Wastewater System Upgrades Project

Draft Master Environmental Impact Report

State Clearinghouse # 2013082006

Lead Agency:
City of Modesto

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City of Modesto EA/UP&P No. 2014-05

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1.1 Introduction and Purpose of the MEIR

The project analyzed in this Master Environmental Impact Report ("MEIR") is the program of facility improvements proposed in the City of Modesto Wastewater Master Plan, which would continue to be funded by proposed increases in wastewater rates and fees. This MEIR replaces the City of Modesto 2007 Wastewater Master Plan Update Master EIR (State Clearinghouse No. 2006052076) certified by the Modesto City Council on March 13, 2007 by City Council Resolution No. 2007-178.

Public Resources Code Section 21157 provides that a Master EIR may be prepared for any of a variety of projects.

Pursuant to Public Resources Code (PRC) Section 21157.6, Master EIRs have a five-year time limit and the 2007 Wastewater Master Plan EIR is nearing the end of it's statutory life. The purpose of this MEIR is to replace the 2007 MEIR with a new MEIR, adding new wastewater component project elements not analyzed in the earlier MEIR and updating the previous analysis where necessary based on new information.

The City has prepared this MEIR to provide the City Council, the public, and Responsible and Trustee Agencies under CEQA, with information about the project's potential effects on the environment. The City Council and various agencies with regulatory authority over the project will use this MEIR for the decision-making process. This MEIR was prepared in compliance with CEQA and the State CEQA Guidelines (in California Code of Regulations, Title 14).

1.2 Project Elements and Anticipated Subsequent Actions

The City chose to prepare this environmental document as a Master Environmental Impact Report. Public Resources Code Section 21157 (also known as the California Environmental Quality Act) allows the preparation of a Master EIR for (among other things) a project that consists of smaller individual projects, which will be carried out in phases. When a lead agency prepares a Master EIR, the document must include a description of anticipated subsequent projects that would be within the scope of the Master EIR and a description of potential environmental impacts of the projects. Subsequent projects would require only limited review, if they are in compliance with certain CEQA requirements.

The anticipated subsequent projects within the scope of this MEIR include the following:

- *Collection system improvements*. Upgrades and extensions to the wastewater collection system would include the River Trunk Realignment wastewater upgrade and the installation of a new 10-inch sewer main on Oakdale Road from the existing terminus of the Sonoma Trunk on Sylvan Road to Mable Avenue.

- *Lift station improvements*. The proposed River Trunk Realignment may include construction of a pump station and junction structure.

- *Jennings Facility Improvements*. The City anticipates repairing, rehabilitating or replacing existing fixed film reactors at the Jennings Facility. Other proposed actions would include relocating primary treatment equipment from the Sutter Facility to the Jennings Road Facility, including primary clarifiers, anaerobic digesters, sludge handing equipment, digester gas handling equipment and related equipment. Site access (driveway) location(s) and internal vehicular circulation routes may also be modified.

- *Sutter Facility Improvements*. Improvements at the Sutter Plan are anticipated to include upgrading and expanding the facility parking lot. A septic receiving station may also be constructed.

These major project components are explained in greater detail in Chapter 3, Project Description.

The City would not be precluded from relying on this MEIR solely because a subsequent project, as ultimately proposed for approval, is not specifically identified or listed by name in this document.

The City adopted a Master EIR for the Urban Area General Plan in 2008. The Wastewater Master Plan update was identified in the General Plan MEIR as an anticipated subsequent project. As such, several sections in this document incorporate by reference the environmental analysis in the General Plan MEIR.

1.3 Required Content of a Master EIR

Public Resources Code Section 21157 provides that a Master EIR may be prepared for any of a variety of projects. Subsection (b) describes the required contents of a Master EIR. This Master EIR complies with the requirements of Section 21157(b) as follows.

- A description of anticipated subsequent projects that would be within the scope of the Master EIR that contains sufficient information with regard to the kind, size, intensity and location of the subsequent projects (Sec. 21157 (b) (2)).

- The specific type of project anticipated to be undertaken (Sec. 21157 (b) (2) (A).

- The maximum and minimum intensity of any subsequent project, such as the number of residences in a residential project and, with regard to a public works facility, the anticipated capacity and service area (Sec. 21157 (b) (2) (B)).

- The anticipated location and alternative locations for any development projects (Sec. 21157 (b) (2) (C))

- A capital outlay or capital improvement program, or other scheduling or implementing device that governs the submittal and approval of subsequent projects (Sec. 21157 (b) (2) (D).

This Master EIR describes specific projects and their locations. This Master EIR is for public works facilities and it describes their anticipated capacity, locations, service area, and construction techniques.

Section 21157(b)(3) states:

"A description of potential impacts of anticipated subsequent projects for which there is not sufficient information reasonably available to support a full assessment of potential impacts in the master environmental impact report. This description shall not be construed as a limitation on the impacts which may be considered in a focused environmental impact report."

Each of the discussions of individual environmental issues in Chapter 4 (e.g., agricultural resources, parks and recreation) discloses the potential impacts for which sufficient information to support a full assessment is currently unavailable. In addition, the Master EIR establishes assumptions for determining whether a subsequent project is within the scope of the Master EIR and whether the Master EIR is considered current at the time that project would be considered.

1.4 CEQA Process

The City, as the CEQA Lead Agency, circulated a Notice of Preparation ("NOP") for the EIR to local, state, and federal agencies, and other interested parties on July 31, 2013. During the 30-day public review process, the City received nine responses to the NOP. These responses aided the City in identifying the issues to be analyzed in the MEIR.

The Draft MEIR will be available to the public and interested agencies, who may submit written comments. The City will respond to the comments and possibly add to or alter the environmental analysis. Then the City Council will consider the MEIR and its impact analysis in deciding whether to approve the proposed project or one of its alternatives.

In general, CEQA requires that a lead agency shall neither approve nor carry out a project as proposed unless the significant environmental effects have been reduced to an acceptable level. However, there may be overriding considerations that make significant unavoidable impacts acceptable.

Assuming that the City Council certifies the MEIR as complete and adequate under CEQA, it may approve some or all of the project elements analyzed in this MEIR. Subsequently, Responsible and Trustee Agencies under CEQA may use the MEIR to support their decisions to issue permits or make other types of approvals for the proposed project.

1.5 MEIR Organization

The MEIR is organized as follows:

- Chapter 1, Introduction.
- Chapter 2, Summary. The summary describes the project and provides a table listing the project's environmental impacts and mitigation measures.
- Chapter 3, Project Description. This chapter describes the existing and proposed facilities, and construction methods for the proposed facilities.
- Chapter 4, Environmental Setting, Impacts, and Mitigation. This chapter provides information regarding the environmental baseline ("setting") and analyzes whether the proposed project would create substantial, adverse effects on the environment ("significant impacts"). This chapter also includes mitigation measures to reduce or avoid significant impacts, where feasible.
- Chapter 5, Other CEQA Considerations. This chapter discusses growth inducement and summarizes cumulative impacts, significant effects that cannot be avoided if the project is implemented, and significant irreversible environmental changes if the project is implemented.
- Chapter 6, Alternatives. This chapter describes and analyzes alternatives to the project that would reduce or avoid one or more of the proposed project's significant effects.
- Chapter 7, Authors and Persons Consulted. This chapter lists the City of Modesto as author and key City staff who contributed to the report, along with the City's environmental consultant. This chapter also lists persons consulted during the analysis.
- Appendices. The Appendices include supplemental project description information, the Notice of Preparation and responses to it, the biological resources table, the air quality and noise background reports.

2.1 Overview of the Proposed Project

The City of Modesto is responsible for wastewater collection, treatment and disposal for a large community in California's San Joaquin Valley. Historically, the City has experienced rapid population growth and continues to respond to more restrictive discharge requirements.

Depending on location, collection system capacities may be exceeded during heavy rain events. Portions of the Sutter Avenue Wastewater Treatment Facility ("Sutter Facility") do not have sufficient hydraulic capacity to process peak wet weather flows. In addition, the City currently has limited options at its Jennings Road Wastewater Treatment Facility ("Jennings Facility") for the discharge of its treated wastewater, also known as effluent. The City currently disposes of secondary treated effluent in two ways: through irrigation to land that it owns (the "Ranch") and through seasonal discharge to the San Joaquin River. Both land and river discharge are constrained by permit and physical limitations; therefore, at times the City must store its treated effluent until discharge is possible.

To meet the challenges of population growth and limitations on conveyance and disposal; to meet expected, new, more restrictive permit conditions; and to improve reliability, the City proposes to construct substantial improvements to the wastewater collection and treatment system, and to increase wastewater rates and connection charges to pay for these improvements.

The "proposed project" analyzed by this Wastewater Master Plan Update Environmental Impact Report ("MEIR") is the program of facility improvements proposed in the Wastewater Master Plan, which would be funded by proposed increases in wastewater rates and charges.

The proposed project has three components, explained in greater detail below:

- Collection system improvements.
- Treatment Facility improvements.
- Operation and maintenance of the existing and proposed wastewater facilities.

2.2 Notice of Preparation (NOP)

A Notice of Preparation for the proposed project was published on July 31, 2013. A full copy of the NOP can be found in Appendix 8.1. The City of Modesto determined that an environmental impact report (EIR) was required. No Initial Study was prepared. Responses to the NOP from various agencies are found in Appendix 8.2 with appropriate City responses.

2.3 Environmental Impacts and Mitigation Measures

Under CEQA and the CEQA Guidelines, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the areas affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Significance criteria are based on standards identified in CEQA, the CEQA Guidelines, City and policies or regulations of agencies with jurisdiction over the proposed project, and/or professional judgment. Implementation of the proposed project would result in potentially significant impacts on some of these resources. These impacts are listed in Table 2.1.

The MEIR discusses mitigation measures that could be implemented by the City and/or project sponsors to reduce significant impacts to a less-than-significant level. Such mitigation measures are noted in this report and are found in Chapter 4, Environmental Setting, Impacts and Mitigation.

2.4 Project Alternatives

The following alternatives to the proposed project are analyzed in this MEIR.

- Alternative 1: No Project Alternative. The No Project Alternative assumes no implementation of the 2007 Wastewater Master Plan update and no adoption of increased wastewater rates or-collection charges to fund the associated infrastructure. The collection system improvements and treatment Facility improvements would not be constructed.

