,200 horsepower and limited to 200 hours per year of operation. Two 5.23 MMBTU digestor gas boilers will also be added to the proposed project.

[5] California Air Resources Board, 2003. Emfac2002 (Version 2.2) - Calculating Emission Inventories for Vehicles in California.

Flaring is a high-temperature oxidation process used to burn combustible components, mostly hydrocarbons, of waste gases from industrial operations. There are two types of flares, elevated and ground flares. For the proposed project, the proposed enclosed flare can be considered elevated and the existing candle flare can be considered ground-based.

Elevated flares tend to have larger capacities than ground flares. In elevated flares, a waste gas stream is fed through a stack and is combusted at the tip of the stack. The elevated flare is typically more protected from atmospheric disturbances such as wind and precipitation than the ground flare. In ground flares, combustion takes place at ground level. Ground flares vary in complexity, and they may consist either of conventional flare burners discharging horizontally with no enclosures or of multiple burners in refractory-lined steel enclosures.

For the proposed project, a candle flare would be replaced by a 13.66 MMBTU capacity enclosed flare. The enclosed flare would provide a greater VOC destruction efficiency than the candle flare (from 0.14 to 0.063 pounds per MMBTU), leading to lower VOC emissions with the enclosed flare.

VOCs are also emitted from waste water collection, treatment, and storage systems through volatilization of organic compounds at the liquid surface. Emissions can occur by diffusive or convective mechanisms, or both. Diffusion occurs when organic concentrations at the water surface are much higher than ambient concentrations. The organics volatilize, or diffuse into the air, in an attempt to reach equilibrium between aqueous and vapor phases. Convection occurs when air flows over the water surface, sweeping organic vapors from the water surface into the air. The rate of volatilization relates directly to the speed of the air flow over the water surface.

The proposed project would increase the existing processing rate from 10 mgd to 20 mgd in 2010. These increases in processing rates would result in a direct relationship to increases in VOC emissions. Two factors would provide an improvement to VOC emissions with the proposed project (on a per mgd basis); 1) tertiary treatment improvements to the WWTP include the addition of cloth-media “disk” filters and replacing the chlorine disinfection system with an ultra-violet light disinfection system (providing for a decrease in chloroform emissions), and 2) enclosing the proposed headworks, thus eliminating exposure to the ambient air.

Health Risk Analysis Methodology

The principal issues related to health risks from the project pertain to emissions of TAC from the WWTP, flare, and digestor gas boilers and exhaust of diesel trucks and emergency generator. The incremental risk was determined for these sources of TACs in order to obtain an estimated total incremental carcinogenic health risk. The TACs of interest include (but not limited to) chloroform, DPM, formaldehyde, benzene, ammonia, and some metals.

California OEHHA has declared DPM emissions from engine exhaust to be a probable carcinogen, and a toxic potency unit risk factor (URF) of 300 in a million for chronic exposure to one microgram per cubic meter was established. OEHHA also provides URF for other TACs[6].

[6] http://www.oehha.ca.gov/air.html

To estimate the health risks from the proposed project, a dispersion modeling analysis was conducted to determine the chronic (long-term average) ambient air concentrations. Health impacts of project-related emissions were assessed by estimating concentrations at the nearest sensitive receptor; a farm residence located approximately 1,350 feet to the north of the WWTP. The annual average concentrations for this location were estimated for the years of interest; 2006 (baseline) and 2010 (future project milestone). The health impacts for the proposed project were than compared to health risk associated with the baseline condition (to determine the incremental health impacts) and then compared to the significance thresholds.

Cancer Risks

The cancer risks from the TAC of concern for this project occur exclusively through the inhalation pathway; therefore the cancer risks can be estimated from the following equation:

$$CR_{DPM} = \sum_{i=1}^{\text{No.exposure periods}} C_{DPMi} \bullet URF_{DPM} \bullet LEA \bullet \text{Exposure Duration}_i / 70 \text{ years}$$

where,

CR_{DPM} Cancer risk, the probability of an individual developing cancer as a result of exposure to DPM.

$C_{DPMi.}$ Annual average concentration in $\mu g/m^3$during the i^{th} exposure period

URF_{DPM} Unit risk factor, estimated probability that a person will contract cancer as a result of inhalation of a concentration of 1 $\mu g/m^3$ continuously over a period of 70 years.

Exposure Periods Number of discrete time periods where exposure to different levels will occur with the overall 70-year exposure period.

Exposure Duration$_i$ Number of years for the ith exposure period (total exposure duration will be 70 years.

Exposure Time 24 hours per day

Exposure Duration 365 days per year

LEA Lifetime exposure adjustment. The LEA at residential receptors is 1.0.

The average overall risk of typical person in California should be understood. CARB conducted a study to estimate cancer risks from exposure to DPM in the State and to develop a risk reduction plan[7]. The Study reported that the statewide average ambient air concentration of DPM was

[7] California Air Resource Board (CARB), 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000.

determined by using measured ambient air concentrations of surrogates to DPM in a receptor model to estimate exposure levels. For the year 2000, the statewide average cancer risk from exposure to diesel exhaust was estimated to be 540 in a million. The Study also states that cancer risks from diesel exhaust are about 70 percent of the total risks from exposure to toxic air contaminants in the ambient air.

Non-cancer Risks

The relationship for the non-cancer health effects is given by the following equation:

$HI_{DPM} = C_{DPM}/REL_{DPM}$

where,

HI_{DPM}	Hazard Index; an expression of the potential for non-cancer health effects.
C_{DPM}	Annual average concentration ($\mu g/m^3$).
REL_{DPM}	Reference exposure level (REL); the concentration at which no adverse health effects are anticipated.

The chronic REL for DPM was established by OEHHA as 5 $\mu g/m^3$.

Conclusions

Using the URF, as established by OEHHA, the maximum carcinogenic risk of the proposed project over a 70 year lifetime of exposure from nearby sources is estimated to less than 7 cancers in a million (at the maximum exposed individual), assuming no reductions in emissions in the future from regulations related to DPM emissions. A majority of the health risk is due to chloroform and DPM emissions from the WWTP and the haul trucks, respectively. However, given projected decreases in DPM emissions due to regulations (approximately 85 percent reductions), the 70 year average lifetime cancer risk for the proposed project is estimated to be less than the risk for the baseline condition. These estimated cancer risks are small when compared to current and future cancer risks from exposure to all TACs in California. The current cancer risk estimates by CARB range from 500 to 1,000 in a million in the Los Angeles area, while future cancer risks are estimated at 75 to 150 in a million.

In addition, the maximum annual average concentration of DPM from nearby sources is much less than the non-carcinogenic LEA of 5 $\mu g/m^3$, thus leading to a hazard index of 0.01 compared to a significance threshold of 1. Thus, the impacts of DPM on the proposed project site would be less than significant.

Four factors associated with the proposed project provide a direct connection to this less than significant impact; 1) the replacement of the candle flare with the enclosed flare (a taller emission source with greater VOC control efficiency), 2) tertiary treatment improvements to the WWTP include the addition of cloth-media "disk" filters and replacing the chlorine disinfection system with an ultra-violet light disinfection system (providing for a decrease in chloroform emissions),

3) enclosing the proposed headworks, and 4) the future improvements to haul trucks leading to reductions in DPM emissions.

Attachment 1: URBEMIS2002 Output

Page: 1
02/21/2006 2:42 PM

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Merced WWTP Expansion.urb
Project Name: Merced WWTP Expansion
Project Location: San Joaquin Valley
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

CONSTRUCTION EMISSION ESTIMATES

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	7.22	45.38	61.16	0.00	12.88	1.74	11.14

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (tpy, unmitigated)	2.41	14.79	20.49	0.00	4.24	0.53	3.71

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	0.00	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	0.00	0.00	0.00	0.00	0.00

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	0.00	0.00	0.00	0.00	0.00

Page: 2
02/21/2006 2:42 PM

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Merced WWTP Expansion.urb
Project Name: Merced WWTP Expansion
Project Location: San Joaquin Valley
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

Construction Start Month and Year: April, 2007
Construction Duration: 12
Total Land Use Area to be Developed: 45 acres
Maximum Acreage Disturbed Per Day: 11.25 acres
Single Family Units: 0 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (tons/year)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 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
Total tons/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	11.14	-	11.14
Off-Road Diesel	7.16	45.30	59.75	-	1.74	1.74	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.06	0.08	1.41	0.00	0.01	0.00	0.00
Total tons/year	7.22	45.38	61.16	0.00	12.88	1.74	11.14
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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				
Total tons/year	0.00	0.00	0.00	0.00	0.00
0.00	0.00				
Total all phases tons/yr	7.22	45.38	61.16	0.00	12.88
1.74	11.14				
*** 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				
Total tons/year	0.00	0.00	0.00	0.00	0.00
0.00	0.00				
Phase 2 - Site Grading Emissions					
Fugitive Dust	-	-	-	-	3.71
-	3.71				
Off-Road Diesel	2.39	14.76	20.01	-	0.53
0.53	0.00				
On-Road Diesel	0.00	0.00	0.00	0.00	0.00
0.00	0.00				
Worker Trips	0.02	0.03	0.48	0.00	0.00
0.00	0.00				
Total tons/year	2.41	14.79	20.49	0.00	4.24
0.53	3.71				
Phase 3 - Building Construction					
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00
0.00	0.00				
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00
0.00	0.00				
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				
Total tons/year	0.00	0.00	0.00	0.00	0.00
0.00	0.00				
Total all phases tons/yr	2.41	14.79	20.49	0.00	4.24
0.53	3.71				

Page: 3
02/21/2006 2:42 PM

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Apr '07
Phase 2 Duration: 12 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Cranes	190	0.430	8.0
2	Excavators	180	0.580	8.0
2	Graders	174	0.575	8.0
10	Off Highway Trucks	417	0.490	8.0
4	Other Equipment	190	0.620	8.0
1	Pavers	132	0.590	8.0
1	Rollers	114	0.430	8.0
2	Rough Terrain Forklifts	94	0.475	8.0
2	Rubber Tired Loaders	165	0.465	8.0
3	Scrapers	313	0.660	8.0
3	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Apr '08
Phase 3 Duration: 0 months
  SubPhase Building Turned OFF
  SubPhase Architectural Coatings Turned OFF
  SubPhase Asphalt Turned OFF

Page: 4
02/21/2006 2:42 PM

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

The user has overridden the Default Phase Lengths

Changes made to the default values for Area

Changes made to the default values for Operations

Attachment 2: EMFAC2002 Emission Factors and Emissions Modeling

Construction Traffic

Air Quality Analysis for Mobile Emissions - Construction
Merced WWTP Expansion

grams/mile

Emission Factors - EMFAC2002

LDA	ROG	CO	NOx	PM10
2007	0.162	4.041	0.324	0.032
2008	0.14	3.607	0.287	0.031
LDT	**ROG**	**CO**	**NOx**	**PM10**
2007	0.291	7.011	0.616	0.038
2008	0.257	6.33	0.555	0.038
MDT	**ROG**	**CO**	**NOx**	**PM10**
2007	0.277	5.111	0.853	0.044
2008	0.25	4.706	0.773	0.044
HDT	**ROG**	**CO**	**NOx**	**PM10**
2007	0.878	7.628	8.742	0.286
2008	0.811	6.945	8.013	0.267

lbs/VMT
Entrained
PM10
0.0014

grams/VMT
Entrained PM10
0.6502

Assumed average speed of MDT and HDT vehicle type to be 35 mph, LDA and LDV 45 mph to and from the project site.
Assumed average distance to and from the project site to be 20 miles each way.

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Doubled trip length to take into account round trips

Mobile Emissions Associated with Construction Worker and Haul trips in 2nd Q 2007 through 1st Q 2008 (worse-case year)

Emission Factors

		ROG	CO	Nox	PM10
LDV	2007 emissions (grams/mile)	0.2265	5.526	0.47	0.035
	2007 emissions (pounds/mile)	4.99E-04	1.22E-02	1.04E-03	7.72E-05

Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
40	88	3520	1.76	42.88	3.65	5.32

--50 Haul Truck Trips per Day--

		ROG	CO	Nox	PM10
MDT	2007 emissions (grams/mile)	0.277	5.111	0.853	0.044
	2007 emissions (pounds/mile)	6.11E-04	1.13E-02	1.88E-03	9.70E-05

Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
40	37	1480	0.90	16.68	2.78	2.27

		ROG	CO	Nox	PM10
HDT	2007 emissions (grams/mile)	0.878	7.628	8.742	0.286
	2007 emissions (pounds/mile)	1.94E-03	1.68E-02	1.93E-02	6.31E-04

Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
40	13	520	1.01	8.74	10.02	1.07

--100 Haul Truck Trips per Day--

		ROG	CO	Nox	PM10
MDT	2007 emissions (grams/mile)	0.277	5.111	0.853	0.044
	2007 emissions (pounds/mile)	6.11E-04	1.13E-02	1.88E-03	9.70E-05

Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
40	75	3000	1.83	33.80	5.64	4.59

		ROG	CO	Nox	PM10
HDT	2007 emissions (grams/mile)	0.878	7.628	8.742	0.286
	2007 emissions (pounds/mile)	1.94E-03	1.68E-02	1.93E-02	6.31E-04

Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
40	25	1000	1.94	16.82	19.27	2.06

Construction Trip Emissions

2007 - Construction Crew and 50 Haul Trucks per day

	ROG	CO	Nox	PM10
lbs/day	3.67	68.30	16.45	8.66

2007 - Construction Crew and 100 Haul Trucks per day

	ROG	CO	Nox	PM10
lbs/day	5.53	93.50	28.56	11.97

2008 - Construction Crew and 50 Haul Trucks per day

	ROG	CO	Nox	PM10
lbs/day	3.29	61.87	14.98	8.63

2nd Quarter 2007 through 1st Quarter 2008 Annual Construction Traffic Emissions

	ROG	CO	Nox	PM10
lbs/year	1188	20934	5844	2721
tons/year	0.59	10.47	2.92	1.36

				Emission Factors			
				ROG	CO	Nox	PM10
LDV	2008 emissions (grams/mile)			0.1985	4.9685	0.421	0.0345
	2008 emissions (pounds/mile)			4.38E-04	1.10E-02	9.28E-04	7.61E-05
	Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
	40	88	3520	1.54	38.56	3.27	5.31
MDT				ROG	CO	Nox	PM10
	2008 emissions (grams/mile)			0.25	4.706	0.773	0.044
	2008 emissions (pounds/mile)			5.51E-04	1.04E-02	1.70E-03	9.70E-05
	Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
	40	37	1480	0.82	15.35	2.52	2.27
HDT				ROG	CO	Nox	PM10
	2008 emissions (grams/mile)			0.811	6.945	8.013	0.267
	2008 emissions (pounds/mile)			1.79E-03	1.53E-02	1.77E-02	5.89E-04
	Miles/Trip	Trips/Day	Miles/Day	Mobile Source Emissions (pounds per day)			
	40	13	520	0.93	7.96	9.19	1.05

Operational Traffic

Merced WWTP Expansion - Operation Mobile Emissions

grams/mile

EMFAC2002 Emissions Factors

LDA	ROG	CO	NOx	PM10
2006	0.186	4.461	0.361	0.032
2007	0.162	4.041	0.324	0.032
2009	0.119	3.175	0.25	0.031
2010	0.1	2.789	0.218	0.031
LDT	**ROG**	**CO**	**NOx**	**PM10**
2006	0.323	7.662	0.675	0.038
2007	0.291	7.011	0.616	0.038
2009	0.224	5.635	0.494	0.037
2010	0.193	4.983	0.437	0.037
MDT	**ROG**	**CO**	**NOx**	**PM10**
2006	0.307	5.564	0.942	0.044
2007	0.277	5.111	0.853	0.044
2009	0.226	4.334	0.701	0.044
2010	0.203	3.985	0.628	0.044
HDT	**ROG**	**CO**	**NOx**	**PM10**
2006	0.949	8.389	9.5	0.306
2007	0.878	7.628	8.742	0.286
2009	0.746	6.344	7.334	0.251
2010	0.685	5.808	6.572	0.232

lbs/VMT
Entrained
PM10
0.0014335

grams/VMT
Entrained PM10
0.650243

Assumed average speed of MDT and HDT vehicle type to be 35 mph, LDA and LDV 45 mph to and from the project site.
Assumed average distance to and from the project site to be 20 miles each way.