- Alternative 2: Alternative Project Facilities. This Alternative includes continuing the existing River Trunk pipeline, but constructing the Oakdale Sewer Facility. Alternative lift station sites would be selected which may require the City to purchase property for this purpose. Alternative 2 would also include relocating equipment from the Sutter Facility to a site immediately adjacent to the Jennings Facility which would also require additional access drives into this expanded area. Additional property would need to be purchased by the City for this purpose.

2.5 Potential Areas of Environmental Concern

Section 15123 of the CEQA Guidelines requires the agency preparing an EIR to disclose any areas of controversy about the project that became known to it during the preparation of the EIR. Potential areas of significant environmental concern for this project includes potential air quality and greenhouse gas emissions and impacts to biological resources.

2.6 Effects Found to be Less-Than-Significant

The following potential impacts have been deemed to be less-than-significant and are not analyzed further in this document:

- *Cultural Resources*-impacts to archeological or paleontological resources
- *Geology and Soils*-seismic impacts, landslides, erosion of topsoil other soil and geologic hazards.
- *Population and Housing*- displacement of existing housing or people.

- *Public Services*-impacts to fire, police, solid waste and other utilities.
- *Transportation and Traffic*-changes to air traffic patterns, impacts related to design hazards, emergency access impacts.
- *Utilities and Service Systems*- impacts related to drainage and solid waste facilities and systems.

2.7 Future Environmental Analysis

This MEIR contains a project-level environmental review and is intended to serve as the CEQA review for future wastewater projects Further CEQA environmental review is not anticipated to be required for future implementing projects. However, the determination of whether further CEQA environmental review, if any, is required for implementing discretionary approvals will be determined in accordance with the standards under CEQA and the CEQA Guidelines.

2.8 Summary of Impacts and Mitigation Measures

Table 2.1, on the next page, includes a summary of project impacts and mitigation measures.

Table 2.1. Summary of Impacts and Mitigation Measures

Impact	Topic/ Impact	Mitigation Measure	Level of Significance After Mitigation
HYD-1	**Hydrology and Water Quality.** Grading, trenching and similar ground disturbance could release loose soil, debris and other material into nearby waterways.	HYD-1. Prior to commencement of grading or other earth-disturbing activities and commencement of operation of the expanded parking lot at the Sutter Facility, the City shall prepare a Stormwater Pollution Prevention Plan (SWPPP) that shall include specific, detailed measures to minimize erosion of graded material, debris and other material from both construction site where ground disturbance would occur or the expanded parking lot at the Sutter Facility. The SWPPP shall include measures to: a) limit runoff-off of construction chemicals, debris and similar materials off of construction sites. b) provide construction personnel with information to minimize runoff from the site. c) placement of facilities to limit runoff, including but not limited to silt fences, sediment basins and similar facilities around the perimeter of graded areas. d) installation of vegetated swales around the perimeter of the expanded Primary Facility parking lot and at drainage inlets.	**Less-than-Significant**

		e) frequent sweeping of the parking lot to remove dust, litter and similar debris. f) installation of signs at drainage inlets to make users aware of not to litter.	
HYD-2	**Hydrology and Water Quality.** Surface water near the Sutter facility could be impacted by runoff of soil, litter, debris and petroleum products following construction of the proposed parking lot.	See Mitigation Measure HYD-1	**Less-than-Significant**
BIO-1	**Biological Resources.** Construction of wastewater facilities adjacent to the Tuolumne River could damage the habitat of the valley elderberry longhorn beetle.	**BIO-1.** Prior to construction of any wastewater project element near the Tuolumne River, the following shall be implemented: a) The project area and immediately adjacent area shall be surveyed and mapped by a qualified biologist for the presence of the valley elderberry longhorn beetle and its elderberry host species plant. Mitigation is not required for plants with no stems measuring 1.0 inch (2.5 cm) or greater in diameter at ground level and surveys are valid for a period of two years. b) Appropriate state or federal biological resource agencies shall be consulted if resources are identified that meet the U.S. Fish & Wildlife Service programmatic formal consultation criteria. c) If suitable habitat for the valley elderberry longhorn beetle occurs in a project component area, these	**Less-than-Significant**

		areas shall be designated as avoidance areas that will be protected from disturbance during construction. Any valley elderberry longhorn beetle habitat that cannot be avoided should be considered impacted and appropriate mitigation shall be implemented as described in the remainder of this measure. Core avoidance areas include all areas within 20 feet of the dripline of any elderberry plant with a stem measuring 1.0 inch or greater in diameter at ground level. Such core areas should not be disturbed during construction. Buffer avoidance areas include all the area within 100 feet of any elderberry plant with a stem measuring 1.0 inch or greater at ground level. If complete avoidance within a 100-foot wide buffer cannot be provided, the USFWS must be consulted before any disturbances within the buffer area are considered. In addition, the USFWS must be provided with a map identifying the avoidance areas and written details describing the avoidance and protective measures. Protective measures include: • Temporary construction fencing shall be constructed to provide a minimum setback of at least 20 feet from the dripline of each potential host elderberry plant.	

		• A tailgate education program on the valley elderberry longhorn beetle shall be given to each construction worker and all personnel working within the project area to avoid adverse effects on the beetle. • Signs every 50 feet (15.2 m) along the edge of the fence shall be placed along the exclusion fence to help identify the area as a protected area for the valley elderberry longhorn beetle for the duration of construction. Restoration and maintenance activities should be implemented if activities occur within the 100-foot buffer zone. Restoration and maintenance activities include: • Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants. • Buffer areas must continue to be protected after construction. Measures such as fencing, signs, weeding, and trash removal are usually appropriate. • No insecticides, herbicides, fertilizers, or other chemicals that	

		might harm the beetle or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level. • The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed. • Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within 5 feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment). d. If elderberry shrubs cannot be avoided, elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level should be transplanted to a mitigation area. The following guidelines shall be followed. • A qualified biologist shall monitor the project and mitigation sites for the duration of	

		the transplanting to ensure no unauthorized take or loss of individuals occurs. • Elderberry plants will be transplanted after shrubs have lost their leaves and are dormant, usually from November through the first two weeks in February. • Transplanting shall be conducted according to standard procedures set forth by the USFWS, which includes planting additional seedlings or cuttings at various ratios for plants removed for translocating. • A mitigation area set aside for translocated plants shall provide habitat for the beetle in perpetuity. The mitigation area should provide at least 1,800 square feet for each transplanted elderberry shrub and follow USFWS guidelines for other associated native plants to be planted within the area. This mitigation area shall be weeded by mechanical means (no herbicides) once a year. The mitigation area will be monitored for the general condition of the mitigation area, the condition of the elderberry plants, and the associated	

		native plants, for a period of 10 consecutive years with surveys and reports every year, or for 15 years of monitoring with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15. Reports shall be provided to the USFWS.	
BIO-2	**Biological Resources.** Construction of wastewater facilities could impact the habitat of burrowing owl.	**BIO-2.** Prior to construction of any wastewater project components on vacant fields, the following shall be implemented: a. In conformance with Federal and State regulations regarding the protection of raptors, a pre-construction survey for burrowing owls shall be completed, in conformance with CDFW guidelines, prior to the start of construction within suitable habitat. f no burrowing owls are located during these surveys, no additional action would be warranted. However, if breeding or resident owls are located on, or immediately adjacent to, the site, the following mitigation measures shall be implemented: • No burrowing owls shall be evicted from burrows during the nesting season (February 1 through August 31). Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written	**Less-than-Significant**

		approval from the CDFW authorizing the eviction. • A 250-foot buffer, within which no new activity shall be permissible, shall be maintained between project activities and nesting burrowing owls. This protected area would remain in effect until August 31, or at the CDFW's discretion and based upon monitoring evidence, until the young owls are foraging independently. • If accidental take (disturbance, injury, or death of owls) occurs, the CDFW shall be notified immediately. b. If a pre-construction survey finds that burrowing owls occupy the project site and avoiding construction in occupied areas is not feasible, then habitat compensation on off-site mitigation lands should be implemented. Habitat Management lands comprising existing Burrowing owl foraging and breeding habitat shall be acquired and preserved. An area of 6.5 acres (2.6 ha) (the amount of land found to be necessary to sustain a pair or an individual owl) should be secured for each pair	

		of owls, or individual in the case of an odd number of birds. As part of an agreement with the CDFW, the project applicant should secure the performance of its mitigation duties by providing the CDFW with security in the form of funds that would: • Allow for the acquisition and/or preservation of 6.5 acres (2.6 ha) of Habitat Management lands. • Provide initial protection and enhancement activities on the Habitat Management lands, potentially including but not limited to such measures as fencing, trash clean-up, artificial burrow creation, grazing or mowing, and any habitat restoration deemed necessary by CDFW. • Establish an endowment for the long-term management of the Habitat Management lands. • Reimburse the CDFW for reasonable expenses incurred as a result of the approval and implementation of this agreement. Pending CDFW approval, Habitat Management lands providing foraging	

		habitat for Swainson's Hawk (see "Loss of Swainson's Hawk Foraging Habitat" below) may also be used to mitigate impacts to burrowing owl provided the Habitat Management lands provide existing burrowing owl foraging and breeding habitat.	
BIO-3	**<u>Biological Resources</u>. Construction of wastewater facilities may impact nesting raptors.**	<u>BIO-3</u>. Prior to construction of any wastewater project components on vacant fields, the following shall be implemented: a) To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from January through August. b) If it is not possible to schedule construction between August and January, then one of the following options shall be implemented: - With the approval of the CDFW, trees containing known or potential raptor nest sites may be removed to discourage future nesting attempts on the condition that no raptor pair is currently utilizing the site; or, - Pre-construction surveys for nesting raptors shall be conducted by a qualified ornithologist or wildlife biologist to ensure that no raptor nests would be disturbed during project implementation. A pre-construction survey shall be	**Less-than-Significant**

		conducted prior to the initiation of demolition/construction activities during the early part of the breeding season (January through April) and prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the qualified person shall inspect all trees in and immediately adjacent to the impact areas for raptor nests. - If an active raptor nest is found close enough to the construction area to be disturbed by these activities, the ornithologist, in consultation with CDFW, shall determine the extent of a construction-free buffer zone to be established around the nest.	
BIO-4	**Biological Resources.** Construction of wastewater facilities may impact sensitive biological resources and habitat area within the Tuolumne River.	**BIO-4**. Construction of wastewater facilities near the banks of the Tuolumne or San Joaquin Rivers shall adhere to the following: a. Pre-construction surveys shall be conducted prior to project-related activities that would impact the resources of the San Joaquin River or Tuolumne River in order to identify potentially significant impacts to potential steelhead and Chinook salmon and their habitats. If the San Joaquin River,	**Less-than-Significant**