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day
Note: Doubled trip length to take into account round trips

Mobile Emissions Associated with Operational Trips 2006 (existing scenario 10mgd)

Emission Factors

		ROG	CO	Nox	PM10
LDV	2006 emissions (grams/mile)	0.2545	6.0615	0.518	0.035
	2006 emissions (pounds/mile)	5.61E-04	1.34E-02	1.14E-03	7.72E-05

Miles/Trip	Trips/year	Miles/year	Mobile Source Emissions (pounds per year)			
40	5475	219000	122.8745	2926.54	250.09	330.84

		ROG	CO	Nox	PM10
HDT	2006 emissions (grams/mile)	0.949	8.389	9.5	0.306
	2006 emissions (pounds/mile)	2.09E-03	1.85E-02	2.09E-02	6.75E-04

Miles/Trip	Trips/year	Miles/year	Mobile Source Emissions (pounds per year)			
0.5	150	75	0.16	1.39	1.57	0.16

Mobile Emissions Associated with Operational Trips 2007 (alternate baseline 10mgd)

Emission Factors

		ROG	CO	Nox	PM10
LDV	2007 emissions (grams/mile)	0.2265	5.526	0.47	0.035
	2007 emissions (pounds/mile)	4.99E-04	1.22E-02	1.04E-03	7.72E-05

Miles/Trip	Trips/year	Miles/year	Mobile Source Emissions (pounds per year)			
40	5475	219000	109.3559	2667.99	226.92	330.84

		ROG	CO	Nox	PM10
HDT	2007 emissions (grams/mile)	0.878	7.628	8.742	0.286
	2007 emissions (pounds/mile)	1.94E-03	1.68E-02	1.93E-02	6.31E-04

Miles/Trip	Trips/year	Miles/year	Mobile Source Emissions (pounds per year)			
130	150	19500	37.74	327.93	375.82	40.25

Mobile Emissions Associated with Operational Trips 2010 (worse-case year for 20mgd)

Emission Factors

		ROG	CO	Nox	PM10
LDV	2010 emissions (grams/mile)	0.1465	3.886	0.3275	0.034
	2010 emissions (pounds/mile)	3.23E-04	8.57E-03	7.22E-04	7.50E-05

Miles/Trip	Trips/year	Miles/year	Mobile Source Emissions (pounds per year)			
40	7665	306600	99.0238	2626.67	221.37	462.50

10 mgd

	2006 - Operations: worker and haul trips			
	ROG	CO	Nox	PM10
lbs/year	123.03	2927.92	251.67	331.00
tons/year	0.06	1.46	0.13	0.17

Note: On-site disposal of biosolids would be allowed up until 2007, at which time the solids would be hauled to the Forward Landfill in Manteca, 130 miles roundtrip.

10 mgd

	2006 - Operations: worker and haul trips			
	ROG	CO	Nox	PM10
lbs/year	147.10	2995.92	602.74	371.09
tons/year	0.07	1.50	0.30	0.19

Note: On-site disposal of biosolids would be allowed up until 2007, at which time the solids would be hauled to the Forward Landfill in Manteca, 130 miles roundtrip.

20 mgd

	2010 - Operations: worker and haul trips			
	ROG	CO	Nox	PM10
lbs/year	100.10	2635.76	231.65	463.88
tons/year	0.05	1.32	0.12	0.23

HDT			ROG	CO	Nox	PM10
2010 emissions (grams/mile)			0.685	5.808	6.572	0.232
2010 emissions (pounds/mile)			1.51E-03	1.28E-02	1.45E-02	5.11E-04
Miles/Trip	Trips/year	Miles/year	Mobile Source Emissions (pounds per year)			
2	355	710	1.07	9.09	10.29	1.38

Attachment 3: WWTP Facility Emissions

Emission Factors

10 mgd (existing)

Equipment or Process	Permit #	Horsepower	MMBTU/hr	Total Permitted Fuel Usage	Units	Emission Factor NOx	VOC	CO	PM10	SO2
Cummins 4BT3.9G1 - diesel generator	N-4215-1-0	102		24 hours per day(?), 40 hours/year	lb/hp-hr	0.031	0.0025141	6.68E-03	2.50E-01	2.05E-03
Cummins KTA50-G9 - diesel generator	N-4302-8-0	2200		24 hours per day(?), 200 hours/year	g/hp-hr	6.9	0.17	1.3	0.11	8.09E-03
Detroit 8V92T diesel generator	N-4302-3-0	402		24 hours per day(?), 200 hours/year	lb/hp-hr	0.031	0.0025141	6.68E-03	2.20E-03	2.05E-03
Waukesha F3521GL lean digester gas fired engine - assume 650 Btu/scf	N-4302-4-1	350	1.25	46325 scf/day, 365 days per year (?)	g/hp-hr	0.8	0.25	2.75	0.1	4.08
AJAX WFGO2500 Fuel Oil Boiler	N-4302-6-0		2.5	43,800 gallons/yr, 2.5 MMBTu/hr	lb/MMBTu	0.143	0.0014	0.0357	0.014	0.203
WWTP				24 hrs per day, 365 days/yr	lb/day	NA	1.2573342	NA	NA	NA
Flares - assume 13.65 MMBTU/hr			13.65	UNITS = lb/106 BTU (or lb/MMBTU)		0.068	0.14	0.37	NA	NA

20 mgd

Equipment or Process	Permit #	Horsepower	MMBTU/hr	Total Permitted Fuel Usage		Emission Factor NOx	VOC	CO	PM10	SO2
Cummins 4BT3.9G1 - diesel generator	N-4215-1-0	102		24 hours per day(?), 40 hours/year	lb/hp-hr	0.031	0.0025141	6.68E-03	2.50E-01	2.05E-03
Cummins KTA50-G9 - diesel generator	N-4302-8-0	2200		24 hours per day(?), 200 hours/year	g/hp-hr	6.9	0.17	1.3	0.11	8.09E-03
Detroit 8V92T diesel generator	N-4302-3-0	402		24 hours per day(?), 200 hours/year	lb/hp-hr	0.031	0.0025141	6.68E-03	2.20E-03	2.05E-03
Waukesha F3521GL lean digester gas fired engine - assume 650 Btu/scf	N-4302-4-1	350	1.25	46325 scf/day, 365 days per year (?)	g/hp-hr	0.8	0.25	2.75	0.1	4.08

AJAX WFGO2500 Fuel Oil Boiler	N-4302-6-0		2.5	43,800 gallons/yr, 2.5 MMBTu/hr	lb/MMBTu	0.143	0.0014	0.0357	0.014	0.203
WWTP				24 hrs per day, 365 days/yr	lb/day	NA	2.5146684	NA	NA	NA
Flares - 13.65 MMBTU/hr			13.65	24 hrs per day, 365 days/yr	lb/MMBTu	0.06	0.063	0.3	NA	NA
Cummins QSK50 - diesel generator		2200		24 hrs per day, 200hrs/yr	g/hp-hr	6.9	1	2.6	0.15	8.09E-03
Cleaver Brooks CBE 125 or Hurst 400 (2 digester gas boilers - 1 is backup)			5.23	24 hrs/day, 8760 hrs/yr	ppmv	15	100	400	NA	NA

Conversion Factors and Emissions (LB/Day)

10 mgd (existing)

		Conversion Factor from g/hphr to lb/hphr						Emissions (pounds per day)				
Equipment or Process	Permit #		NOx	VOC	CO	PM10	SO2	NOx	VOC	CO	PM10	SO2
Cummins 4BT3.9G1 - diesel generator	N-4215-1-0	lb/hp-hr	3.10E-02	2.51E-03	6.68E-03	5.51E-04	2.05E-03	75.89	6.15	16.35	1.35	5.02
Cummins KTA50-G9 - diesel generator	N-4302-8-0	lb/hp-hr	1.52E-02	3.75E-04	2.87E-03	2.43E-04	1.78E-05	803.17	19.79	151.32	12.80	0.94
Detroit 8V92T diesel generator	N-4302-3-0	lb/hp-hr	3.10E-02	2.51E-03	6.68E-03	2.20E-03	2.05E-03	299.09	24.26	64.45	21.23	19.78
Waukesha F3521GL lean digester gas fired engine - assume 650 Btu/scf	N-4302-4-1	lb/hp-hr	1.76E-03	5.51E-04	6.06E-03	2.20E-04	4.08E+00	14.81	4.63	50.93	1.85	122.85
AJAX WFGO2500 Fuel Oil Boiler	N-4302-6-0	lb/MMBTu	1.43E-01	1.40E-03	3.57E-02	1.40E-02	2.03E-01	8.58	0.08	2.14	0.84	12.18
WWTP		lb/day	NA	1.26E+00	NA	NA	NA	0.00	1.26	0.00	0.00	0.00
Flares - assume 13.65 MMBTU/hr		lb/MMBTU	6.80E-02	1.40E-01	3.70E-01	NA	NA	22.28	45.86	121.21	0.00	0.00

20 mgd

								Emissions (pounds per day)				
Equipment or Process	Permit #		NOx	VOC	CO	PM10	SO2	NOx	VOC	CO	PM10	SO2
Cummins 4BT3.9G1 - diesel generator	N-4215-1-0	lb/hp-hr	3.10E-02	2.51E-03	6.68E-03	5.51E-04	2.05E-03	75.89	6.15	16.35	1.35	5.02
Cummins KTA50-G9 - diesel generator	N-4302-8-0	lb/hp-hr	1.52E-02	3.75E-04	2.87E-03	2.43E-04	1.78E-05	803.17	19.79	151.32	12.80	0.94
Detroit 8V92T diesel generator	N-4302-3-0	lb/hp-hr	3.10E-02	2.51E-03	6.68E-03	2.20E-03	2.05E-03	299.09	24.26	64.45	21.23	19.78

Waukesha F3521GL lean digester gas fired engine - assume 650 Btu/scf	N-4302-4-1	lb/hp-hr	1.76E-03	5.51E-04	6.06E-03	2.20E-04	4.08E+00	14.81	4.63	50.93	1.85	122.85
AJAX WFGO2500 Fuel Oil Boiler	N-4302-6-0	lb/MMBTu	1.43E-01	1.40E-03	3.57E-02	1.40E-02	2.03E-01	8.58	0.08	2.14	0.84	12.18
WWTP		lb/day	NA	2.51E+00	NA	NA	NA	0.00	2.51	0.00	0.00	0.00
Flares - 13.65 MMBTU/hr		lb/MMBTu	6.00E-02	6.30E-02	3.00E-01	NA	NA	19.66	20.64	98.28	0.00	0.00
Cummins QSK50 - diesel generator		lb/hp-hr	1.52E-02	2.20E-03	5.73E-03	3.31E-04	1.78E-05	803.17	116.40	302.65	17.46	0.94
Cleaver Brooks CBE 125 or Hurst 400 (2 digester gas boilers - 1 is backup)		lb/hp-hr	9.89E-03	6.59E-02	2.64E-01	NA	NA	1.24	8.27	33.09	0.00	0.00

Facility Emissions – Total Tons/Year

10 mgd (existing)			Emissions (tons/year)				
Equipment or Process	Permit #		NOx	VOC	CO	PM10	SO2
Cummins 4BT3.9G1 - diesel generator	N-4215-1-0		0.06	0.01	0.01	0.00	0.00
Cummins KTA50-G9 - diesel generator	N-4302-8-0		3.35	0.08	0.63	0.05	0.00
Detroit 8V92T diesel generator	N-4302-3-0		1.25	0.10	0.27	0.09	0.08
Waukesha F3521GL lean digester gas fired engine - assume 650 Btu/scf	N-4302-4-1		2.70	0.84	9.29	0.34	22.42
AJAX WFGO2500 Fuel Oil Boiler	N-4302-6-0		0.44	0.00	0.11	0.04	0.62
WWTP			0.00	0.23	0.00	0.00	0.00
Flares - assume 13.65 MMBTU/hr			4.07	8.37	22.12	0.00	0.00
		TOTALS	11.86	9.64	32.44	0.52	23.13

20 mgd			Emissions (tons/year)				
Equipment or Process	Permit #		NOx	VOC	CO	PM10	SO2
Cummins 4BT3.9G1 - diesel generator	N-4215-1-0		0.06	0.01	0.01	0.00	0.00
Cummins KTA50-G9 - diesel generator	N-4302-8-0		3.35	0.08	0.63	0.05	0.00
Detroit 8V92T diesel generator	N-4302-3-0		1.25	0.10	0.27	0.09	0.08
Waukesha F3521GL lean digester gas fired engine - assume 650 Btu/scf	N-4302-4-1		2.70	0.84	9.29	0.34	22.42
AJAX WFGO2500 Fuel Oil Boiler	N-4302-6-0		0.44	0.00	0.11	0.04	0.62
WWTP			0.00	0.46	0.00	0.00	0.00
Flares - 13.65 MMBTU/hr			3.59	3.77	17.94	0.00	0.00
Cummins QSK50 - diesel generator			3.35	0.49	1.26	0.07	0.00
Cleaver Brooks CBE 125 or Hurst 400 (2 digester gas boilers - 1 is backup)			0.23	1.51	6.04	0.00	0.00
		TOTALS	14.96	7.26	35.55	0.60	23.14

Appendix G
Biological Assessment

ESA

CITY OF MERCED
WASTEWATER TREATMENT PLANT
EXPANSION PROJECT

Biological Assessment

Prepared for:
City of Merced
Department of Public Works

July 2006

CITY OF MERCED
WASTEWATER TREATMENT PLANT
EXPANSION PROJECT

Biological Assessment

Prepared for:
City of Merced
Department of Public Works

July 2006

8950 Cal Center Drive
Building 3, Suite 300
Sacramento, CA 95826
916.564.4500
www.esassoc.com

Los Angeles

Oakland

Orlando

Petaluma

San Francisco

Seattle

Tampa

205087

TABLE OF CONTENTS

Biological Assessment

List of Figures

List of Tables

SECTION 1
Introduction

1.1 Purpose of This Assessment

The purpose of this biological assessment (BA) is to assess the proposed expansion of the City of Merced's (City) Wastewater Treatment Plant (WWTP) (Project or Proposed Action) in sufficient detail to determine to what extent it may affect any of the federally designated or proposed species listed in Section 1.3 of this document. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 USC 1536(c)) and follows the standards established in the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service's (NMFS) Section 7 Consultation Handbook (USFWS and NMFS, 1998)

The City is the lead agency for the Proposed Action. The Proposed Action will be submitted to the State Water Resources Control Board (SWRCB), Division of Clean Water Programs, to be considered for funding under the State Revolving Fund Loan Program. The SWRCB and other agencies having jurisdiction over the Project are Responsible Agencies. Because the loan program is partially funded by the U.S. Environmental Protection Agency (USEPA), it is subject to certain additional provisions of applicable federal regulations, including the Federal Endangered Species Act (FESA). This BA is prepared pursuant to Section 7(a)(2) of the Endangered Species Act, which requires that federal agencies ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat.

1.2 Consultation to Date

Consultation with the USFWS began on February 8, 2006, when FESA, acting on behalf of the City, obtained from the USFWS a formal species list for the U.S. Geological Survey (USGS) 7½-minute quadrangles for Atwater and Sandy Mush (Document number: 060208123857) (see Section 1.3, below).