		the Tuolumne River, or their tributaries could be impacted by project activities, USACE permits and a Streambed Alteration Agreement from CDFW and permits from NMFS may be required. If project activities impact regulated habitats, USACE permits, NMFS permits and a Streambed Alteration Agreement from CDFW would be required. Early consultation with the USACE, CDFW and NMFS is recommended to determine adequate protocols, as project modification and/or protection measures may be necessary and would require agency approval. b. If construction activities would result in impacts to any of the special-status species identified as possibly occurring in the project area, protection for that species shall be implemented. These shall be determined through coordination with the City of Modesto, CDFW, USFWS, and NMFS.	
BIO-5	**Biological Resources.** Construction of project facilities may impact Swainson hawk foraging habitat.	**BIO-5**. If project facilities are constructed on lands identified as potential foraging habitat for Swainson's hawk, then the impacts shall be mitigated by providing offsite Habitat Management lands as described in the CDFW protocol. The final acreage of offsite management lands to be provided would depend	**Less-than-Significant**

		on the distance between the project area and the nearest active nest site. Prior to grading of any site with potential foraging habitat, protocol-level surveys should be conducted to determine the nearest active nest.	
BIO-6	**Biological Resources.** Construction of project facilities may impact Swainson species by removing trees with active nests.	**BIO-6.** The following steps shall be taken to minimize impacts to Swainson Hawk nesting areas. a. In order to assure that nesting Swainson's hawks will not be disturbed by construction activities at the Jennings Facility site, in developing areas where collection system extensions are being constructed on or within one mile of undeveloped properties that could have trees with active nests, a qualified ornithologist shall conduct pre-construction surveys of the project site and adjacent areas within one mile of the project site. Survey Period I occurs from January 1 to March 20, Period II from March 20 to April 5, Period III from April 5 to April 20, Period IV from April 21 to June 10, and Period V from June 10 to July 30. Surveys are not recommended during Period IV because identification is difficult as the adults tend to remain within the nest for longer periods of time. No fewer than three surveys shall be completed, in at least each of the two survey	**Less-than-Significant**

		periods immediately prior to project initiation. If a nest site is found, consultation with CDFW shall be required to ensure project initiation will not result in nest disturbance. b. Nest trees on the project site(s) should not be removed unless avoidance measures are determined to be infeasible. If a nest tree must be removed, a Management Authorization (including conditions to off-set the loss of the nest tree) must be obtained. The Management Authorization will specify the tree removal period, generally between October 1 and February 1. If construction or other project related activities which may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site by a qualified biologist should be required to determine if the nest is abandoned. If it is abandoned, and if the nestlings are still alive, the City shall fund the recovery and hacking (controlled release of captive reared young) of nestling(s).	
BIO-7	**Biological Resources.** Construction or improvements to the Jennings Facility may cause impacts to wetlands and waters of the US.	**BIO-7.** If project facilities are constructed on or adjacent to wetland areas and those areas potentially under the jurisdiction of the USACE and/or CDFW, pre-construction	**Less-than-Significant**

		surveys shall be conducted. If these areas would be impacted by project activities, USACE permits and a Streambed Alteration Agreement from CDFW would be required. These agencies would request adequate measures to offset impacts to riparian and aquatic resources. Early consultation with the USACE and CDFW is recommended to determine adequate protocol, as project modification and/or mitigation measures may be necessary and would require agency approval.	
BIO-8	**Biological Resources.** Construction activities could cause impacts to riparian habitats under the jurisdiction of the California Department of Fish and Wildlife and/or the U.S. Army Corps of Engineers.	**BIO-8**. Prior to performing construction activities in or adjacent to a riparian area, a survey should be conducted to determine whether special-status species or habitats are present on or immediately adjacent to the construction area. If it is determined that such species or habitats are present, and if the temporary impacts are determined to be significant, coordination with CDFW, USFWS, NMFS, and USACE shall occur to determine appropriate avoidance steps or detailed mitigation measures to carry out prior to and during construction. These measures could include establishing a riparian buffer between the construction area and the identified resource or habitat, and monitoring during construction by appropriately qualified scientist(s).	**Less-than-Significant**

BIO-9	**Biological Resources.** Construction activities could impact the habitat for western pond turtles, the nesting and foraging habitat for loggerhead shrikes, and foraging habitat for short-eared owls, northern harriers, and the habitat for western yellow-billed cuckoo, Modesto song sparrow, long-billed curlew, white-faced ibis, and tricolored blackbirds.	No Mitigation Required	**Less-than-Significant**
BIO-10	**Biological Resources.** Construction activities may result in direct, temporary, and indirect impacts on roosting special-status bats.	BIO-10 Special-status bat roost habitat may be removed between September 1 and October 31 without surveys or special measures to protect bats. However, if evidence of roosting is observed during vegetation removal, structure demolition, and/or disturbance in other suitable roosting habitat, work should be halted and a qualified wildlife biologist should be contacted for recommendations on how to proceed. Consultation with CDFW may be required to determine appropriate actions. Removal of potential roost habitat should not be conducted during the hibernation season, between November 1 and March 31. Emergence surveys are not effective at determining bat presence (due to suppressed flight and foraging activities) during this period. If removal of suitable roosting habitat is to occur between April 1 and August 31, a qualified biologist shall assess the suitability of affected habitat no later than 30 days prior to the start of construction to determine if there are signs of roosting activity. If suitable habitat is present that contains	**Less-than-Significant**

		signs of roost activity, evening emergence surveys and/or internal searches to determine presence/absence of bat maternity roosts shall be conducted. All active roosts identified during surveys shall be protected by a 250-foot exclusion buffer around the roost or as determined appropriate by a qualified biologist.	
BIO-11	**Biological Resources.** Construction activities may result in direct, temporary, and indirect impacts on special-status species not addressed in this MEIR.	**BIO-11**. Prior to implementation of individual project components, the City shall: a) Conduct an inquiry of special-status plants and wildlife near the construction area. This includes a review of the CNDDB, CNPS, CDFW RareFind 5 Database. b) Pre-construction surveys shall be conducted prior to project-related activities that would impact sensitive species and their habitats. If it is determined that suitable habitat for special-status species is present in a proposed project area, potential impacts, along with avoidance and minimization measures, shall be evaluated as part of the biological resources assessment report. Impacts on special-status bat species are typically avoided and minimized by conducting pre-construction surveys and using work windows to remove occupied habitat.	**Less-than-Significant**

		If sensitive species and their habitats are impacted, permits from USACE, CDFW, USFWS, and/or NMFS may be required. Early consultation with the USACE, CDFW and NMFS is recommended to determine adequate protocols, as project modification and/or mitigation measures may be necessary and would require agency approval. c) Appropriate species protection methods shall then be implemented.	
BIO-12	**Biological Resources.** Upgrading activities of the Jennings Facility may result in changes to treated effluent into local rivers.	Less-than-significant impact and no mitigation required	**Less-than-Significant**
AIR-1	**Air Quality & Greenhouse Gas.** Some project components, including continued operation of the Jennings Road and Sutter facilities, could generate odors that would affect surrounding sensitive receptors.	AIR-1. Prior to operation of future facilities that could generate substantial odors, the City shall develop an Odor Control Plan and install odor control systems. The Plan shall specify the installation of necessary odor control facilities and include measures to ensure on-going maintenance of odor control facilities.	**Less-than-Significant**
AIR-2	**Air Quality & Greenhouse Gas.** Future operations of wastewater facilities could emit greenhouse gasses exceeding the regional standard of significance.	AIR-2. Each individual project component that includes new stationary equipment, such as the relocation of the primary treatment equipment from the Sutter facility to the Jennings facility and the proposed River Trunk Lift Station shall be analyzed for significant GHG	**Less-than-Significant**

		impacts. For each project-level analysis, appropriate BPS will be implemented or a 29 percent GHG emission reduction compared to BAU will be demonstrated. Means of mitigating GHG impacts to a less-than-significant level include, but are not limited to, technological controls for stationary sources (such as for boilers, generators, and process heaters) and the GHG emission reduction measures (such as energy efficiency, transportation, and site design measures) for development projects listed in the SJVAPCD CCAP.	
NOISE-1	**Noise.** Project operations could substantially increase noise levels at nearby noise sensitive receptors.	**NOISE-1.** The following measures apply to the modified Facility entrance and new septic receiving station. Noise from the activities and equipment shall be controlled so as to comply with the noise limits shown in Table 4.6-1. This will limit the increase in the ambient to approximately 3 dBA L_{dn} and minimize possible disturbance due to nighttime noise resulting from mechanical equipment. A noise study shall be prepared when the design for the facility is completed to determine what control measures, if any, are necessary to meet City noise exposure noise limits. These measures may include, but are not limited to, constructing a noise barrier at the property line or around high activity areas, limited operating hours and equipment muffling using sound	**Less-than-Significant**

		attenuators or mufflers.	
NOISE-2	**Noise.** The construction of project components would temporarily increase ambient noise levels in the project vicinity above levels existing without the project.	Less-than-significant impact and no mitigation required	**Less-than-Significant**

The City of Modesto is located in Stanislaus County, located in the northern section of California's San Joaquin Valley, approximately 30 miles south of Stockton, 70 miles south of Sacramento, and 80 miles east of Oakland. Nearby cities include Riverbank, Ripon, and Manteca to the north and Ceres, Turlock, and Merced to the south. **Exhibit 3.1** shows the City in context of the region. **Exhibit 3.2** shows the location of the Modesto Planning Area.

The wastewater collection system and Primary Facility improvements would be made within the City and its wastewater service area (described below). The Jennings Facility is within City limits but not contiguous to the remainder of Modesto, and is located approximately 6.5 miles to the southwest of the City, on the eastern side of the San Joaquin River. **Exhibit 3.3** shows locations of the Sutter Wastewater Treatment Facility (Sutter Facility), Jennings Wastewater Treatment Facility (Jennings Facility) and the two Outfalls connecting the treatment facilities.

3.1 Existing City Wastewater System

Overview. Modesto's wastewater collection system conveys wastewater from residential, commercial, and industrial customers in its service area. Modesto's existing collection system includes over 600 linear miles of sanitary sewer lines, ranging from 6 to 60 inches in diameter, and 40 lift stations. There are over 70 miles of major sewers, called trunk pipelines.

Most of the wastewater system flows by gravity. In some cases, lift stations (also called pump stations) are required to lift the wastewater up to a level where it can flow by gravity toward Modesto's primary wastewater treatment facility. In other cases, lift stations put the wastewater in the pipelines under pressure; such pipelines are called force mains.

Wastewater flowing in the collection system is either pumped or flows by gravity to the Sutter Facility, where it receives primary treatment. Primary (physical) treatment consists of several steps to remove solid material from the flows. The first step is to remove large objects and debris, such as rags, paper, and plastics, with bar screens. The second step is to remove grit (sand and other inorganic particles). Rags and grit are dried and hauled to the landfill for disposal. The third step consists of primary clarification: solids are settled out and floating matter is skimmed off. The solids removed from the wastewater (biosolids) undergo anaerobic digestion at the Sutter Facility. Anaerobic digestion is a process in which microorganisms break down the solids in the absence of oxygen. Waste methane gas from the digestion process is burned in a flare. Digested solids are dewatered in solar drying beds, and then trucked to the Jennings Facility for application on the City's Ranch property as a soil amendment.

After primary clarification, the liquid portion of the wastewater (primary effluent) is then pumped through the Primary Effluent Outfall (and sometimes through the Cannery Segregation Line) to the Jennings Facility.

The Primary Effluent Outfall and Cannery Segregation Line are both 60-inch-diameter pipelines. Their routes are essentially a diagonal line, from northeast to southwest, between the two treatment facilities. During the canning season, which occurs between the months of July and September, the 60-inch Cannery Segregation Line is dedicated solely to convey wet agricultural industry process water directly from the headworks at the Sutter Facility to the Jennings Facility to irrigate the City-owned property called the Ranch.

The Jennings Facility currently treats primary effluent to both secondary treatment and tertiary levels. At the Jennings Facility, microorganisms metabolize biological matter during secondary treatment, which primarily consists of three fixed film reactor towers, 126 acres of recirculation channels and 334 acres of oxidation ponds, and dissolved air flotation (DAF) units. Secondary treated effluent is either stored in 596 acres of storage ponds, or chlorinated and dechlorinated prior to permitted seasonal discharge.

The City also treats a portion of the City's primary effluent to tertiary effluent levels. At the Jennings Facility, microorganisms both metabolize (break down) and biologically remove nutrients from the primary effluent. The biological nutrient removal (BNR)/tertiary treatment process includes pump stations, fine screens, oxidation ditch and aeration basins, membrane bio-reactors (MBR) and ultra-violet UV disinfection. Tertiary treatment produces of high-quality treated recycled water for year-round discharge and other uses.

Currently the City disposes of its secondary treated wastewater in two ways: (1) disinfected with chlorine (to destroy harmful organisms), then de-chlorinated with sulfur dioxide, prior to seasonal discharge to the San Joaquin River (from October through May) ; and (2) stored in 596 acres of ponds so it can be prepared for land application on 2,526 acres of the Ranch. Land application means that the City uses the treated effluent to irrigate fodder crops at the ranch. The amount of effluent that can be applied to land is limited by agronomic considerations and rainfall.

The City's permit allows discharge of secondary treated effluent to the San Joaquin River only during October through May, when there is sufficient river flow for a 20:1 dilution of the treated effluent. The volume of discharge may also be affected by effluent quality. Algae grows in the storage reservoirs in October and November, generating high suspended solids concentrations that typically exceed discharge limitations. Consequently, discharge during October and November is currently not possible. The City has installed DAF units to remove algae which will allow the City to extend the discharge season into October and November. If neither land nor river disposal is possible, due to permit or physical constraints, then the effluent is temporarily held in two storage ponds until it can be disposed. During storage, some evaporation occurs.

Based on the City's new National Pollutant Discharge Elimination System (NPDES) permit, the City will no longer be allowed to discharge secondary treated effluent into the San Joaquin River after 2018. In order to comply with the new NPDES permit requirements, the City has started upgrading the Jennings Facilities with tertiary treatment equipment, which will allow the City to discharge tertiary treated effluent year-round. In 2010, the City completed a 2.3 million gallon per day (MGD) BNR/tertiary treatment (Phase 1) project, and is currently constructing an additional 12.6 MGD treatment facility (Phase 2), which is expected to be completed in 2016.

Wastewater Treatment Facilities. The City of Modesto operates two separate wastewater treatment plans, described below:

Sutter Avenue Wastewater Treatment Facility (formerly Sutter Avenue Primary Treatment Facility). **Exhibit 3.4** is a site plan of the Sutter Facility. Wastewater enters the Facility via several trunk sewers (including West, Emerald, Sutter, Dryden, and Hosmer) at the influent pump station on the west side of the Facility. The influent pump station is part of the headworks. The pump station has four screw pumps, 13 each with about 26 mgd of capacity. In dry weather, only two pumps are needed.

Pumping Plant #3 (near the influent pump station) receives the cannery flow from the Cannery Segregation trunk. The cannery flow is separately pumped by Pumping Plant #3 to the Jennings Facility for either land application at the Ranch, or combined with the Sutter Facility's wastewater influent flow for primary treatment and secondary treatment.

Besides the influent pumps, the headworks also includes bar screening and grit removal. Wastewater flows through coarse bar screens that remove large objects and debris, such as rags, paper, and plastics. Wastewater then flows through grit chambers. The screened material and grit are sent to the landfill.

The main wastewater flow continues to the primary clarifiers, where solids settle out and floating matter is removed by skimming. After primary clarification, the primary effluent pump station sends the primary effluent through the existing outfall to the Jennings Facility for secondary treatment. The primary effluent pump station, on the east side of the plant, has four pumps.

The settled solids removed by the primary clarifiers may be sent either to a gravity belt thickener or directly to the anaerobic digesters. In the digesters, microorganisms break down the solids and produce methane gas which is burned at a flare next to the digesters. The resulting sludge (bio-solids) is dried in unlined sludge drying beds.

The Sutter Facility's on-site biosolids drying operations typically generate in the range of 3,000 to 4,000 tons annually. Dewatered and dry solids from the Sutter Facility are transported to the Jennings Facility for application on City-owned ranch lands. The Regional Water Quality Control Board (RWQCB) issued WDRs (Order No. 94-030) for the bio-solids application to land. Bio-solids from the City's processes are applied only to City-owned land.

Existing Primary Effluent Outfall. A 60-inch-diameter Primary Effluent Outfall pipeline carries primary effluent from the Sutter Facility approximately six and one-half miles southwest to the Jennings Facility. Its route is essentially a diagonal line, from northeast to southwest, between the two treatment facilities. A parallel 60-inch pipe, referred to as the Cannery Segregation Line, conveys cannery process water between July and September, to the Jennings Facility, and may also be used to convey primary effluent during the non-canning seasons, between the months of October through June.

Jennings Road Wastewater Treatment Facility (formerly Jennings Road Secondary Treatment Facility). **Exhibit 3.5** is a site plan of the Jennings Facility. Wastewater enters the Facility from the outfall and proceeds to the three 140-foot diameter, fixed film reactors, where microorganisms further metabolize the waste. The flow is sent to a 126-acre oxidation, recirculating channel and to the three facultative ponds, which are 102, 114, and 118 acres in size, respectively. After secondary treatment, effluent is either disposed of by land application on the City's 2,526-acre Ranch or chlorinated (to destroy harmful organisms), then dechlorinated with sulfur dioxide, prior to San Joaquin River discharge. If neither land nor river disposal is possible, due to permit or physical constraints, then the effluent is held in two storage ponds (197 acres and 399 acres in size, respectively).

The City was issued a new NPDES Permit No. CA0079103 (WDR Order No. R5-2008-0059) in May 2008 (and amended in June 2012 under WDR Order No R5-2012-0031), which has stricter regulatory requirements for treated effluent discharges into the San Joaquin River that was initially assumed in the 2007 Wastewater Master Plan. Essentially, the City will no longer be allowed to seasonally discharge secondary treated effluent into the San Joaquin River after May 2018; however, the new NPDES permit allows the City to discharge tertiary treated effluent year-round. In 2010, the City completed the Phase 1 - 2.3 MGD BNR/tertiary treatment project, and is currently constructing the Phase 2 - 12.6 MGD treatment facility, which is expected to be completed in 2016.

Lift stations. The City operates a number of lift stations as part of the wastewater collection system to pump wastewater for those locations that cannot use gravity flow. Lift stations are typically underground. The only visible or auditory evidence of their existence may be one or more control panels and a small radio antenna (up to 25 feet tall). The control panels are usually metal boxes approximately five feet high, three feet wide, and one foot thick. In some cases, lift stations are above ground. The structure size depends on the size of the pumps and controls, and other factors. The above-ground portion of an underground lift station may be a small shed, several feet long, several feet wide, and several feet high, for example. The above ground portion of a lift station may be a one-story structure. It appears like a small, one-story house, approximately 30 feet on a side, surrounded by an asphalt parking area and fence.

Stormwater/Sanitary Sewer Connections. The City's current storm water drainage system consists of catch basins that convey rainwater to rockwells or to a storm drainage system which consists of storm drain piping and basins. Rockwells are relatively deep holes drilled into the soil that allow storm water to seep back into the ground, at a distance above the water table. Previously, in some areas of the City where

rockwells were not available, connections between the storm drain system and the sanitary sewers were made. These connections capture the excess stormwater, which then flows to the Sutter Facility. Most sewer systems also experience unintentional "infiltration and inflow" of stormwater-influenced groundwater into the sanitary sewer system through cracks in pipes, and loose pipe joints. While these physical and temporary storm drain/sanitary sewer connections reduce flooding, they also increase the volume of wet weather flows in the sanitary sewers and at the treatment facilities. During storm events, these connections reduce capacity in the collection system and Sutter Facility.

3.2 Prior Master Environmental Impact Report (MEIR)

In 2007, the Modesto City Council certified a Master Environmental Impact Report (MEIR) for the City of Modesto's wastewater Master Plan Update ("City of Modesto Wastewater Master Plan Update Master Environmental Impact Report" State Clearinghouse No. 2006052076). This document will be referred to as the "2007 MEIR" in the document.