1.3 Species Considered in This Document

Pursuant to Section 7(c) of the Endangered Species Act, the USFWS provided a list of protected species and critical habitat potentially found within the Action Area (see Appendix A). On May 17, 2006, this list was updated by accessing the USFWS' website

(www.fws.gov/pacific/sacramento/es/). This list and pertinent species literature were reviewed to determine if the Action Area contained potential habitat for a given species and was within the species' known range. The following species are considered and addressed in this assessment:

TABLE 1-1
SPECIES CONSIDERED IN THIS ASSESSMENT

Scientific Name	Common Name	Status
Branchinecta conservatio	Conservancy fairy shrimp	Endangered
Branchinecta longiantenna	Longhorn fairy shrimp	Endangered
Lepidurus packardi	Vernal pool tadpole shrimp	Endangered
Oncorhynchus tshawytscha	Winter-run Chinook salmon, Sacramento River	Endangered
Gambelia (=Crotaphytus) sila	Blunt-nosed leopard lizard	Endangered
Dipodomys nitratoides exilis	Fresno kangaroo rat	Endangered
Vulpes macrotis mutica	San Joaquin kit fox	Endangered
Branchinecta lynchi	Vernal pool fairy shrimp	Threatened
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	Threatened
Hypomesus transpacificus	Delta smelt	Threatened
Oncoryhynchus mykiss	Central Valley steelhead	Threatened
Oncorhynchus tshawytscha	Central Valley spring-run Chinook salmon	Threatened
Ambystoma californiense	California tiger salamander	Threatened
Rana aurora draytonii	California red-legged frog	Threatened
Thamnophis gigas	Giant garter snake	Threatened
Haliaeetus leucocephalus	Bald eagle	Threatened
Chamaesyce hooveri	Hoover's spurge	Threatened
Neostapfia colusana	Colusa grass	Threatened
Oncorhynchus tshawytscha	Central Valley fall/late fall-run Chinook salmon	Candidate

1.4 Critical Habitat Considered in This Document

Projects in the USGS 7½-minute quadrangles for Atwater and/or Sandy Mush could affect critical habitat designated for six of the above species, including: conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog, Hoover's spurge, and Colusa grass (Appendix A). The Action Area is located about 17 miles west of, and downstream from, designated critical habitat for these species. The longhorn fairy shrimp, valley elderberry longhorn beetle, delta smelt, Central Valley steelhead, Central Valley spring-run Chinook salmon, winter-run Chinook salmon, Central Valley fall/late fall-run Chinook salmon, California tiger salamander, blunt-nosed leopard lizard, giant garter snake, bald eagle, Fresno kangaroo rat, and San Joaquin kit fox do not have designated critical habitat that could be affected by projects in the USGS 7½-minute quadrangles for Atwater and Sandy Mush.

SECTION 2
Description of Proposed Action

2.1 Overview

The Proposed Action is an upgrade and expansion of the City's existing wastewater treatment plant (WWTP) to accommodate planned wastewater loads generated within the City's Specific Urban Development Plan (SUDP) area and the University of California-Merced's (UC-Merced) Long-Range Development Plan (LRDP) area, and to comply with current and anticipated effluent quality regulatory limits. The Proposed Action would initially increase the capacity of the WWTP to 15 million gallons per day (mgd) through a series of improvements. Ultimately, the Proposed Action would increase the WWTP capacity to 20 mgd with additional improvements as needed to meet planned wastewater loads.

2.2 Project Location

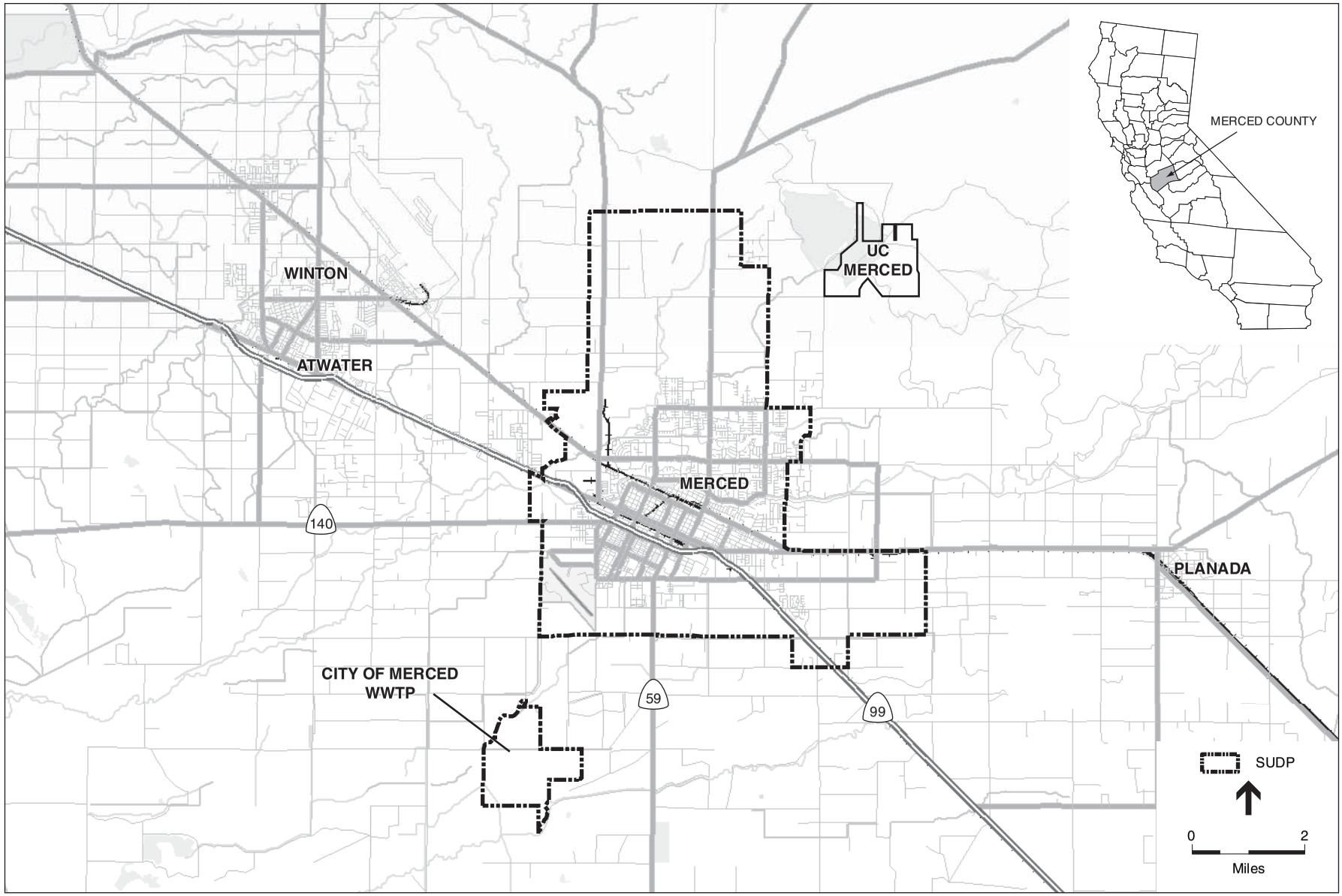
The City of Merced's WWTP is located within the city limits at the south end of Gove Road and about 1.5 miles south of the main area enclosed by the city limits (U.S. Geological Survey 7.5-minute Atwater quadrangle, T8S, R13E (MDB&M)). Figure 2-1 shows the relative location of the WWTP in relation to the City urban area. The current WWTP facilities occupy about 11.3 acres of the 1,335-acre City-owned property (see Figure 2-2).

The Merced Municipal Airport is approximately two miles north of the WWTP site (see Figure 2-1). Hartley Slough flows along the western perimeter of the WWTP property, while Miles and Owens Creeks laterally bisect the property. Duck Slough borders the southern perimeter.

The lands immediately south of the main part (mechanistic part) of the WWTP support the disposal of industrial food processing wastes, which is administered by the City but operated in accordance with a separate waste discharge permit issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

2.3 Project Background

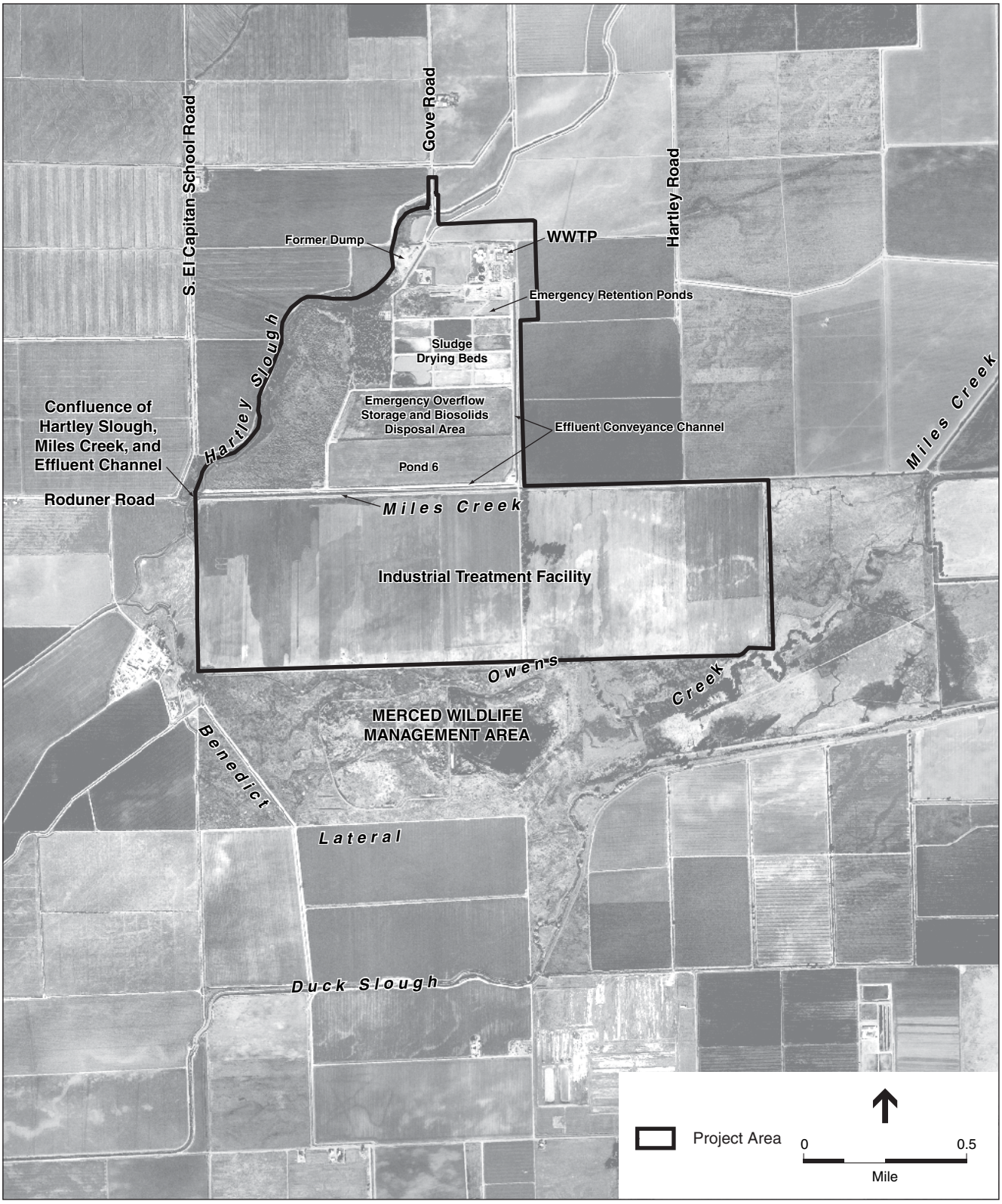
Major portions of the WWTP were constructed in the late 1970s. Since that time, it has undergone a series of improvements, starting in 1974, continuing through 1980, and occurring again in 1994 and 2003. The City prepared an environmental impact report (EIR) in 1994 that addressed the construction and operation of WWTP improvements and expansion of wastewater treatment capacity (City of Merced, 1994).



SOURCE: ESRI, 2005; City of Merced; and ESA, 2005

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2-1
Regional Location Map



SOURCE: GlobeXplorer, 2001; and ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2-2

City of Merced WWTP Property

This document analyzed the environmental consequences of discharging up to 20 mgd of treated effluent and concluded that the implementation of the WWTP improvements and expansion of treatment capacity would result in the significant and unavoidable loss of local agricultural lands. The EIR concluded that all other potential environmental impacts could be mitigated to less-than-significant levels.

Most recently, the City approved the installation of additional blowers at the WWTP to improve aeration reliability. These new facilities were addressed in separate California Environmental Quality Act (CEQA) documentation prepared in 2005 (City of Merced, 2005; Environmental Review #05-27). The City is currently permitted to discharge up to 10 mgd of secondary treated effluent from the WWTP to Hartley Slough.

2.3.1 Changes to Community Plans and Wastewater Characteristics

Several circumstances in the City and County of Merced have changed, necessitating the expansion of the WWTP. These changes include the adoption of the 1997 SUDP Update (City of Merced, 1997a), the 2001 UC-Merced LRDP (University of California, 2001). In addition, the City is currently proceeding in preparing an update to its 1997 SUDP. These plans propose continued future population growth within the City and the adjacent UC-Merced campus. The SUDP at buildout will generate an estimated 17.1 mgd of wastewater flows, while the flow from the UC-Merced LRDP is estimated at 2.25 mgd.

The City is also expecting that waste discharge requirements will become more stringent and further restrict the allowable concentration of constituents in the WWTP effluent. In order to meet these anticipated requirements, additional treatment methods will need to be installed and other systems, such as chlorine disinfection systems, will need to be ended.

2.3.2 Description of Current WWTP Facilities

The WWTP consists of influent screens, grit removal channels, raw sewage pumps, primary clarifiers, aeration basins, secondary clarifiers, chlorine disinfection, dechlorination, and an outfall channel connecting to Hartley Slough. Biosolids-handling facilities at the WWTP include dissolved air flotation thickening, anaerobic digestion, and biosolids-drying beds.

Major Components of the WWTP

The WWTP has three reactor basins and three secondary clarifiers, capable of treating 15 mgd. The City assumes that only two of the three of each reactor basins and clarifiers are reliably available, comprising a firm average dry weather flow capacity of 10 mgd. The full capacity of the aeration basins cannot be used until the recently approved additional aeration capacity is installed (ECO:LOGIC, 2005),and the discharge permit from the CVRWQCB is revised.

Although there are three secondary clarifiers, limitations on the return activated biosolids (RAS) pumping facility preclude using the full capacity of these clarifiers. The RAS pumping system was designed to serve only two of the clarifiers at a time and has a reliable capacity of 10 mgd.

Waste activated biosolids are thickened in dissolved air flotation thickeners and then combined with biosolids and digested in anaerobic digesters. The digested biosolids are currently pumped to onsite unlined drying beds, which allow the digested biosolids to be solar-dried. One to three times per year, the solar-dried biosolids are applied to the City's 580-acre farmland site, south of the WWTP facilities. There is no existing biosolids dewatering system operating at the WWTP (ECO:LOGIC, 2005).

Operations

The WWTP currently provides a secondary level of wastewater treatment and discharges the treated effluent to Hartley Slough and the Merced Wildlife Management Area.[1] The secondary wastewater treatment process consists of the following steps: (1) inflow to the WWTP is sent to the primary clarifier, where settleable solids are separated from the waste stream; (2) the wastewater is then sent to aeration basins, where microorganisms decompose organic material; and (3) the treated wastewater is then sent to a secondary clarifier, where final clarification occurs. The treated wastewater is then disinfected with sodium hypochlorite prior to its discharge from the WWTP into Hartley Slough. Biosolids generated under current operations are either applied to the City's 580 Industrial Treatment Facility or are hauled offsite to a permitted landfill.

Current Permits and Approvals

The WWTP is subject to the regulatory authority of Waste Discharge Requirements (WDRs) and a National Pollutant Discharge Elimination System (NPDES) permit issued by the CVRWQCB. The WWTP operations are currently regulated by WDR 5-00-246 (NPDES No. CA00792198), issued in 2000. The WWTP is also currently operating under Mandatory Penalty Complaint No. R5-2004-0537 in response to permit violations for total coliform bacteria and total residual chlorine, Group I and Group II pollutants, respectively (CVRWQCB, 2004).