The 2007 MEIR analyzed the following environmental topics:

- Land Use Plans and Policies
- Agricultural Resources
- Parks and Recreation
- Water Quality and Hydrology
- Biological resources
- Transportation
- Air Quality
- Noise
- Visual resources
- Hazardous Materials
- Contaminated Soils and Demolition

The following individual projects comprising the 2007 Wastewater Master Plan were analyzed in the 2007 MEIR:

Collection System Improvements

- Adding new and replacement pipes;
- Constructing four lift stations and upgrading others;
- Disconnecting up to 47 existing interconnections between storm sewers and sanitary sewers.

Primary Facility Improvements

- Expand headworks capacity from 81 mgd to 95.5 mgd and ultimately to 108 mgd;
- Add anaeroebic digester and associated improvements;
- Install flood protection around Primary Facility;

- Switch from natural gas to waste gas to heat anaerobic digesters;
- Construct one or two pipelines from Primary to Secondary Facility.

Secondary Facility Improvements

- Construct Phase 1A improvements at the Ranch (since completed);
- Add BNR facilities (estimated completed 2016);
- Construct Phases 1B, 2, and 3 over the next 12-20 years (starting in 2007)
- Adding aeration equipment to the recirculation channel to convert it to an extended-aeration basin;
- Convert disinfection process from chlorine gas to sodium hyperchlorite;
- Construct sludge drying beds on agricultural lands south of the 2007 composting area;
- Construct other related improvements: replace outfall pipe from the Secondary Pipeline to the San Joaquin River. Add a diffuser in the riverbed (potential), repair portions of the existing flood protection levee.

These projects were fully analyzed in the 2007 MEIR, mitigation measures provided, as appropriate and no significant changes have occurred with respect to environmental conditions. None of these projects are therefore re-analyzed in this current MEIR.

The 2007 MEIR concluded that the following impacts were significant and unavoidable and the Modesto City Council adopted a Statement of Overriding Considerations for these impacts: permanent loss of Prime Farmland on a project and cumulative basis, surface water quality impacts if proposed Master Plan improvements do not match City population growth, surface water quality impacts in terms of pollutant loading associated with treated wastewater discharges, surface water quality degradation due to flooding of the main treatment Facility, direct and cumulative traffic impacts associated with implementation of Master Plan improvements and growth inducement, construction and operational period air quality impacts, accommodation of future growth that would result in direct and cumulatively considerable regional air quality impacts.

The original MEIR analyzed the following Alternatives:

- Alternative A: No Project. This Alternative assumed that the 2006 Wastewater Master Plan would not be implemented, including any improvements to the City's collection system or tertiary improvements at the Jennings Facility.

- Alternative B: Alternative Location of the Phase 1A Tertiary Facilities. Proposed tertiary facilities would be constructed north of the chlorination channel instead of on the south side.

- Alternative C: Reduced Size for Tertiary Treatment: Proposed tertiary treatment facilities would only be constructed to accommodate existing City population rather than anticipated future growth of the City of Modesto.

- Alternative D: Building Certain Primary Treatment Facilities at the Jennings Facility. Under this Alternative considered constructing some of the primary treatment facilities to the Jennings Facility on Jennings Road.

- Alternative E: Build Flood Protection Levee at the Sutter Facility. This alternative considered constructing a flood protection levee around the Sutter Facility constructed of a combination of a concrete wall and an earthen berm.

The MEIR was adopted by Modesto City Council Resolution No. 2007-178, adopted on March 13, 2007.

3.3 Proposed Project

Overview. The proposed update to the City of Modesto Wastewater Master Plan contains proposed improvements to the Primary Wastewater Treatment Facility, the Tertiary Facility on Jennings Road and related facilities.

Collection System Improvements. The following improvements are proposed as part of this project.

1) Improvements are proposed to the City's wastewater collection system titled the "River Trunk Realignment." This project would combine existing projects (S-1, S-2, S-3, and RV-1) from the City's 2007 Wastewater Collection System Master Plan into a single project, to address the deficiencies. This project would relocate the majority of the River Trunk away from the river and realign the Sutter Trunk to connect to the new River Trunk. The proposed realignment would provide redundancy and reliability for both the Cannery Segregation pipeline and the River Trunk, as well as provide capacity improvements to the Sutter Trunk. This project would provide funding for the design and construction of a realignment of the River Trunk and Sutter Trunk. The River Trunk is one of the City's major trunks and conveys sewer flow from Tributary Areas 4, 5, 6, 7, 8 and 9, which includes significant growth areas. Currently, a large portion of the River Trunk lies adjacent to the Tuolumne River, and within the floodway. The City has made several costly repairs to areas along the river, where there has been significant erosion to the embankment and jeopardizes the stability of the River Trunk. Most of the project work is proposed to occur on City property and public right-of-way. These proposed improvements are shown on **Exhibit 3.6.**

2) The City plans to install a new 10-inch sewer main on Oakdale Road, from the existing terminus of the Sonoma Trunk on Sylvan Avenue to Mable Avenue. The alignment is shown on **Exhibit 3.7.**

Lift Station Improvements. The proposed "River Trunk Realignment "may include a new pump station and junction structure to provide redundancy and reliability for both the Cannery Segregation pipeline and the River Trunk.

Jennings Facility Improvements. Proposed improvements at this location are proposed to include the following.

1. Existing Fixed Film Reactors are proposed to be repaired, rehabilitated or replaced if necessary.

2. Existing primary treatment equipment is proposed to be relocated from the Sutter Facility to the Jennings Facility, including:

   Primary Clarifiers
   Anaerobic digesters
   Sludge handling equipment
   Digester gas handling.

3. Interior roadways at this facility may also be changed to facilitate improved or more efficient on-site circulation.

Sutter Facility Improvements. The existing parking lot is proposed to be rehabilitated and expanded within the current Facility boundary. The City also proposes to remove a number of currently vacant buildings on this site.

Additionally, the City proposes to relocate the septic receiving station from its existing location within the facility to a location near the entrance of the facility to improve customer access as well as restrict through traffic within the facility.

3.4 Project Objectives

The City has identified the following specific objectives for the proposed project.

a) Implement the City's Urban Area General Plan by planning for sewer infrastructure in a timely and cost-effective manner to serve new and existing development.
b) Repair and replace aging wastewater infrastructure in a comprehensive fashion.
c) Ensure adequate wastewater infrastructure and services are available to serve new growth within the City's Sphere of Influence.
d) Plan for state-of-the-art facilities that reliably and economically meet the current and anticipated regulatory requirements.
e) Increase effluent disposal capacity by upgrading from secondary treatment to tertiary treatment, and enabling the City to dispose of treated effluent to the San Joaquin River on a year-round basis.
f) Protect local and regional environmental resources by ensuring that the highest available state-of-the art treatment and disposal technologies are used.
g) Provide detailed information to affected regulatory agencies regarding Modesto's plans to expand and improve the City's wastewater collection, treatment and disposal system.

3.5 Required Approvals

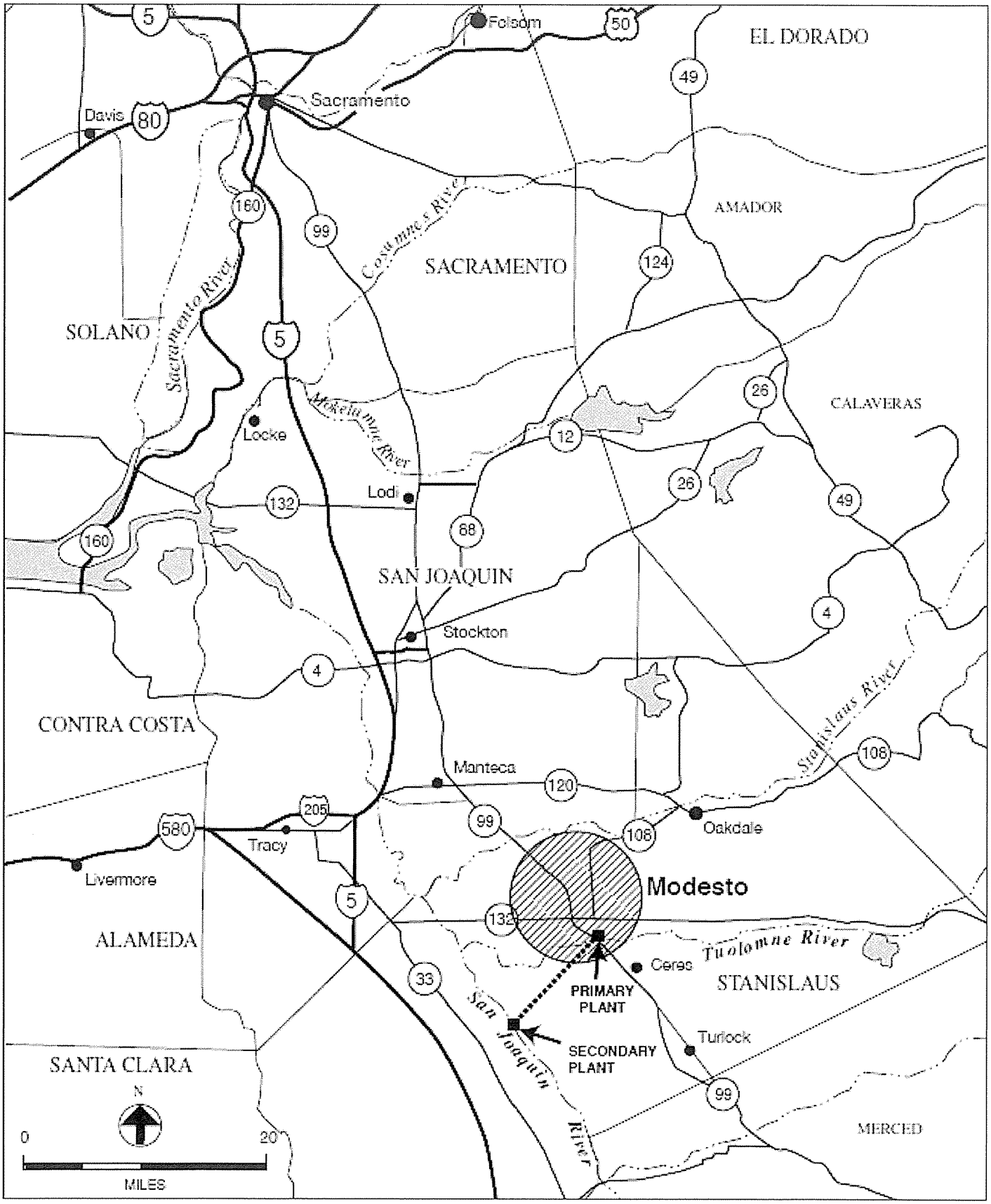
As part of implementation of the proposed project, several permits and approvals are required prior to construction. These are:

- Approval of Streambed Alteration Agreement (California Department of Fish & Wildlife) (potential);
- Encroachment Permit for construction activities in floodways or on levees (State Reclamation Board) (potential);
- Encroachment Permit within Stare Highway right-of-way (Caltrans) (potential)
- 404 Water Quality Certification (State Water Resources Control Board) (potential)
- Permission to cross canals or other properties (Modesto Irrigation District and Turlock Irrigation District) (potential)
- Permits for new emergency generators (San Joaquin Valley Air Pollution Control District) (potential)
- Section 404 wetland fill permit (US Army Corps of Engineers) (probable)

3.6 Future Actions Using This Master EIR

This Master EIR update analyzes the above projects contained in the most recent City of Modesto Wastewater Master Plan.

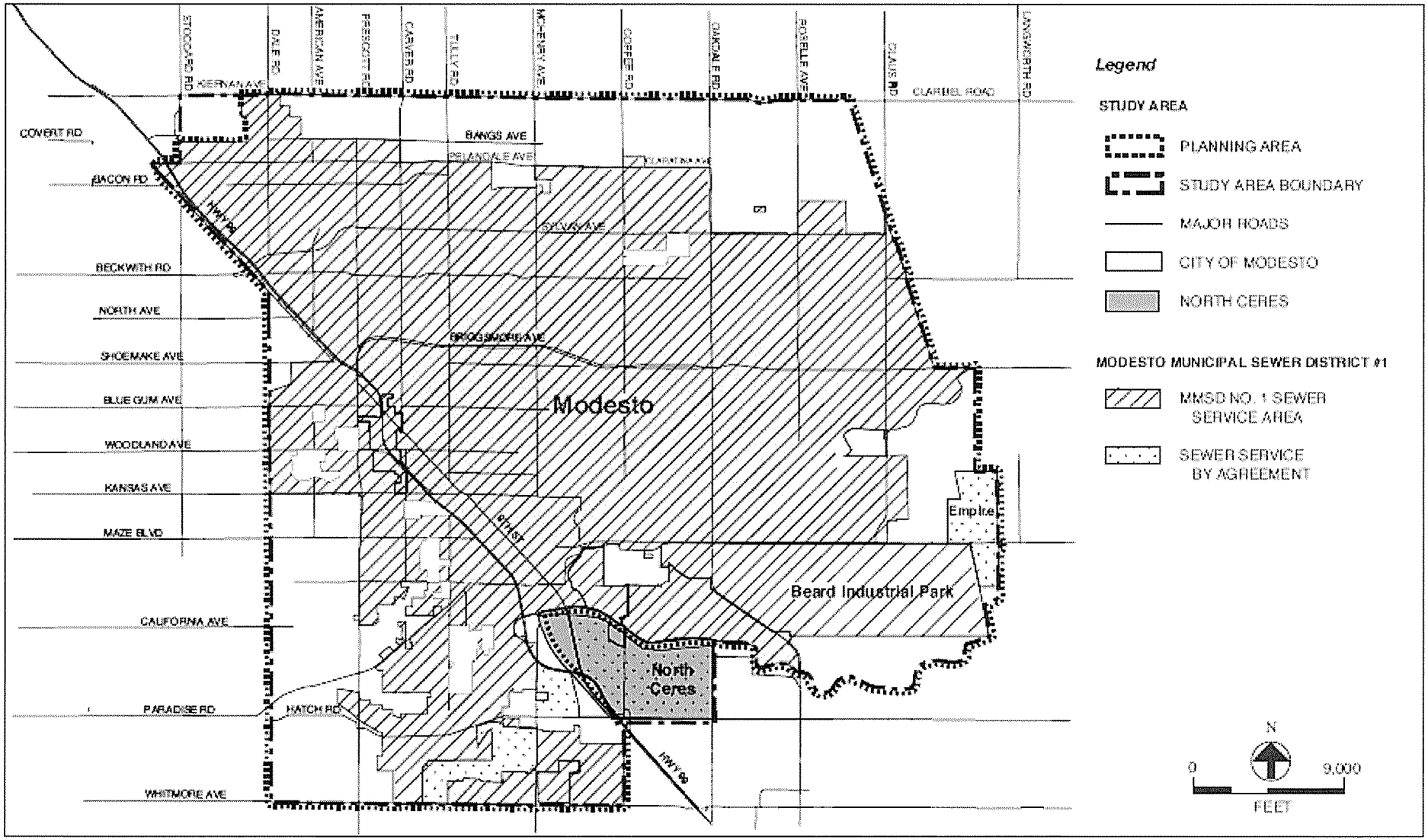
In addition to the above approvals, the Master EIR may also be used by state or regional agencies in their review of other permits required for the Project (e.g. CDF&W Streambed Alteration Agreements, California Endangered Species Act permits, Water Quality Certification or waiver by the Regional Water Quality Control Board under the Clean Water Act).



SOURCE: City of Modesto.

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
MASTER ENVIRONMENTAL IMPACT REPORT

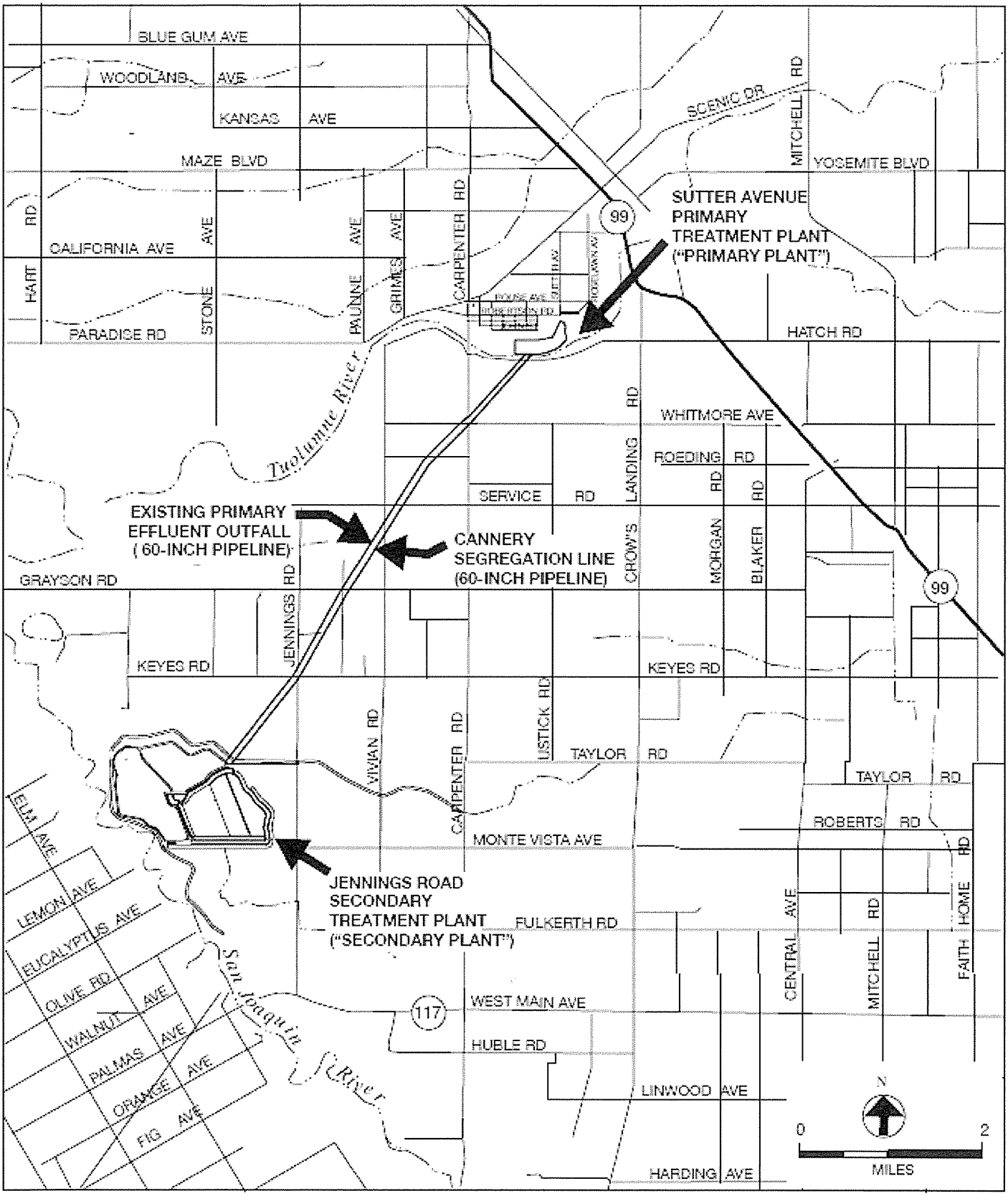
Exhibit 3-1
REGIONAL LOCATION



SOURCE: City of Modesto.

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
MASTER ENVIRONMENTAL IMPACT REPORT

Exhibit 3.2
MODESTO PLANNING AREA



SOURCE: City of Modesto.