Other receiving water limits imposed on the WWTP are based upon water quality objectives contained in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) (CVRWQCB, 1998). These limitations specify that the WWTP discharge shall not

[1] In 1978, the City established the Merced Wildlife Management Area (WMA) on 385 acres of native pastureland that had been subject to seasonal flooding from Owens Creek. The WMA was established to mitigate for the loss of wetland habitat as a consequence of establishing the City's industrial food wastewater disposal site, which is located immediately north of the WMA. The WMA comprises two large enclosed pond features and a small wetland area. Surface waters within the WMA are maintained through the discharge of 1.2 mgd (or 1,300 acre-feet per year [AF/yr]) of treated effluent from the WWTP. The California Department of Fish and Game (CDFG) manages the WMA. The CDFG reports that, as of November of 2000, the WMA has become outstanding habitat for migratory waterfowl, wetland-associated species, and that its construction and operation meets or exceeds the City's mitigation requirements. Public access to the WMA is regulated and supervised by the CDFG. During the hunting season, the CDFG limits public access to around 10 people three days a week.

cause the following conditions to occur in the receiving surface water (i.e., Hartley Slough and the Merced Wildlife Management Area):

- Concentrations of dissolved oxygen to fall below 5.0 milligrams per liter (mg/L)
- Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
- Chlorine to be detected in concentrations equal to or greater than 0.01 mg/L
- Normal ambient pH to fall below 6.5 or exceed 8.5. The monthly average pH change shall not exceed 0.5 unit. In calculating the monthly average pH change, the discharger may omit values of pH change recorded on days when upstream receiving water pH exceeds 8.5.
- Normal ambient temperature to increase more than 5 degrees Celsius.
- Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental physiological response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels that are harmful to human health.
- Where three toxicity tests result in exceeding 1.0 Chronic Toxicity Units (TUc) when TUc equals the ratio of 100/Highest Concentration with No Observable Effect, as determined in accordance with the procedures outlined in EPA 600/4-91/002 *Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms* and EPA 505/2-90-001 (Technical Support Document for Water Quality-Based Toxic Control). Consistent chronic toxicity is defined as three consecutive tests that exceed 1.0 TUc.
- Neither the WWTP operation nor its discharges to land or to the Merced Wildlife Management Area, alone or in combination with other sources, shall cause or threaten to cause degradation of area groundwater.

Current Effluent Quality

The most stringent operating conditions determine the reliable capacity of the WWTP, including peak month flows, loads (influent strength), and colder temperatures. A key factor considered in successful wastewater treatment is the operation of the aeration basins and their ability to reduce biological oxygen demand (BOD) of the wastewater. The BOD concentration is an important water quality parameter that is regulated by the CVRWQCB. Other water quality parameters regularly monitored by the City and their respective concentrations in the WWTP effluent are listed in Table 2-1.

TABLE 2-1
CURRENT WASTEWATER TREATMENT PLANT
EFFLUENT QUALITY

Constituent	Units	Average Daily Discharge*	Maximum Daily Discharge
Flow	mgd	8.5	11.32
Chlorine (Total Residual)	mg/L	<0.01	0.94
Biochemical Oxygen Demand	mg/L	3.54	8.0
Chemical Oxygen Demand	mg/L	31.2	106
Temperature (Winter)	degrees F	68.54	73.94
Temperature (Summer)	degrees F	79.664	82.76
Fecal Coliforms	MPN/100 mL	19.4	900
Oil and Grease	mg/L	<1.0	16.0
Phosphorus (total)	mg/L	2.0	3.0
Total Kjeldahl Nitrogen	mg/L	1.2	3.1
Ammonia	mg/L	0.28	5.43
Nitrate +Nitrite (as N)	mg/L	11.3	18.0
Total Suspended Solids	mg/L	6.84	30.5
pH (Minimum)	pH units	--	7.7
pH (Maximum)	pH units	--	8.1
Dissolved Oxygen	mg/L	4.8	8.38
Total Dissolved Solids	mg/L	427	597

Source: ECO:LOGIC, 2005

* Peak Month

Note: mgd = million gallons per day; mg/L = milligrams per liter; F = Fahrenheit; MPN = Most Probable Number per 100 mL

2.4 Proposed Action Objectives

The City has two primary objectives for implementing the Project. The first objective is to install sufficient WWTP capacity to meet wastewater loads generated by planned population growth and development within the City's SUDP area and UC Merced's LRDP area. The second objective is to install additional wastewater treatment capability sufficient to meet current and future effluent quality regulatory limits by replacing aged facilities with improved wastewater treatment technologies and processes.

2.5 Description of the Proposed Action

2.5.1 Action Area

The Action Area is shown in Figure 2-3. This area incorporates all areas that would be affected by construction activities for the Proposed Action, and Hartley Slough, which would receive treated effluent at a new discharge location. The portion of Hartley Slough included in the Action Area is shown in Figure 2-3. With the exception of adjacent farmland required for expansion and Hartley Slough, the Action Area encompasses lands operated and managed by the City.

SOURCE: GlobeXplorer, 2001; and ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2-3
Action Area

2.5.2 Facility Improvements

The WWTP would be expanded in three stages with treatment capacities rated at 11.5 or 12 mgd, 16 mgd, and 20 mgd, respectively. The 11.5 mgd capacity would be available immediately upon issuance of WDRs and installation of previously approved aerating equipment, and completion of the ongoing California Environmental Quality Act (CEQA review process. The WWTP capacity would remain at 11.5 mgd until additional facilities and improvements being proposed as part of this Project are installed and operational. If population growth slows, the City may opt to hold the WWTP at 12 mgd until demand warrants further expansion of the treatment capacity. Whereas, if population continues to increase at historical rates, the City may opt to proceed with expanding the WWTP from 11.5 to 16 mgd in a single phase.

The 16 mgd capacity would be available with the installation of equipment described in Table 2-2. The 20 mgd capacity would eventually become available with the installation of the additional equipment and improvements listed in Table 2-2. Figure 2-4 depicts the layout of existing and planned facilities composing the WWTP.

As part of the Project, the City proposes constructing facilities for expanding of wastewater treatment capacity, including a new headworks and influent pump station to replace the existing 30-year old pump station, which is deteriorating and odorous. The facilities would be covered to reduce potential odors. Other improvements include new septage/debris receiving stations, an additional primary clarifier and aeration basin, a secondary clarifier, a new blower building, a return biosolids pump station, and a new digester.

Wastewater treatment improvements would include (1) denitrification sufficient to comply with a 10 mg/L nitrate-nitrogen limitation, (2) coagulation, filtration, and UV disinfection for the production of pathogen free effluent containing no disinfection byproducts, (3) effluent re-aeration, and (4) centrifuge dewatering and active solar drying for production of Class A Biosolids.[2]

To accommodate the new facilities, the Project would acquire about 380 acres of land immediately north and east of the existing WWTP and develop about 20 acres for installing proposed WWTP facilities. This land would be prezoned for public use and used for the expansion of the WWTP's new headworks, a combined administrative/laboratory building, and access to portions of the incoming City sewer. Additional agricultural land to the northwest of the WWTP may be used for the disposal of Class A biosolids.

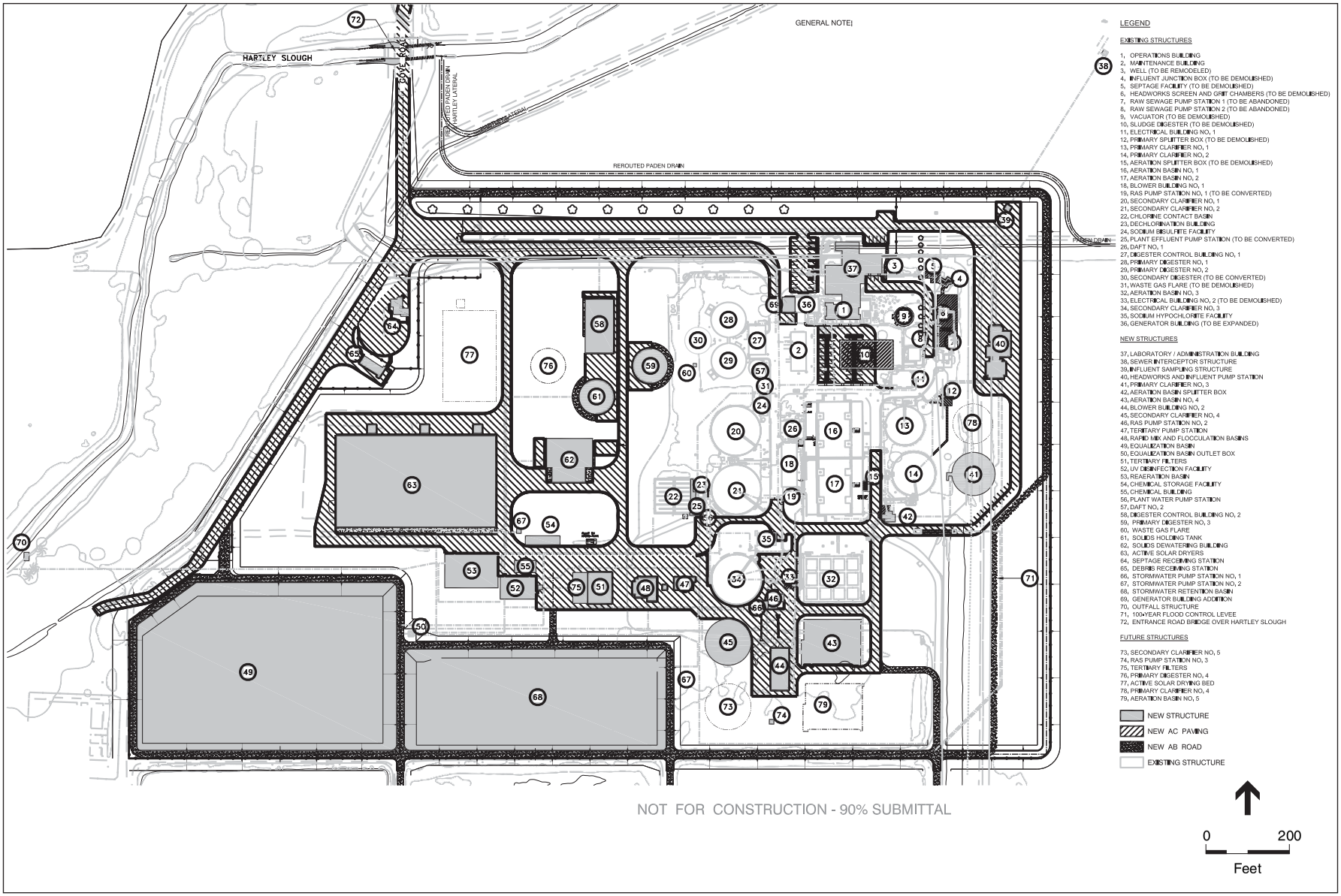
New levees would be constructed within the expansion area around the northern end of the WWTP to provide 100-year flood protection. These levees would be similar to the levees found at the WWTP and would range from 5 to 7 feet high with a crest width of about 15 feet to enable vehicle access. As part of the levee's construction, the Paden Drain and Hartley Lateral would be rerouted to Hartley Slough, east of the proposed access road. The proposed expansion area is illustrated in Figure 2-4.

[2] To achieve Class A certification, biosolids must undergo heating, composting, digestion or increased pH that reduces pathogens to below detectable levels. Once these goals are achieved, Class A biosolids can be land applied without any pathogen-related restrictions at the site and marketed to the public for application to lawns and gardens.

TABLE 2-2
PROPOSED FACILITY IMPROVEMENTS

Improvements	Description
16 mgd Capacity	
Plant entrance	New entry road and security gates
Septage receiving access	Separate access road for septage haulers
Septage/stormwater receiving station	Automated septage receiving station
Headworks	New headworks with two mechanical screens and two grit chambers
Influent pump station	New pump station with five submersible pumps
Primary splitter box	New splitting structure with gates to each primary clarifier
Primary clarifier No. 3	Addition of a third 95-foot-diameter primary clarifier
Aeration basin #4	Addition of a fourth 1.25 million-gallon aeration basin
Blower building No .2	New blower building housing 3 new aeration blowers
Activated biosolids pump station	New return biosolids pump station for secondary clarifiers No. 3 and 4
Secondary clarifier No. 4	Addition of a fourth 110-foot-diameter secondary clarifier
Tertiary pump station	New tertiary pump station for pumping secondary effluent to filters
Equalization basin	New 7-million-gallon basin to equalize peak hourly flows
Rapid mix & flocculation basin	New basin used to chemical condition the secondary effluent prior to filtration
Tertiary filters	Six cloth disk filter units
Ultraviolet disinfection	Three low pressure high intensity lamp ultra-violet channels for pathogen removal
Reaeration basin	New reaeration basin to maintain dissolved oxygen levels above 5 milligrams per liter
Outfall pipe to Hartley Slough	New 54-inch pipe directly to Hartley Slough
Stormwater drain pump station	Two stormwater pump stations that pump stormwater to first flush basin and then back to plant headworks for treatment
Chemical storage	Chemical tanks for coagulants and pH adjustment
Chemical building	New chemical building housing chemical metering pumps and electrical switchgear
Dissolved air flotation thickener	New dissolved air flotation thickener for thickening waste solids prior to digestion
Gas flare	New gas flare for digester gas
Primary digester	New 80-foot-diameter primary digester
Digester control building	New building for digester feed pumps and heat exchangers
Solids dewatering building	New building housing three centrifuges and a truck loading station for biosolids dewatering
Digested biosolids holding tank	New 80-foot tank for digested biosolids prior to dewatering
Active solar dryers	Nine greenhouses to dry biosolids to above 50 percent solids prior to disposal
Emergency generator	Expansion of the plant's generator system for emergency power
Laboratory and administration building	New water/wastewater laboratory and offices for plant staff located near plant entrance
20 mgd Capacity	
Head works	Addition of one mechanical screen
Influent pump station	Addition of one submersible pump
Primary clarifier No. 4	Addition of a fourth 95-foot-diameter primary clarifier
Aeration basin No. 5	Addition of a fifth 1.25-million gallon aeration basin
Secondary clarifier No. 5	Addition of a fifth 110-foot-diameter secondary clarifier
Tertiary filtration	Construction of two additional cloth disk filter units
Ultra-violet (UV) disinfection	Construction of an additional UV channel
Effluent cooling	Use of additional surface aerators or cooling towers
Primary digester	Construction of a fourth primary digester

Source: ECO:LOGIC, 2005



SOURCE: ECO:LOGIC, 2006; City of Merced; and ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2-4
Proposed WWTP Facilities

2.5.3 Treatment Process Improvements

Secondary Treatment Improvements

Secondary treatment improvements to the WWTP consist of reconfiguring the current reactor basins, constructing Reactor Basin 4, constructing a new return activated biosolids pump station to serve Secondary Clarifiers 3 and 4, and constructing Secondary Clarifier 4. Additional aeration capacity beyond the recently approved blowers would also be installed.

Tertiary Treatment Improvements

Tertiary treatment improvements to the WWTP include the addition of cloth-media "disk" filters and replacing the chlorine disinfection system with an ultra-violet light disinfection system. This filtration technology would produce acceptable quality tertiary effluent consistent with California Department of Health Services (DHS) "Title 22" pathogen-free reuse criteria. Prior to discharge, a re-aeration basin would aerate the final effluent so that its dissolved oxygen level would be maintained at or above 5 mg/L.

Biosolids Management and Handling Improvements

The Project would implement improved treatment and handling of biosolids at the WWTP. Such improvements include improving biosolids thickening with the addition of a new dissolved air flotation thickener (DAFT), expanded anaerobic digestion facilities, new centrifuge dewatering, and new drying and stabilization to Class A quality solids using active solar dryers. These improvements would be operational by 2008.