Exhibit 3.3

JENNINGS & SUTTER FACILITIES LOCATIONS

CITY OF MODESTO
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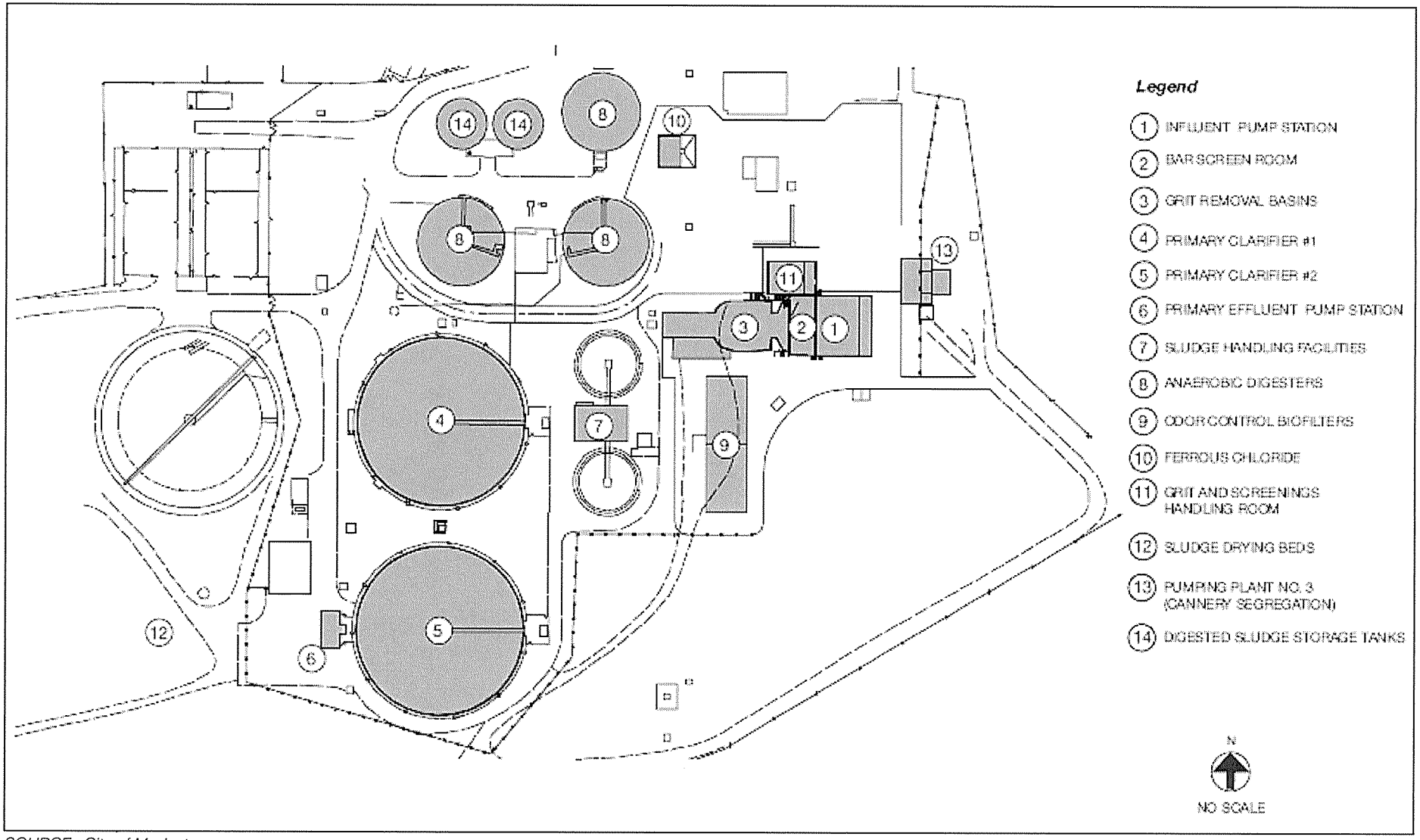
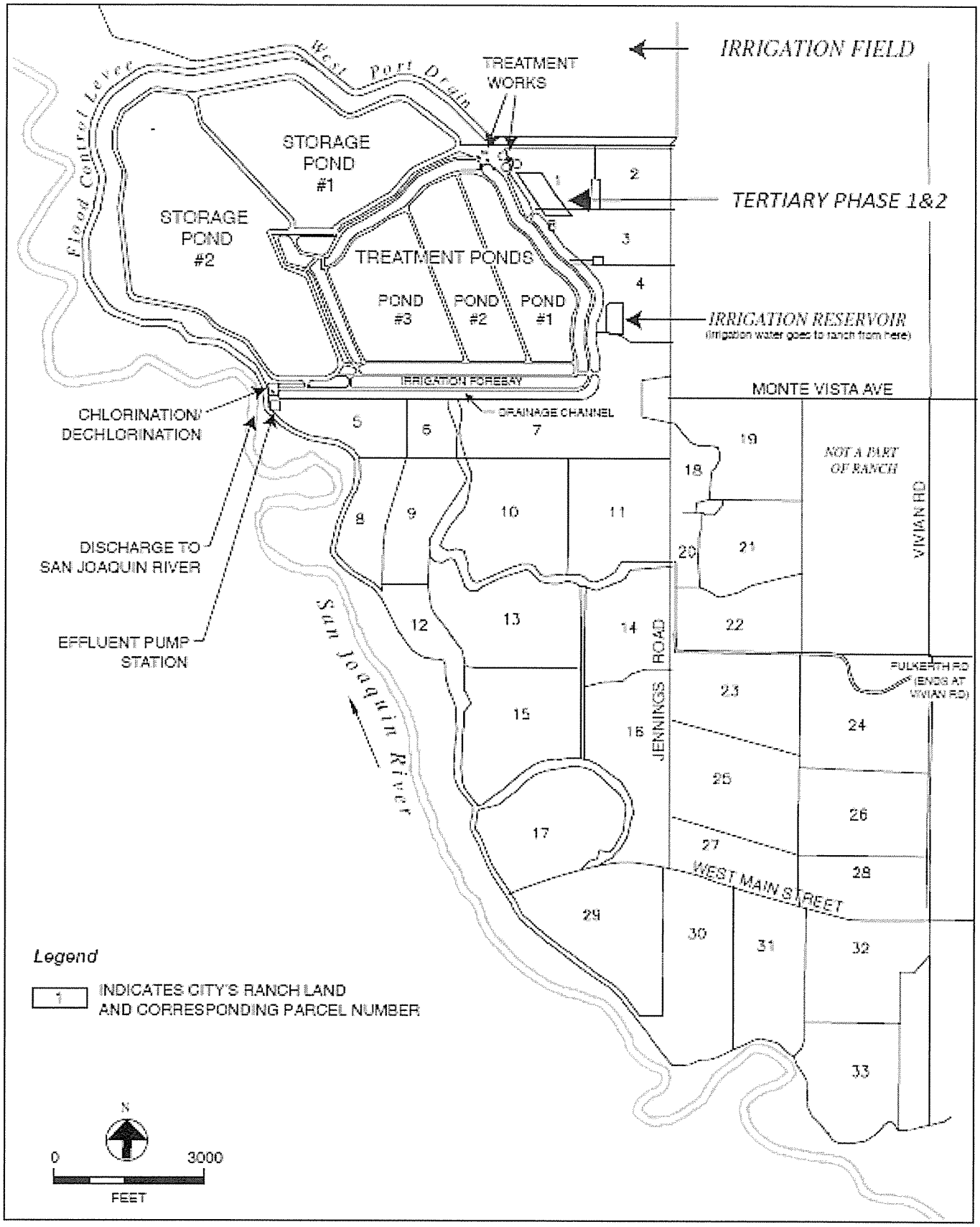


SOURCE: City of Modesto.

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
MASTER ENVIRONMENTAL IMPACT REPORT

Exhibit 3.4
SUTTER FACILITY SITE PLAN



SOURCE: City of Modesto.

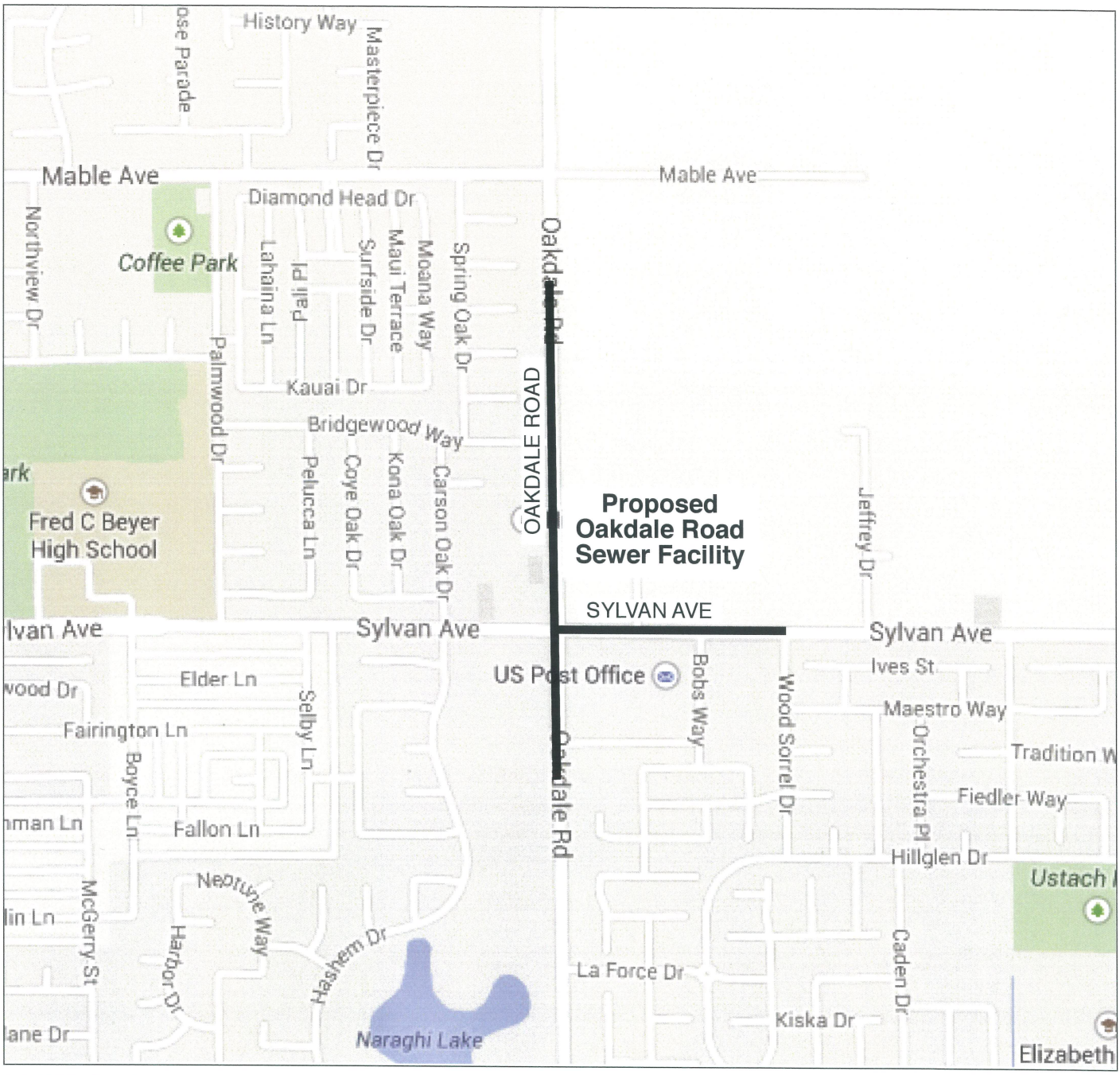
CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
MASTER ENVIRONMENTAL IMPACT REPORT

Exhibit 3.5
JENNINGS FACILITY SITE PLAN

SOURCE: City of Modesto.