Active solar dryers would be used to dry, stabilize, and temporarily store biosolids prior to offsite hauling. The unlined drying beds currently in use would be ended. At 16 mgd, the WWTP would produce approximately 19,700 pounds per day (lb/day) of solids on an annual basis. At 20 mgd, to the WWTP would produce about 24,667 lb/day. These quantities of biosolids would generate about 284 haul trips per year at 16 mgd and about 355 haul trips per year at 20 mgd.

Approximately 580 acres of the industrial food processing waste disposal facility, located south of Miles Creek and within the City's property, would continue to be used for the application of treated biosolids. This use is expected to continue in compliance with WDR Order No. 97-034 through 2007. The application of the biosolids as a Class A soil amendment could occur on adjacent agricultural properties. For purposes of this document, it is assumed that biosolids would be applied to agricultural areas within two miles of the WWTP. Application to offsite areas would be conducted consistent with the Merced County 2006 biosolids disposal ordinance and Title 40 Code of Federal Regulations, Part 503.

2.5.4 Effluent Discharge Location

As part of the Proposed Action, a new outfall structure would be constructed in Hartley Slough approximately 3,000 feet upstream of the current WWTP effluent discharge. The structure would be a 54-inch pipe with a bar screen outlet to prevent unauthorized access into the pipe. As proposed, a single pipeline would be buried roughly 8 to 10 feet below the ground surface and extend just over 1,000 feet. A permanent easement of up to 30 feet, located on City property, would be required for the outfall pipeline. A general schematic of the outfall structure is provided in Figure 2-5.

2.5.5 Other Improvements

Other WWTP improvements include installing a separate gated entry for septage haulers, landscaping improvements, levee improvements to provide 100-year flood protection of WWTP facilities, expanding the emergency generator building, and adding a second standby generator to provide standby power to the new facilities. In addition, the Project includes constructing a new laboratory building and administration building.

As part of the Proposed Action, use of about one-half of the outfall channel (the east-west oriented reach on the southern boundary of the Action Area) would be ended and filled in place. The north-south portion of the outfall channel near the WWTP facility would continue to be used to convey treated effluent to the Merced Wildlife Management Area. The fill material is anticipated to originate from a combination of on- and offsite locations. Several agricultural ditches and drains, located north of the WWTP, would be rerouted as a result of the Proposed Action.

2.5.6 Proposed Effluent Quality

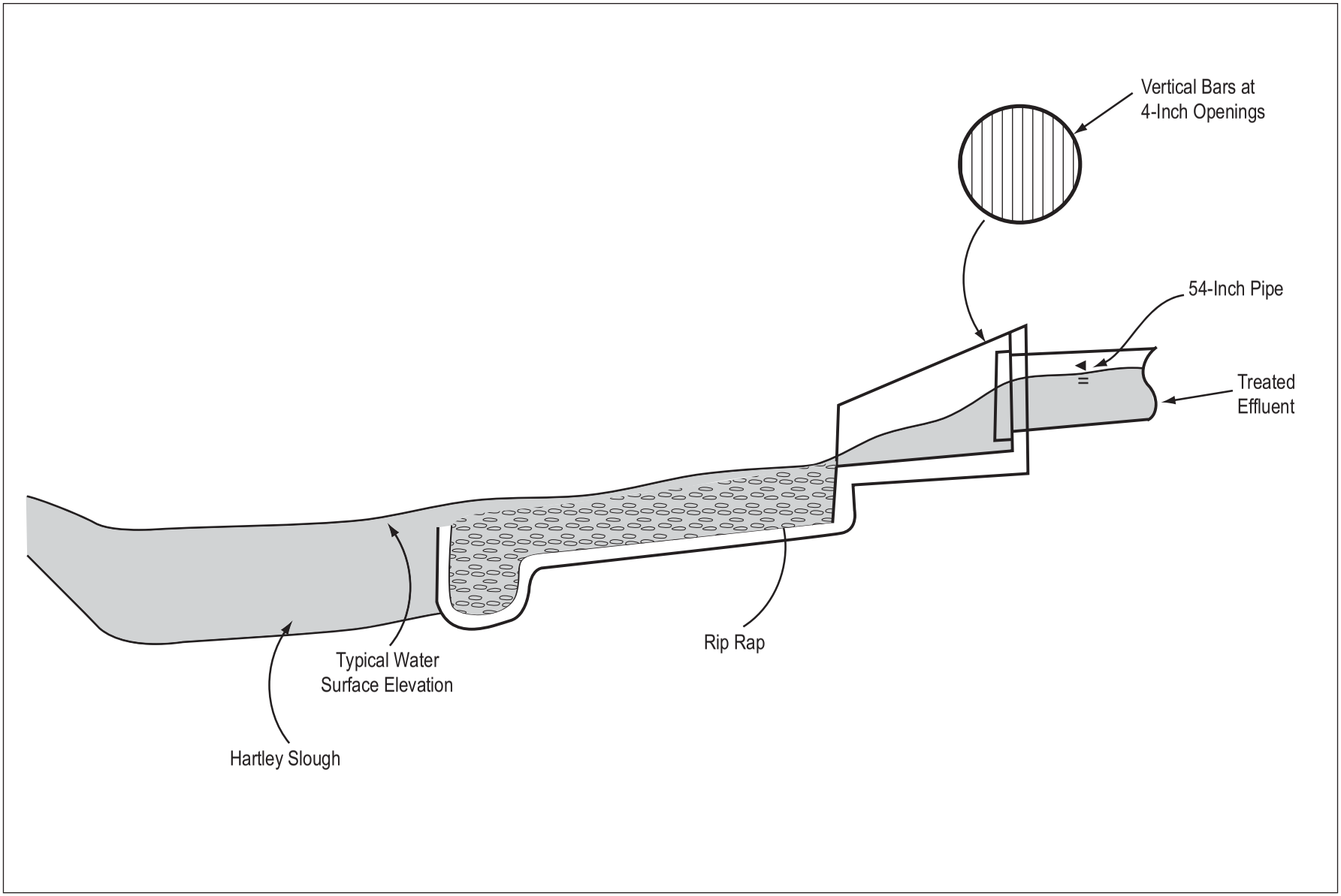
With the proposed improvements, the WWTP would utilize nitrification/denitrification processes followed by a tertiary treatment process. The Project would continue to discharge treated effluent into Hartley Slough; however, disinfection would be accomplished by ultraviolet light exposure instead of chlorine disinfection. The Proposed Action would also produce Class A-quality biosolids. The Proposed Action would achieve an effluent quality of 30 mg/L BOD, 30 mg/L total dissolved solids, and 10 mg/L nitrate as N at the rated capacities of 15 mgd and 20 mgd. Table 2-3 lists the expected effluent quality of the WWTP at rated capacities of 10 mgd, 15 mgd, and 20 mgd.

TABLE 2-3
PROPOSED WASTEWATER TREATMENT PLANT EFFLUENT QUALITY

Parameter	10 mgd (Permitted)	16 mgd	20 mgd
Average Flow (mgd)	10	15	20
Biochemical Oxygen Demand (mg/L)	30	30	30
Total Suspended Solids (mg/L)	30	30	30
Nitrate as N (mg/L)	10	10	10
Peak Hour Wet Weather Flow (mgd)	23	23 (Equalized)	31 (Equalized)

SOURCE: ECO:LOGIC, 2005

Note: mgd = million gallons per day; mg/L = milligrams per liter



SOURCE: ECO:LOGIC Engineering, 2006; and ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2-5

Site View of Proposed Effluent Outfall Facilities into Hartley Slough

2.5.7 Construction Methods

Construction of the proposed treatment WWTP facilities would consist of several activities, including grading currently unimproved property, excavation and soil removal, transporting and installing equipment, and constructing process units. The construction would occur with periodic activity peaks, requiring brief periods of significant effort followed by longer periods of reduced activities.

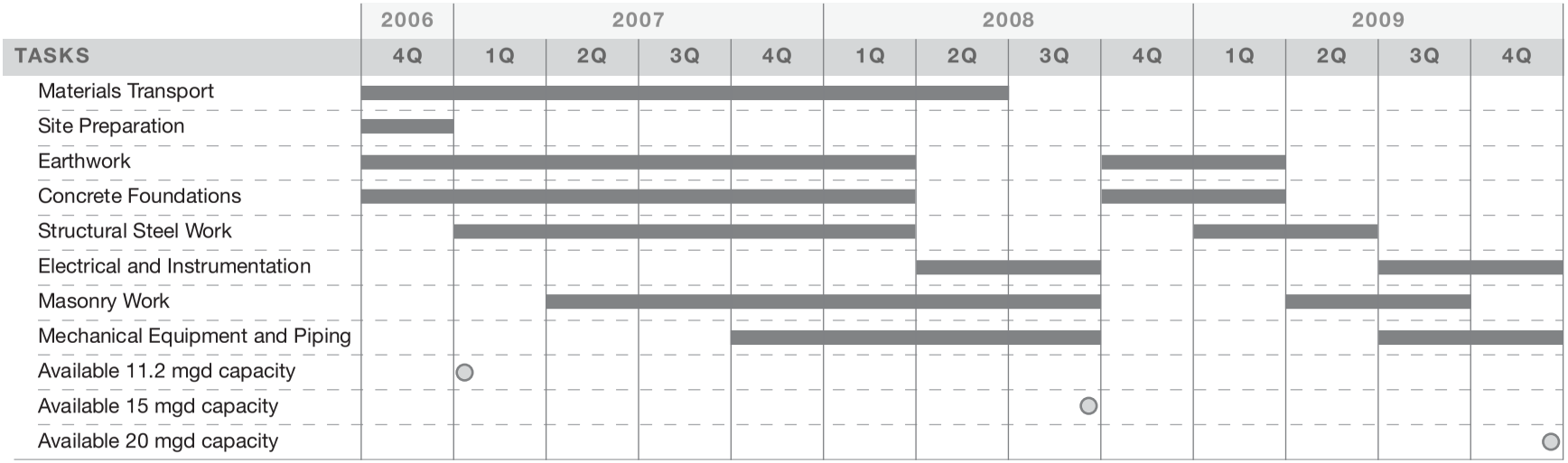
Construction of the Project is scheduled to begin in the first quarter of 2007. Upon completion of the construction of additional facilities and improvements in October 2008, the WWTP would raise its operational capacity from 11.5 mgd to 16 mgd. Construction completion is scheduled for October 2009, when the WWTP would be able to operate at a rated capacity of 20 mgd. A general construction schedule is provided in Figure 2-6**.**

Final construction scheduling would be completed during engineering and contractor bidding, which may result in variations to the planned construction schedule. Typical construction activities involved in the construction of wastewater treatment plant upgrades include:

- Materials transport
- Site preparation - tree and brush removal, and structure demolition (if necessary)
- Earthwork - grading, excavation, backfill
- Concrete foundations - forming, rebar placement, and concrete delivery and placement
- Structural steel work - assembly and welding
- Electrical/instrumentation work
- Masonry construction
- Installation of mechanical equipment and piping

It has been assumed that construction of the WWTP treatment upgrades could occur simultaneously with pipeline installation with the most intense construction activities occurring during late 2007 into fall 2008. In order to characterize and analyze potential construction impacts, the City has identified maximum crew size, truck trips, and worker trips, based on expected excavation volumes and quantities of imported materials. In support of these activities, the main pieces of equipment that may be used at any one time during construction may include:

- Up to 2 track-mounted excavators
- Up to 3 backhoes
- Up to 2 graders
- Up to 1 crane
- Up to 3 scrapers
- Up to 2 compactors
- Up to 3 end and bottom dump trucks
- Up to 2 front-end loaders
- Up to 2 water trucks
- Up to 1 paver and roller
- Up to 3 flat-bed delivery trucks
- Up to 2 forklifts
- Up to 2 concrete trucks
- Up to 2 compressors/jack hammers



SOURCE: ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 2-6
Construction Schedule

Materials Transport and Employee Trip Generation

Excavated material would mostly remain onsite and would be used for backfill after process unit and yard piping installation. Additional truck trips would be necessary to deliver materials, equipment, and asphalt-concrete to the site. During peak excavation and earthwork activities, the Project could generate up to 100 round-trip truck trips per day. However, average daily truck trips would be less and range from about 30 to 50 round trips per day during much of construction. Roadways that would be used by construction traffic include Gove Road, Dickenson Ferry Road, and State Routes 99 and 59.

The typical crew size for each construction phase would be 5 to 10 people, plus inspectors. It is expected that up to four construction crews could be present during the most intense construction periods. Work hours would be governed by permits issued by regulatory agencies, but these are not expected to be restrictive because the area contains few residences.

During Project operations, the expanded WWTP would generate up to 355 truck trips per year associated with the transfer and disposal of biosolids at the WWTP. This number of truck trips would more than double the truck trips currently associated with biosolids disposal from the WWTP. Up to three trips per day could be generated by biosolids disposal truck trips.

Additional WWTP operators would generate about six new daily commuter trips to and from the WWTP.

Installation of the Outfall Pipeline

A majority of the new outfall pipeline would be installed in an open trench using conventional cut and cover construction techniques in upland areas. Depending on the soil conditions encountered, the trench would be braced with a trench box, solid shoring, or speed shoring. The active work area along the open trench, including equipment and materials staging areas, would require a width of up to 60 feet, but may be reduced to reflect the available right-of-way. Trench width would range from 15 to 20 feet, and trench depth would average 8 to 10 feet. The rate of work is estimated to average 50 feet per day per crew along the entire route, and the overall active work zone on any given workday would average 100 to 200 feet in length. The key steps in the construction process are:

- Surface Preparation
- Trench Shoring
- Excavation
- Pipeline Installation
- Trench Backfilling
- Surface Restoration

In order to reduce potential impacts to the levee and wetland margins of Hartley Slough during the installation of the outfall structure, equipment would be restricted to wide-track or amphibious equipment designed to reduce bearing weight. Alternatively, crane mats would be required if larger excavation equipment (track-mounted excavator) is required. Staging areas for storage of pipe, construction equipment, and other materials would be placed at locations that would minimize hauling distances and long-term disruption.

The pipeline would be encased in concrete in sensitive areas (such as culvert crossings), where it would be difficult to access the pipe to repair minor leaks or where a leak could cause considerable damage before being repaired.

SECTION 3
Existing Environment

3.1 WWTP Facilities

3.1.1 Biological Resources

Biological resources within the study area were identified after a review of pertinent literature and database queries. In addition, field surveys were conducted on August 3, November 15 through 17, and December 6, 2005 by walking portions of the Action Area and evaluating the area for its potential to support special-status species, sensitive habitats, and jurisdictional waters of the United States. Wildlife habitats and plant communities were mapped via aerial photograph interpretation followed by ground-truthing in November 2005. A search of the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB) (CDFG, 2006) and California Native Plant Society On-line Inventory (CNPS, 2005) was conducted for the following USGS 7.5-minute quadrangles to determine which special-status species have been reported from the vicinity of the Action Area: Sandy Mush, Arena, Atwater, El Nido, Bliss Ranch, Merced, Turner Ranch, Delta Ranch, and Santa Rita Bridge.

Plant Communities and Wildlife Habitats

The wildlife habitats identified in this document are described using California Department of Fish and Game's *A Guide to Wildlife Habitats* (Mayer and Laudenslayer, 1988), which generally correlate with plant communities. Where appropriate wildlife habitat descriptions are not available, general plant community types are provided. Figure 3-1 shows the distribution of habitats within the Action Area.

Eucalyptus

Approximately 1.3 acres of eucalyptus occur in the Action Area. This habitat is characterized by a closed canopy of mature blue gum (*Eucalyptus globulus*) trees with a sparse understory of annual grasses and non-native forbs. Understory components include blue gum saplings, milkthistle, prickly lettuce, poison hemlock, and grasses including salt grass, ripgut brome, and foxtail barley. The northern portion of this habitat was recently burned and lacks an established understory, although one small elderberry shrub occurs here. The remaining understory appears to have been mowed sometime during the growing season. Approximately one-third of the original stand has been removed recently at the southern end of the stand.

SOURCE: GlobeXplorer, 2001; and ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 3-1

Habitats in the Action Area

Ruderal

Approximately 0.7 acre of ruderal vegetation occurs in the Action Area. Ruderal vegetation occurs in disturbed or maintained areas and is characterized by a predominance of invasive non-native plant species. Dominant species are generally tall-growing invasive species such as poison hemlock, perennial pepperweed, prickly lettuce, and shortpod mustard interspersed with annual grasses such as Italian ryegrass (*Lolium multiflorum*), foxtail barley, and soft chess. The ruderal area near the proposed outfall pipeline is characterized by a dense stand of milkthistle and shortpod mustard with some downed eucalyptus trees and debris piles. Areas closer to Hartley Slough are dominated by Italian ryegrass and poison hemlock. Another small ruderal area occurs in the northern portion of the Action Area near Gove Road. It is characterized by a few mature Goodding's willow trees with open grassy areas dominated by wild oats (*Avena fatua*), Italian ryegrass, common tarweed, milkthistle, and shortpod mustard.

Disked Field

Approximately 33.9 acres of disked fields occur in the Action Area. Disked fields in the northeastern portion of the Project area, adjacent to and outside the current WWTP footprint, are in agricultural production. Other areas south and west of the WWTP site have been disked to prevent vegetation overgrowth. In these areas, the vegetation cover ranges from 10 to 60 percent and includes ruderal species such as poison hemlock, Bermuda grass (*Cynodon dactylon*), and amaranth (*Amaranthus* sp.). The disked field immediately south-southwest of the WWTP plant facilities serves as an emergency overflow retention pond that is rarely needed. The eastern half of this field is characterized by a mostly continuous cover of Italian ryegrass with associated species such as cheeseweed (*Malva parviflora*), goosefoot, fiddle dock, and mustard (*Brassica* sp.), but the center of this area has a few large bare areas. The western half of this field has approximately 45 percent vegetation cover with dominants including Johnson grass, field bindweed (*Convolvulus arvensis*), cheeseweed, goosefoot, and common knotweed (*Polygonum arenastrum*).

Developed Area

Approximately 61.5 acres of the Action Area are developed and include the WWTP facilities, paved and unpaved roads, a series of sludge drying-beds and emergency stormwater ponds, and parking lots. The edges of roads are sparsely to densely vegetated by ruderal species including poison hemlock, prickly lettuce, Johnson grass, and everlasting cudweed (*Gnaphalium luteo-album*). Landscaped areas within WWTP facilities include a solid groundcover of iceplant (*Carpobrotus edulis*), a row of oleander (*Nerium oldeander*) shrubs, areas of lawn, and scattered ornamental pines (*Pinus* sp.). The drying beds and stormwater ponds are regularly maintained to prevent the establishment of permanent vegetation.

Riverine and Fresh Emergent

About 12.8 acres of riverine (2.1 acres) and fresh water emergent habitat (10.7 acres) occur in the Action Area. These two habitats occur in close association in Hartley Slough and various drainage and agricultural ditches within the Action Area. Each of the various waterways in the Action Area is described below. Refer to Figure 3-1 for the locations of these features.

Hartley Slough

Surface waters within the immediate vicinity of the WWTP site drain into Hartley Slough. Hartley Slough borders the western perimeter of the Action Area and, when unobstructed, flows in a southwesterly direction to Owens Creek and eventually flowing to Deep Slough and the San Joaquin River. An irrigation diversion, located about 1000 feet downstream of the effluent channel, redirects all flows from the slough for much of the year (approximately March-November, but the timing varies based on irrigation requirements). During this period, there is no direct hydrologic connection from the WWTP downstream of the diversion. Water levels within Hartley Slough near the WWTP are at their highest when this diversion is operational. Flows in Hartley Slough are also influenced by stormwater runoff, WWTP effluent, and groundwater base flows. To the City's knowledge, no flow data are available for Hartley Slough; however, it is thought that the City's effluent discharge is a major contributor during much of the year.

Hartley Slough is a steep-banked perennial drainage channel characterized by both open water and fresh emergent marsh habitat. While the total average channel width is approximately 30 feet within the Action Area, the area of open water is only approximately 15 feet due to the fresh emergent marsh along portions of the edge of the slough. Common plant species observed in fresh emergent habitat include common tule (*Scirpus acutus*), broad-leaved cattail (*Typha latifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), common water smartweed (*Polygonum punctatum*), and common rush. The presence of a beaver dam likely contributes to the upstream establishment of emergent wetland species within the channel.

While the slough lacks a closed-canopy corridor of riparian trees or shrubs, a few scattered trees and shrubs occur along its edge, including Goodding's willow, blue gum, edible fig, tobacco tree, and northern California black walnut hybrid. One segment of channel has a closed-canopy overstory of blue gum eucalyptus with lower channel banks dominated by common rush and tall flatsedge and upper banks dominated by salt grass. The small segment of Harley Slough in the northernmost portion of the Project study area on the west side of Gove Road has a dense swath of emergent vegetation along its southern bank that is approximately 15 feet wide and dominated by common tule with occasional broad-leaved cattail and stinging nettle. However, the northern bank appears to be maintained and generally lacks emergent vegetation. The sparse vegetation on the northern bank includes common tarweed, shortpod mustard, and milkthistle, but small scattered common tule is present. The slough channel on the east side of Gove Road is well maintained and has little instream vegetation. This segment has pockets of common tule within the channel, but the channel banks are dominated by ruderal species including Johnson grass, common water smartweed, slender willowherb, and dallis grass.

Several common carp (*Cyprinus carpio carpio*), mosquitofish (*Gambusia affinis*), and Sacramento pikeminnow (*Ptychocheilus grandis*) have been observed in the slough and channels in the Action Area.

WWTP Effluent Channel

The WWTP effluent channel (Ditch D-5 in Figure 3-1), which lies in the southern part of the Action Area, is a maintained open water channel. The banks of the effluent channel are about 20 feet wide, maintained, and very little vegetation is established. Approximately 80 percent of the channel banks along the eastern segment are bare soil. Where vegetation is present, the dominant plants are generally ruderal species including slender willowherb (*Epilobium ciliatum*) and prickly lettuce. Portions of the banks of the southern segment of the channel are lined with concrete rubble with only approximately 10 percent vegetation cover. The plant species observed along the southern segment include Johnson grass, slender willowherb, common water smartweed, and water cress (*Nasturtium officinale*). The entire southern section (running east to west) of this channel and several hundred feet of the northern reach of the eastern section would be filled by the Proposed Action.

Agricultural Ditches

Ditch D-1 extends along Gove Road in the northern portion of the Action Area (Figure 3-1). Its average width is 5 feet. The channel has continuous cover of dense emergent vegetation both within the channel and on the channel banks. Dominant species include Johnson grass, slender willow herb, panicgrass (*Panicum* sp.), common water smartweed. This channel would be filled by the Proposed Action.

Ditch D-2 (Hartley Lateral), which is confluent with Hartley Slough, is on average 10 feet wide. The northern segment of this ditch is maintained and supports a sparse cover of emergent marsh vegetation along its lower banks. Dominant plant species include broad-leaved cattails, panicgrass, mustard, and common monkeyflower (*Mimulus guttatus*). The channel's upper banks are dominated by the ruderal species field sow thistle (*Sonchus arvensis*). In the middle segment, vegetation cover is dense and dominant species within the channel and on the channel banks include common tule, common water smartweed, and common rush. In its southern extent, where the ditch flows through a stand of blue gum eucalyptus, emergent vegetation is sparse and primarily restricted to channel banks. Dominant species in this segment of the drainage include common rush, tall flatsedge (*Cyperus eragrostis*), dallis grass (*Paspalum dilatatum*), Goodding's willow saplings, and common tule. Much of this channel would be realigned by the Proposed Action.

Ditch D-3 (Paden Drain), which is also confluent with Hartley Slough, is approximately 10 feet wide in the Action Area and varies in the amount of emergent vegetation cover along its extent. The lower reach of the channel (downstream of the entrance to the WWTP) has approximately 50 percent cover of emergent marsh vegetation. The dominant emergent species within this segment include common tule, common rush, and broad-leaved cattail. The upper channel banks are lined by scattered mature riparian trees including Oregon ash (*Fraxinus latifolia*), Goodding's willow, and edible fig with an almost continuous understory of poison hemlock and milkthistle. The segment of this drainage that parallels the WWTP facility has been recently maintained and supports little emergent vegetation. Only the lowest portion of the channel banks has vegetation cover consisting primarily of tall flatsedge and mustard. Much of this channel would be realigned by the Proposed Action.

Ditch D-4 is approximately 5 feet wide in the Action Area and varies in the density and amount of emergent vegetation cover throughout its extent. The ditch generally supports sparse emergent vegetation in its northern extent and continuous cover of emergent vegetation in its southern extent near its confluence with Miles Creek. The drier northern segment has tall flatsedge established within the channel and ruderal species such as prickly lettuce on the channel banks. The wetter southern segment is characterized by dense emergent vegetation both within the channel and on the channel banks including common water smartweed, tall flatsedge, slender willowherb, mugwort (*Artemisia douglasiana*), and Johnson grass. Several hundred feet of this channel would be realigned by the Proposed Action.

SECTION 4
Species Accounts and Status of the Species in the Action Area

The listed species introduced in Section 1, their preferred habitats, and whether a given species has the potential of being affected by the Proposed Action, based on the Proposed Action description, are discussed in this section. Species in the Proposed Action Area are presented in Table 4-1 and are addressed in detail below.

4.1 Species Likely to Occur in the Action Area

The species presented in Section 1.3 were evaluated for their potential to be affected by construction or operation of the Proposed Action. Three species listed for protection under FESA as "threatened" or "endangered" may be affected by construction/operation in the Action Area. Species accounts and the status of each species in the Action Area are presented in Table 4-1.

TABLE 4-1
SPECIES POTENTIALLY OCCURING IN THE ACTION AREA

Species	Federal Status	General Habitat and Range	Addressed Further?
Invertebrates			
Branchinecta conservatio Conservancy fairy shrimp	Endangered	Lifecycle restricted to vernal pools in the Central Valley.	No. No vernal pools or seasonal wetlands that would support vernal pool crustaceans occur within the Action Area.
Branchinecta longiantenna Longhorn fairy shrimp	Endangered	Lifecycle restricted to vernal pools in the Central Valley.	No. No vernal pools or seasonal wetlands that would support vernal pool crustaceans occur within the Action Area.
Branchinecta lynchi Vernal pool fairy shrimp	Threatened	Lifecycle restricted to vernal pools in the Central Valley.	No. No vernal pools or seasonal wetlands that would support vernal pool crustaceans occur within the Action Area.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	Threatened	Breeds and forages exclusively on blue elderberry shrubs below 3,000 feet in the Central Valley and adjacent foothills.	**Yes. Elderberry shrubs with stems larger than 1" in diameter occur within the Action Area.**
Lepidurus packardi Vernal pool tadpole shrimp	Endangered	Lifecycle restricted to vernal pools in the Central Valley.	No. No vernal pools or seasonal wetlands that would support vernal pool crustaceans occur within the Action Area.

TABLE 4-1
SPECIES POTENTIALLY OCCURING IN THE ACTION AREA

Species	Federal Status	General Habitat and Range	Addressed Further?
Fish			
Hypomesus transpacificus Delta smelt	Threatened	Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	No. This species does not occur in the Action Area or vicinity.
Oncoryhynchus mykiss Central Valley Steelhead	Threatened	Enters Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	No. This species does not occur in the Action Area or vicinity.
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon	Threatened	Enters Sacramento and San Joaquin Rivers and tributaries March to July; spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	No. This species does not occur in the Action Area or vicinity.
Oncorhynchus tshawytscha Winter-run Chinook salmon, Sacramento River	Endangered	Enters Sacramento River December to May; spawning peaks May and June. Upstream movement occurs more quickly than in spring run population. Young move to rearing areas in and through the Sacramento River, Delta, and San Pablo and San Francisco Bays.	No. This species does not occur in the Action Area or vicinity.
Oncorhynchus tshawytscha Central valley fall/late fall run Chinook salmon,	Candidate	Enters Sacramento and San Joaquin Rivers and tributaries March to July; spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	No. This species does not occur in the Action Area or vicinity.
Amphibians			
Ambystoma californiense California tiger salamander	Threatened	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.	No. No suitable breeding habitat occurs in the Action Area.
Rana aurora draytonii California red-legged frog	Threatened	Breeds in slow moving streams, ponds, and marshes with emergent vegetation and an absence of predators within foothills surrounding the Central Valley and the Coast Range.	No. Presumed extirpated from the Central Valley floor by the 1960s (61 FR 25815).

TABLE 4-1
SPECIES POTENTIALLY OCCURING IN THE ACTION AREA

Species	Federal Status	General Habitat and Range	Addressed Further?
Reptiles			
Gambelia (=Crotaphytus) sila Blunt-nosed leopard lizard	Endangered	Occurs in open valley and foothill grasslands, valley saltbush scrub, and alkali playa communities of the San Joaquin Valley, Carrizo Plain, and Cuyama Valley. Uses small mammal burrows for refuge.	No. No suitable habitat occurs in the Action Area.
Thamnophis gigas Giant garter snake	Threatened	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields which have water from early spring through mid-fall, emergent vegetation (such as cattails and bulrushes), open areas for sunning, and high ground for hibernation and escape cover.	**Yes. Aquatic and upland habitats occur within the Action Area.**
Birds			
Haliaeetus leucocephalus Bald eagle	Threatened	Nests in large trees with open branches along lake and river margins, usually within one mile of water.	No. No breeding or foraging habitat occurs in the Action Area..
Mammals			
Dipodomys nitratoides exilis Fresno kangaroo rat	Endangered	Subspecies of San Joaquin kangaroo rat. Found in sandy and saline sandy soils in annual Valley grassland, chenopod scrub, alkali sink communities. Needs open/sparse vegetation, loose soils.	No. No suitable habitat occurs in the Action Area.
Vulpes macrotis mutica San Joaquin kit fox	Endangered	Occurs in native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills. Prefers open level areas with loose-textured soils supporting scattered, shrubby vegetation and little human disturbance.	**Yes. Action Area is within historic range and provides foraging habitat.**
Plants			
Neostapfia colusana Colusa grass	Threatened	Found in the bottoms of large, deep vernal pools, often associated with adobe clay soils; up to 650 feet in elevation. Blooms May-August.	No. No vernal pools or seasonal wetlands that would support vernal pool species occurs within the Action Area.
Chamaesyce hooveri Hoover's spurge	Threatened	Found in relatively large, deep vernal pools among rolling hills, remnant alluvial fans, and depositional stream terraces at the base of the Sierra Nevada foothills.	No. No vernal pools or seasonal wetlands that would support vernal pool species occurs within the Action Area.

4.1.1 Valley Elderberry Long-Horned Beetle

Distribution

Valley elderberry longhorn beetle (VELB) was once common throughout the Central Valley; however, clearing for agricultural and urban development has removed over 90 percent of the riparian habitat in the Central Valley, and the remaining habitat is fragmented. Current locations are scattered throughout its historical range, from Redding in Shasta County to Bakersfield in Kern County. A survey conducted from 1984 through 1991 revealed only 12 patches of natural riparian forests along the Sacramento, American, and San Joaquin Rivers and their tributaries. These patches yielded either beetles or emergence holes indicating their presence (CDFG, 2002)

Habitat and Life History

The VELB is thought to be completely dependent upon its host plant, elderberry (*Sambucus*). According to the USFWS (1984) Recovery Plan, it is believed that adults emerge from pupation inside the wood of these shrubs in the spring, making distinctive small oval openings that may be the only indication of the species occurring. Adults eat the elderberry foliage until about June when mating begins. The females lay eggs in crevices in the bark; upon hatching, the larvae tunnel into the shrub where they will spend one to two years eating the interior wood (pith), which is their sole food source. The VELB will utilize a shrub with a stem diameter of at least 1 inch for all of its life stages. Seldom occurring above 3,000 feet in elevation, VELB habitat generally occurs along waterways and in floodplains that support remnant riparian forests; such habitat is a fairly common component of the Central Valley.

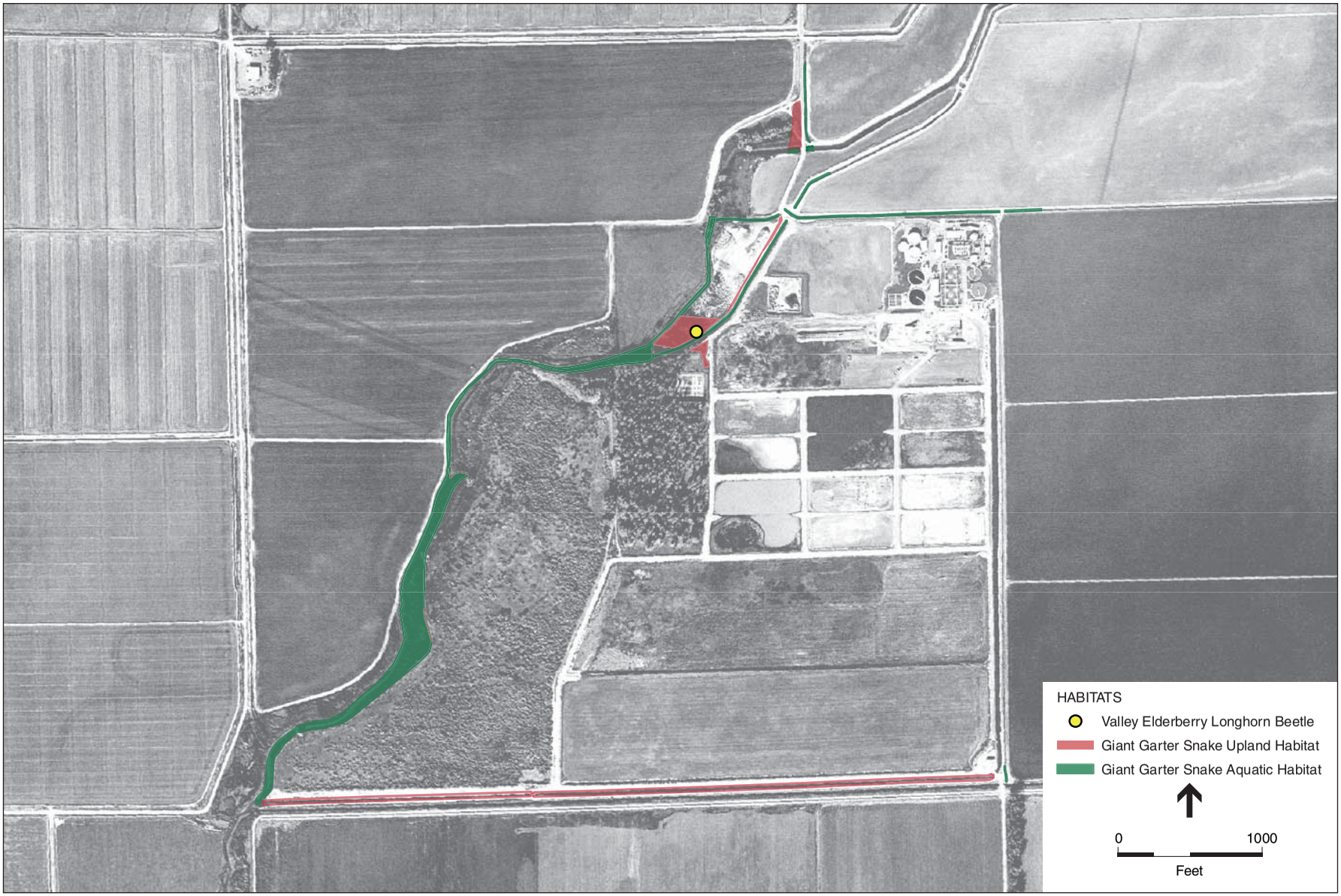
Habitat and Distribution in the Action Area

On November 15 and 16, 2006, a survey was conducted for elderberry shrubs with at least one stem greater than 1 inch in diameter in the Action Area. One elderberry shrub was found. The shrub was marked with a metal tag, measured, and checked for emergence holes (see Figure 5-1 for the shrub's location). The shrub can be found in the eucalyptus grove located along the access road north of the firing range. This shrub contains five stems greater than 1 inch (but less than 3 inches) in diameter, does not have beetle exit holes, and is located within historically riparian habitat. The closest record to the Action Area for VELB occurrence is from 1990 and occurred 15 miles northwest of the Action Area (CDFG, 2006).

The Action Area is within the species' historic range and contains suitable habitat. Although the elderberry shrub in the Action Area lacks exits holes, others shrubs in the vicinity of the Action Area have them. Therefore, the species may occur in the Action Area and could be affected by the Proposed Action. Habitat for VELB within the Action Area is shown on Figure 4-1.

Critical Habitat

The USFWS designated critical habitat for VELB on August 8, 1980 (45 FR 52803). Designated critical habitat includes the Sacramento region, within the City of Sacramento, and along the American River Parkway (USFWS, 2006). The Action Area is entirely outside the identified critical habitat for VELB.



SOURCE: GlobeXplorer, 2001; and ESA, 2006

City of Merced Wastewater Treatment Plant Improvement Project . 205087

Figure 4-1
Giant Garter Snake and
Valley Elderberry Longhorn Beetle
Habitats in the Action Area

4.1.2 Giant Garter Snake

Distribution

The giant garter snake population has probably always been disjunct, with a southern population occurring from the vicinity of Buena Vista Lake in Kern County to Merced County, and a northern population occurring from San Joaquin County to Butte County. To the east and west, the populations were probably confined by the foothills of the Sierra Nevada and the Coast Range (USFWS, 1999a). The USFWS presently recognizes 13 separate populations. These coincide with historic flood basins and tributary streams in the Central Valley (USFWS, 1999a). The two closest populations to the Action Area are in the North and South Grasslands Waterfowl Easement Areas (USFWS easements, Merced County) and the Mendota State Wildlife Area. Dispersal corridors do not exist between populations (USFWS, 1999a).

Habitat and Life History

The giant garter snakes, the most aquatic of garter snakes, is generally active from April through September. It breeds from March into May and during a brief period in September. Young are brooded internally by females and born from late July into September. After being born, the young giant garter snakes disperse into dense cover. From early October to April, giant garter snake takes refuge in winter retreats and is not active. The snake feeds primarily on native and introduced aquatic prey such as small fishes, tadpoles, and frogs (USFWS, 1999a).

The giant garter snake is endemic to the wetlands of the Central Valley. It inhabits irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands. The snake requires enough water during their active season to maintain high densities of prey. It requires emergent wetland vegetation (e.g., *Scirpus* and *Typha*) for cover and foraging, and adjacent uplands and openings in streamside vegetation for basking sites. Small mammal burrows and soil crevices in higher uplands are used for cover and refuge from floodwaters during their non-active season. The giant garter snake is typically absent from wetlands with sand, gravel, or rock substrates and from riparian woodlands (USFWS, 1999a).

Habitat and Distribution in the Action Area

Aquatic giant garter snake habitat occurs in the Action Area (Table 4-1). Emergent wetland vegetation is present in Hartley Slough and in several irrigation ditches and Miles Creek (Figure 3-1), which is located immediately south of the Action Area. Upland refuge habitat can be found within 200 feet of aquatic habitat. Some of the uplands (e.g., roads) do not contain suitable aestivation habitat. The WWTP effluent channel is maintained regularly to prevent aquatic vegetation from becoming established. Although it contains basking habitat, it also contains water and prey during the snake's active period. It does not contain suitable emergent herbaceous vegetation needed for escape cover and cover when foraging.

The Giant Garter Snake Recovery Plan (USFWS, 1999a) describes two populations in the general vicinity of the Action Area: North and South Grasslands Waterfowl Easement Areas, about 15 miles west of the Action Area; and the Mendota State Wildlife Area, 35 miles to the south. The closest recent (2000) record in the CNDDB (CDFG, 2006) is from 17 miles southwest of the Action Area.

The Action Area is within the species' historic range and contains suitable habitat. Hartley Slough drains to Owens Creek and eventually to the San Joaquin River in the vicinity of the North Grasslands Wildlife Area, providing a potential linkage from a known population to the Action Area. Therefore, the species may occur in the Action Area and could be affected by the Proposed Action. Figure 4-1 illustrates habitat within the Action Area for Giant Garter Snake.

Critical Habitat

None has been designated.

4.1.3 San Joaquin Kit Fox

Distribution

The San Joaquin kit fox occurs only in and around the Central Valley, inhabiting open habitat in the San Joaquin Valley and surrounding foothills. Historically, it ranged in the San Joaquin Valley from Tracy, San Joaquin County, on the west to La Grange, Stanislaus County on the east, south to southern Kern County. Its current range includes the foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains, from Contra Costa County south to Kern County, and from Alameda and San Joaquin Counties east to Stanislaus County. The fox is fragmented and uncommon throughout this range. The greatest density of occurrences is located in the southern portion of its range. Most of the habitat on the valley floor in the northern part of their range has been eliminated (USFWS, 1998)

Habitat and Life History

The San Joaquin kit fox is a permanent resident of arid grasslands or open scrubland, where friable soils are present. Dens are usually dug, but the fox will use dens constructed by other animals or use human-made structures. Dens are required year-round for reproduction, shelter, temperature regulation, and protection from predators. The San Joaquin kit fox is principally a nocturnal carnivore of small to medium-sized mammals, small birds, reptiles, and insects, but it will also forage on vegetation (USFWS, 1998; USFWS, 2006). The San Joaquin kit fox requires open grassland and savannah habitats for foraging and dispersal. Grasslands with friable soils are considered the principal habitat for denning, foraging, and dispersal, while open oak woodlands provide lower quality foraging and dispersal habitat. It will use habitats that have been extensively modified by humans, including grasslands and scrublands with active oil fields, wind turbines, and agricultural matrices (USFWS, 1998).

Habitat and Distribution in the Action Area

During a site assessment conducted on December 6, 2005, no sign of use by San Joaquin kit fox was detected. Most of the Action Area is composed of disturbed lands with little sign of activity by potential prey for San Joaquin kit fox; however, adjacent farmlands and small areas of grasslands could provide foraging habitat. The Action Area contains few suitable features that could be used as dens. several ground squirrel burrows are located on either side of the unpaved roads between the sludge drying beds just south of the WWTP facilities and on the sloped banks at the edge of the facility grounds. Since these areas experience moderate to high levels of human disturbance, it is unlikely they would be used as dens.

The CNDDB (CDFG, 2006) has several records near the Action Area for the fox. A non-specific polygon (dated 1986) occurs within 3.3 miles southwest of the Action Area and contains more recent sightings, including multiple den sites and adults with young. The most recent record (2001) is located about nine miles east of the Action Area.

The Action Area is within the species' historic range, contains some suitable foraging habitat, and could provide linkage habitat for San Joaquin kit fox moving between the valley floor and eastern Merced County. Therefore, the species may be affected by the Proposed Action.

Critical Habitat

None has been designated.

4.2 Other Listed Species

Eighteen other species in the area have been listed for protection under FESA as "threatened" or "endangered" that are unlikely to be adversely affected by the Proposed Action. Lack of habitat in the Action Area is the primary factor for determining that these species will not be adversely affected. The following listed species are not considered further in this document:

- *Branchinecta conservatio* – Conservancy fairy shrimp
- *Branchinecta longiantenna* – Longhorn fairy shrimp
- *Branchinecta lynchi* - Vernal pool fairy shrimp
- *Lepidurus packardi* – Vernal pool tadpole shrimp
- *Hypomesus transpacificus* - Delta smelt
- *Oncoryhynchus mykiss* - Central Valley steelhead
- *Oncorhynchus tshawytscha* - Central Valley spring-run Chinook salmon
- *Oncorhynchus tshawytscha* - Winter-run Chinook salmon, Sacramento River
- *Oncorhynchus tshawytscha* – Central Valley fall/late fall-run Chinook salmon,
- *Ambystoma californiense* - California tiger salamander
- *Rana aurora draytonii* - California red-legged frog
- *Gambella (=Crotaphytus) sila* – Blunt-nosed leopard lizard
- *Haliaeetus leucocephalus* - Bald eagle
- *Dipodomys nitratoides exilis* - Fresno kangaroo rat
- *Chamaesyce hooveri* – Hoover's spurge
- *Neostapfia Colusana* – Colusa grass

SECTION 5
Effects on Species and Habitat

This section analyzes the potential direct, indirect, and cumulative effects the Proposed Action may have upon the species identified in Section 4. Based on this analysis, a determination is made as to whether the Proposed Action may adversely affect these species, and recommends any mitigation that may reduce potential adverse effects. These potential effects are summarized below.

Possible interrelated and interdependent actions to the Proposed Action are also evaluated. Categories for effects are defined as follows:

- **Direct Effect.** Those effects generated directly from the Proposed Action, such as incidental take during construction and the elimination of suitable habitat by Project construction (50 CFR 402.02).

- **Indirect Effect.** Those effects that are caused by the Proposed Action and are later in time, such as the discharge of sediment or chemicals that adversely affect water quality downstream of the Proposed Action or an increase in human activity during Project operation (50 CFR 402.02).

- **Cumulative Effect.** Effects of future state or private activities that are reasonably certain to occur within the area of the Proposed Action, and which may cumulatively increase the magnitude of direct and indirect effects described previously (50 CFR 402.02).

- **Interrelated Actions.** Those actions that are part of, and dependent upon, a larger action, such as the need for utilities for a development (50 CFR 402.02).

- **Interdependent Actions.** Actions that have no independent utility apart from the Proposed Action, such as future actions that are dependent upon the Proposed Action taking place (50 CFR 402.02).

The Proposed Action would primarily have direct effects upon federally listed species. These direct effects include the potential for incidental take of individuals or through the loss of suitable habitat.

5.1 Valley Elderberry Longhorn Beetle

Direct and Indirect Effects

The Proposed Action would directly affect one elderberry shrub that meets the habitat requirements of the VELB. This shrub would be removed for construction of the outfall pipeline. It consists of five stems greater than 1 inch (but less than 3 inches) in diameter, does not have beetle exit holes, and is located within historically riparian habitat.

Modifications to the Proposed Action to Mitigate Effects

The Proposed Action was designed to minimize impacts to elderberry shrubs; however, where effects to shrubs cannot be avoided, mitigation is necessary. Replacement ratios have been determined using the USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS, 1999b) for all stems one inch or greater in diameter at ground level that are either "transplanted or destroyed." All potentially adverselyaffected shrubs must be transplanted, if possible, to a suitable conservation area (i.e., an approved mitigation bank or non-bank), subject to the USFWS' approval, in the vicinity of the affected area, unless otherwise approved by the USFWS.

One shrub would be directly affected by the Proposed Action. Therefore, compensatory measures (as described in the USFWS 1999 guidelines)are included in the Proposed Action. A summary of affected stems is presented in Table 5-1, which also presents USFWS compensation ratios and the compensation required for the affected stems. Compensation ratios differ for shrubs in riparian versus non-riparian habitat; Because the one affected shrub is located in riparian habitat, only the riparian-associated compensation ratios are presented.

In addition to compensatory elderberry plantings, compensation includes plantings of associated riparian native species (Table 5-1). Based on site surveys, appropriate associated species would include Goodding's willow and black walnut.

TABLE 5-1
COMPENSATION FOR RIPARIAN ELDERBERRY SHRUBS

Stem Size	Shrub with Exit Holes?	Number of Stems	Elderberry Planting Ratio	Number of Elderberry Plantings Required	Associated Native Ratio	Number of Associated Native Plantings Required
1"≤stems≤3"	No	5	2:1	10	1:1	5
3">stems≤5"	No	0	3:1	0	1:1	0
5">stems	No	0	4:1	0	1:1	0
Total				**10**		**5**

The USFWS guidelines state that the one transplanted shrub, associated elderberry plantings, and associated native species must be planted in an onsite or offsite conservation area. This area must provide a minimum area of 1,800 square feet for each transplanted elderberry shrub and 10 associated plantings. An additional 1,800 square feet is required for every additional 10

associated plantings (or portion thereof). Therefore, for one transplant and 15 associated plantings (10 elderberry and 5 native plantings), the minimum area required for the Proposed Action's compensatory plantings would be 3,600 square feet (= 0.08 acres):

1 shrub and 10 elderberry plantings = 1,800 square feet

5 additional plantings (Goodding's willow and black walnut) = 1,800 square feet

Conservation areas must also be maintained and protected in perpetuity through a conservation easement or deed restriction. They must also be fenced and posted with signs stating that the area is habitat for the federally listed valley elderberry longhorn beetle.

Cumulative Effects

No other development is currently planned in or around the WWTP that would remove or further degrade elderberry habitat. In addition, the Proposed Action would not have any long-term effects to habitat quality in the region, which would maintain the same general habitat character for the area. Therefore the Proposed Action would not result in cumulative effects on valley elderberry longhorn beetle.

Interdependent and Interrelated Effects

The Proposed Action would not generate any interrelated actions. However, urban growth associated with development approved under the City of Merced's General Plan and the UC-Merced LRDP is interdependent with the Proposed Action and may not occur without the Proposed Action taking place. The potential effects associated with this Proposed Action are fully described in the City's General Plan Vision 2015 (City of Merced, 1997b) and the UC Merced LRDP Draft EIR (UC-Merced, 2001).

5.2 Giant Garter Snake

Direct and Indirect Effects

The Draft Recovery Plan for the Giant Garter Snake (USFWS, 1999a) identifies loss of habitat as the greatest threat to this species and recognizes degradation of habitat as an additional threat. Suitable habitat exists in Hartley Slough, Miles Creek, the agricultural ditches (Ditches 1, 2, 3, and a portion of 4), and their respective adjacent uplands, up to 200 feet from the bank (Figure 5-1) where suitable (e.g., not routinely disked). Approximately 9.0 acres of aquatic and 4.3 acres of upland habitat (including 1.11 acres of unvegetated upland habitat along the upper portion of the bank on the north side of the effluent channel) exist in the Action Area.

Construction of the new roadway over Hartley Slough at the WWTP entrance and the new effluent outfall, the filling of the southern portion of the effluent channel, the rerouting of Hartley Lateral and Paden Drain, and subsequent dewatering of a portion of Hartley Lateral would

involve work within potential giant garter snake aquatic and upland habitat and would result in temporary and permanent habitat loss (see Table 5-2).

TABLE 5-2
EFFECT ON GIANT GARTER SNAKE HABITAT

Habitat Type	Duration of Loss	Acres Affected
Aquatic	Permanent	0.54
	Temporary	0.21
Upland	Permanent	0.70
	Temporary	1.82

Source: ESA, 2006

The Proposed Action would increase discharges to Hartley Slough. This could result in higher flows that could initially affect stream vegetation through scouring and increased sedimentation. Changes in aquatic habitats as a result of scouring or sedimentation may adversely or beneficially affect giant garter snakes, depending on the habitat values of the resulting habitat.

Water quality may also be affected through increased temperatures in the Action Area. Giant garter snake typically inhabits shallow, slow-moving water bodies (e.g., marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals and rice fields) that would generally be considered warm-water habitats. Incidents of increased receiving water temperatures would primarily occur from October through March, which corresponds to the snake's inactive period, when it would not be in aquatic habitat. Therefore, it is unlikely that elevated water temperatures would adversely affect the species.

Modifications to the Project to Mitigate Effects

The City shall develop and implement a monitoring program to determine if increased effluent discharges are inducing excessive stream channel erosion on Hartley Slough downstream of the effluent discharge to the location of the existing agricultural water diversion facility. If observed, bank stabilization practices and other best management practices (BMPs) to control erosion shall be implemented. Measures could include placing riprap and planting stabilizing vegetation. If no substantial stream channel erosion is observed, the program may be terminated.

The following measures shall be implemented to reduce Proposed Action impacts on giant garter snake:

A. All construction activity within giant garter snake habitat shall be conducted between May 1 and October 1. This is the active period for giant garter snakes and the potential for direct impacts are reduced because snakes are actively moving and avoiding danger. More danger is posed to snakes during their inactive period,

because they are occupying underground burrows or crevices and are more susceptible to direct effects, especially during excavation. Between October 2 and April 30 the City will contact the USFWS Sacramento Office to determine if additional measures are necessary to minimize and avoid take.

B. Any dewatered habitat must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

C. Construction personnel shall participate in a worker environmental awareness program. Under this program, workers shall be informed about the presence of giant garter snakes and habitat associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of FESA. This instruction shall be conducted by a USFWS approved biologist prior to construction activities. Proof of this instruction shall be submitted to the USFWS.

D. Within 24 hours before construction activities begin, a USFWS-approved biologist shall inspect the site. The biologist will provide the USFWS with a field report form documenting the monitoring efforts within 24 hours of commencement of construction activities. The monitoring biologist shall be available thereafter; if a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own. Capture and relocation of trapped or injured individuals shall only be attempted by personnel or individuals with current USFWS recovery permits pursuant to section 10(a)(1)(A) of FESA. The biologist shall be required to report any incidental take to the USFWS immediately by telephone and by written letter within one working day. The project area shall be reinspected whenever construction activity lapses for two weeks or more.

E. Clearing of wetland vegetation will be confined to the minimal area necessary to excavate the toe of the bank for riprap or fill placement. Excavation of the channel for removal of accumulated sediments will be accomplished by using equipment located on and operated from top of bank, with the least interference practical for emergent vegetation.

F. Movement of heavy equipment to and from the Project site shall be restricted to established roadways to minimize habitat disturbance. Preserved giant garter snake habitat shall be designated as Environmentally Sensitive Areas and shall be flagged by a USFWS approved biologist and avoided by all construction personnel.

G. After completion of construction activities, any temporary fill and construction debris shall be removed and, wherever feasible, disturbed areas shall be restored to pre-Project conditions.

H. Affected giant garter snake habitat shall be replaced or restored in kind at a 3:1 ratio (see Table 5-3). This table assumes that temporary impacts will only last one season. Permanent loss includes temporary impacts that span more than two seasons (one season is May 1 to October 1).

TABLE 5-3
MITIGATION FOR LOSS OF GIANT GARTER SNAKE HABITAT

Habitat Type	Duration of Loss	Acres Affected	Mitigation Ratio	Mitigated Acres Replaced
Aquatic	Permanent	0.54	3:1	1.62
	Temporary	0.21	n/a	Restore
Upland	Permanent	0.70	3:1	2.10
	Temporary	1.82	n/a	Restore

Source: ESA, 2006

I. All replacement habitat must include both upland and aquatic habitat components. Upland and aquatic habitat components must be included in the replacement habitat at a ratio of 2:1 upland acres to aquatic acres (see Table 5-3).

J. Restored habitat shall receive one year of monitoring with a photo documentation report due to the USFWS one year from implementation of the restoration with pre- and post-construction Action Area photos.

K. Monitoring of replacement habitat with a photo-documentation report shall be conducted for five years and submitted to the USFWS annually.

The calculations of acres lost assumes no impacts to land north of the access road paralleling the north bank of the southern reach of the effluent channel; disturbance during only one season; and the revegetation of all temporarily disturbed areas.

The closest USFWS-approved mitigation bank for purchasing giant garter snake credits is Wildlands' Kimball Island Mitigation Bank. It is anticipated that the City would purchase mitigation credits at this bank for compensation resulting from loss of habitat because of the Proposed Action.

Cumulative Effects

No other development is currently planned in or around the WWTP that would remove additional giant garter snake habitat. Therefore, the Proposed Action would not result in cumulative effects on giant garter snake.

Interdependent and Interrelated Effects

The Proposed Action would not generate any interrelated actions. However, urban growth associated with development approved under the City of Merced's General Plan and the UC-Merced LRDP is interdependent with the Proposed Action and may not occur without the Proposed Action taking place. The potential effects associated with this Proposed Action are fully

described in the City's General Plan Vision 2015 (City of Merced, 1997b) and the UC-Merced LRDP Draft EIR (UC-Merced, 2001).

5.3 San Joaquin Kit Fox

Direct and Indirect Effects

The Action Area may serve as foraging or movement habitat for San Joaquin kit fox traveling between eastern Merced County and the Central Valley floor. Loss of foraging or dispersal habitat for expansion of the WWTP, or disturbance associated with construction or operation activities of the expanded WWTP could reduce the value of the Action Area for San Joaquin kit fox. However, the Action Area does not provide any unique habitat values compared to adjacent farmland or nearby habitat managed for wildlife (e.g., the Merced Wildlife Management Area). Therefore, it is unlikely that the species would be affected by the Proposed Action.

Cumulative Effects

No other development is currently planned in or around the WWTP that would modify additional San Joaquin kit fox habitat. Therefore, the Proposed Action would not result in cumulative effects on San Joaquin kit fox.

Interdependent and Interrelated Effects

The Proposed Action would not generate any interrelated actions. However, urban growth associated with development approved under the City of Merced's General Plan and the UC Merced LRDP is interdependent with the Proposed Action, and may not occur without the Proposed Action taking place. The potential effects associated with this Proposed Action are fully described in the City's General Plan Vision 2015 (City of Merced, 1997b) and the UC Merced LRDP Draft EIR (UC Merced, 2001).

SECTION 6
Conclusions and Determination

6.1 Conclusions

In Chapter 1, federal-listed or proposed species with the potential to occur in the Action Area were identified. Three of these species (valley elderberry longhorn beetle, giant garter snake, and San Joaquin kit fox) were determined to have habitat or the potential to be affected by actions in the Action Area, and therefore, be potentially affected by the Proposed Action.

Compensation and avoidance and minimization measures are proposed in Section 5 for effects on valley elderberry longhorn beetle, giant garter snake, and San Joaquin kit fox. These measures are, where available, based on USFWS guidelines (e.g., USFWS, 1999b) or programmatic Biological Opinions (e.g., USFWS, 1997).

6.2 Determination

Based on the information presented in this BA, the following determinations have been made:

The proposed Project would have no effect on the following species, either because the Action Area contains no suitable habitat or because the Action Area is out of the species' natural range:

Branchinecta conservatio	Conservancy fairy shrimp	Endangered
Branchinecta longiantenna	Longhorn fairy shrimp	Endangered
Dipodomys nitratoides exilis	Fresno kangaroo rat	Endangered
Oncorhynchus tshawytscha	Winter-run Chinook salmon, Sacramento River	Endangered
Gambelia (=Crotaphytus) sila	Blunt-nosed leopard lizard	Endangered
Ambystoma californiense	California tiger salamander	Threatened
Rana aurora draytonii	California red-legged frog	Threatened
Haliaeetus leucocephalus	Bald eagle	Threatened
Neostapfia colusana	Colusa grass	Threatened
Chamaesyce hooveri	Hoover's spurge	Threatened
Branchinecta lynchi	Vernal pool fairy shrimp	Threatened
Oncorhynchus tshawytscha	Central Valley fall/late fall-run Chinook salmon	Candidate

Based on the rationale presented in Section 5, the Project may affect, but is not likely to adversely affect the following species:

Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	Threatened
Thamnophis gigas	Giant garter snake	Threatened
Vulpes macrotis mutica	San Joaquin kit fox	Endangered

SECTION 7
References

California Department of Fish and Game (CDFG). 2002. Endangered Species Project. Species profile for valley elderberry longhorn beetle.

California Department of Fish and Game (CDFG). 2006. California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch Electronic Database. Sacramento, CA.

California Native Plant Society (CNPS). 2005. Inventory of Rare and Endangered Plants of California – sixth edition. Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, CA.

Central Valley Regional Water Quality Control Board (CVRWQCB). 1998. Fourth Edition of the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins

Central Valley Regional Water Quality Control Board (CVRWQCB). 2004. Mandatory Penalty Complaint No. R5-2004-0537

City of Merced. 1994. Draft Environmental Impact Report: City of Merced Wastewater Treatment Plant Expansion. SCH# 9211209. June 1994.

City of Merced, 1997a. City of Merced 1997 Specific Urban Development Plan Update EIR.

City of Merced. 1997b. Merced Vision 2015 General Plan.

ECO:LOGIC. 2005. City of Merced Wastewater Treatment Plant Expansion: Report of Waste Discharge. April 2005.

University of California. 2001. University of California-Merced (UC-Merced) Long Range Development Plan (LRDP) EIR, 2001

U.S. Fish and Wildlife Service (USFWS). 1984. Valley Elderberry Longhorn Beetle Recovery Plan. June 28, 1984

U.S. Fish and Wildlife Service (USFWS). 1997. Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California. November 13, 1997. U.S. Fish and Wildlife Service, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. U.S. Fish and Wildlife Service Region 1, Portland, OR.

U.S. Fish and Wildlife Service (USFWS). 1999a. Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 1999b. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. 9 July 1999. U.S. Fish and Wildlife Service, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS). 2006. Endangered Species Accounts. Prepared by Endangered Species Division of the Sacramento Fish & Wildlife Office. Accessed at <http://sacramento.fws.gov/es /spp_info.htm> in May 2006.

U.S. Fish and Wildlife Service (USFWS)and National Marine Fisheries Service (NMFS). 1998. Endangered Species Act Consultation Handbook. Procedures for Conducting Section 7 Consultations and Conferences. U.S. Fish and Wildlife Service and National Marine Fisheries Service. Final, March 1998.

U.S. Fish and Wildlife Service (USFWS)and National Marine Fisheries Service (NMFS).. 2000. Biological Opinion on the Environmental Protection Agency's Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California. U.S. Fish and Wildlife Service, Sacramento, CA, and National Marine Fisheries Service, Long Beach, CA. March 24, 2000.

Appendix A

Species List for Expansion of the City of Merced's Wastewater Treatment Plant

ESA

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
SANDY MUSH (402A)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: May 5, 2006

Document Number: 060517120543

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation becomes final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Critical habitat, Conservancy fairy shrimp (X)

Branchinecta longiantenna

longhorn fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardi

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central pppulation (T)

Rana aurora draytonii

California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila

blunt-nosed leopard lizard (E)

Thamnophis gigas

giant garter snake (T)

Birds

Haliaeetus leucocephalus

bald eagle (T)

Mammals

Dipodomys nitratoides exilis

Fresno kangaroo rat (E)

Vulpes macrotis mutica

San Joaquin kit fox (E)

Plants

Chamaesyce hooveri

Critical habitat, Hoover's spurge (X)

Neostapfia colusana

Colusa grass (T)

Critical habitat, Colusa grass (X)

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.
- (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.
- 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.

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.

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 and candidate 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 August 15, 2006.

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
ATWATER (422D)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: May 5, 2006

Document Number: 060517120352

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation becomes final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta longiantenna

longhorn fairy shrimp (E)

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

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central pppulation (T)

Rana aurora draytonii

California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila

blunt-nosed leopard lizard (E)

Thamnophis gigas

giant garter snake (T)

Birds

Haliaeetus leucocephalus

bald eagle (T)

Mammals

Vulpes macrotis mutica

San Joaquin kit fox (E)

Plants

Neostapfia colusana

Colusa grass (T)

Candidate Species

Fish

Oncorhynchus tshawytscha

Central Valley fall/late fall-run chinook salmon (C) (NMFS)

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.
- (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.
- 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.

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.

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 and candidate 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 August 15, 2006.