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
MASTER ENVIRONMENTAL IMPACT REPORT

Exhibit 3-6
RIVER TRUNK REALIGNMENT



SOURCE: City of Modesto.

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
MASTER ENVIRONMENTAL IMPACT REPORT

Exhibit 3-7
OAKDALE ROAD SEWER FACILITY

Page Not Used

Topics Addressed in the DEIR
This section of the DEIR identifies specific environmental areas which may be affected as a result of the implementation of the proposed project. The impact areas are discussed individually in subsections 4.1 through 4.8:

4.1 Land Use, Plans and Policies
4.2 Agricultural Resources
4.3 Water Quality and Hydrology
4.4 Biological Resources
4.5 Air Quality and Greenhouse Gas Emissions
4.6 Noise
4.7 Visual Resources
4.8 Public Health: Hazardous Materials

Each topic area is covered in the following manner:

A. Environmental Setting
A discussion of existing conditions, facilities, services and general environmental conditions on and around the project site.

B. Environmental Impacts
An identification and evaluation of whether the potential impacts on the environment result in a significant environmental impacts based on the standards of significance set forth therein.

C. Mitigation Measures
An identification of specific efforts and measures which can be incorporated into the project to reduce identified environmental impacts to a less-than-significant level.

4.1 LAND USE, PLANS AND POLICIES

INTRODUCTION

This section describes existing land uses in the project area and presents applicable land use policies and regulations of the City of Modesto and Stanislaus County. It also evaluates land use compatibility impacts that would result from the implementation of the proposed project and considers mitigation measures to reduce project-related impacts.

ENVIRONMENTAL SETTING

Regional and Local Setting. The City of Modesto is located in Stanislaus County, located in the northern section of California's San Joaquin Valley, approximately 30 miles south of Stockton, 70 miles south of Sacramento, and 80 miles east of Oakland. Nearby cities include Riverbank, Ripon, and Manteca to the north and Ceres, Turlock, and Merced to the south.

Project site. The proposed improvements to the wastewater collection and treatment system would occur within the City of Modesto's Municipal Sewer District No. 1 (MMSD No. 1) on lands under the jurisdiction of the City of Modesto and Stanislaus County. The Primary Facility is located immediately north of the Tuolumne River in an undeveloped portion of the Tuolumne River Regional Park. The Primary Facility is located wholly within the Tuolumne River Comprehensive Planning District (CPD). One undeveloped parcel and one partially developed parcel border the Primary Facility to the north and west and are located outside of the Tuolumne River CPD. The westerly parcel is designated for Mixed Use (MU) land uses and the easterly parcel is designated for Open Space. The most easterly parcel is zoned for Low-Density Residential development (R-1). The other two parcels are located outside the City boundaries and are part of an unincorporated county island. The Stanislaus County General Plan land use designation for these parcels is Low Density Residential and the County zoning is rural residential (R-A). These parcels are planned to be developed as part of the Tuolumne River Regional Park. Bellenita Park is a developed Stanislaus County park located on the westernmost parcel (APN 037025049). The remaining parcels (APN 037024040 and APN 037023002) are undeveloped.

Lands south of Robertson Road and north of John Street between Hays Street and South Carpenter Road are part of an unincorporated county island and are governed by Stanislaus County's General Plan and Zoning Code. These lands are designated for Medium High Density Residential.

Lands south of Robertson Road and north of John Street between Hays Street and South Carpenter Road are part of an unincorporated county island and are governed by Stanislaus County's General Plan and Zoning Code. These lands are designated for Medium High Density Residential. Residential land uses and zoned for medium-density residential development (R-2). They have been developed as single-family residential neighborhoods. The lands north of Robertson Road and in the vicinity of the

Primary Facility are under the jurisdiction of the City of Modesto and designated for Mixed Use (MU) and Residential (R) land uses. These lands include two elementary schools, Robertson Road Park (1001 Hammond Street), low- and medium-density residential developments (R-1 and R-2 zones, respectively) and apartment/condominium developments in a planned development zone (P-D). Properties south of Robertson Road are designated as "R-Residential" in the County General Plan.

Dryden Park Municipal Golf Course lies just to the north and east of the Primary Facility in the City. Lands to the north of the Dryden Park Municipal Golf Course and south of South Avenue between Sutter and Colorado Avenues are part of an unincorporated county island. These lands are designated for a mix of Low Density Residential, Medium Density Residential, Medium High Density Residential, and Commercial (C) land uses. They are zoned for rural, single-family, medium-density, multiple-family residential development (R-A, R-1, R-2, and R-3) and for neighborhood and highway frontage commercial development (C-1 and H-1). These lands have been developed primarily as residential neighborhoods. Unincorporated properties near this area are planned for Residential uses under the County General Plan.

Immediately south of the Primary Facility and across the Tuolumne River, properties along the southern bank of the river and north of West Hatch Road are partially located within the Tuolumne River CPD and are under the jurisdiction of the City of Modesto. They are designated for Residential (R) land uses and zoned for low-density residential development (R-1). These properties have been developed as low-density residential neighborhoods.

Also to the south and west of the Primary Facility and across the Tuolumne River are the largely undeveloped lands within the Fairview Comprehensive Planning District and developed areas south of West Hatch Road and east of the Fairview CPD. Land within the Fairview CPD is designated as Village Residential (VR) and governed by an SP-0 (Specific Plan-Overlay) zoning designation. Single-family residential uses have been developed on the northeasterly portion of the Fairview CPD located within the city limits. The western parcels remain in agricultural use and the southeastern parcel remains undeveloped. The Bret Harte neighborhood east of the Fairview CPD is designated for Residential (R) land uses under the City General Plan and is predominantly zoned for low-density residential development (R-1) with portions in Medium-Density residential (R-2) and Planned Development (P-D) zones. Portions of this area are still unincorporated; the County zoning for these portions is predominantly low-density residential (R-1) with some parcels in a general agriculture designation (A-2-10). This area has been developed as low- density residential neighborhoods with some medium-density and apartment/condominium residential developments immediately south of West Hatch Road and west of Ustick Road.

The Secondary Facility and Ranch is surrounded by Stanislaus County lands designated for Agricultural (A) land uses. These lands are zoned A-2-40 (General Agriculture, 40-acre minimum) under the Stanislaus County Zoning Ordinance

(Title 21), as is all county land in the immediate vicinity of the Secondary Facility and Ranch.

IMPACTS AND MITIGATION FROM THE 2007 MEIR

The 2007 MEIR found no significant impacts related to land use, plans and policies. No mitigation measures were therefore required.

REGULATORY FRAMEWORK

State Reclamation Board. The Reclamation Board derives its regulatory authority from *Title 23-Waters* of the *California Code of Regulations*. The mission of the Reclamation Board is to control flooding along the Sacramento and San Joaquin Rivers and their tributaries including the Tuolumne River in cooperation with the U.S. Army Corps of Engineers; to cooperate with various agencies of the federal, state, and local governments in establishing, planning, constructing, operating, and maintaining flood control works; and to maintain the integrity of the existing flood control system and designated floodways through the Board's regulatory authority by issuing permits for encroachments. Designated floodways have been established on both Dry Creek and the Tuolumne River and are subject to regulation by the Reclamation Board. Encroachment permits are required from the Reclamation Board for any project occurring within the boundaries of the designated floodways or within ten feet of a levee.

Stanislaus County. The project area includes unincorporated county islands and adjacent county lands governed by Stanislaus County's General Plan. In unincorporated Stanislaus County lands within Modesto's city limits and in all other unincorporated areas of the county, the Stanislaus County General Plan and Title 21 of the County's Code are the applicable land use controls.

The County's General Plan is a comprehensive, long-term plan for the development of Stanislaus County, consisting of a statement of goals, policies and implementation measures. The County General Plan identifies the proposed location, character and extent of land uses within the County through General Plan land use designations.

The County's zoning ordinance implements the County's General Plan by establishing and defining zoning districts and the specific regulations and standards applicable to each zoning district including those governing uses of land, density, and dimensions of structures and sites.

County zoning district maps establish and indicate the location and boundaries of the zoning districts and are incorporated as part of the County zoning ordinance by reference.

Tuolumne River Regional Park Commission. The Tuolumne River Regional Park Commission is made up of the City of Modesto, Stanislaus County, and the City of Ceres. The 2001 *Tuolumne River Regional Park Master Plan* (TRRP Master Plan) provides a long-range vision for the park and is intended to provide overall guidance for the conservation and improvement of the park. The Master Plan guides the Tuolumne River

Regional Park Commission in undertaking projects that will enhance the park's recreational amenities, environmental values, and educational and interpretative programs. The Master Plan defines three distinct park planning areas: the Airport Area, the Gateway Parcel, and the Carpenter Road Area. The 185-acre Carpenter Road Area is adjacent to the Primary Facility and wraps around it to the north and south.

City of Modesto

Urban Area General Plan. The *Urban Area General Plan* ("General Plan") acknowledges the City's compact urban form and contains growth strategy policies intended to direct and define the quality, quantity and direction of future urban growth to the year 2025. The General Plan identifies three distinct concentric areas: the Redevelopment Area, which generally includes the historic downtown core; the Baseline Developed Area, which generally includes areas that are substantially developed with urban uses; and the Planned Urbanizing Area, which forms the outer perimeter of Modesto's General Plan Urban Area. The General Plan identifies policies specific to each of these areas. Land use designations for City of Modesto lands are identified in Figure III-1, Adopted Land Use Diagram of the *Urban Area General Plan* and include Residential (R), Mixed Use (MU), Commercial (C), Industrial (I), Redevelopment Planning District (RPD), Village Residential (VR), Regional Commercial (RC), Business Park (BP), Open Space (OS), and Land Use Designations of the Salida Community Plan (SCP). The goals and policies set forth in the *Urban Area General Plan* relevant to the proposed project are shown below.

Chapter II - Community Growth Strategy

Policy 11-B.l.a- Provide sufficient land supply.

(1) Economic development should be a key consideration of future expansion, irrespective of population projections. Expansion for business park areas, particularly between now and 2015, should be given top priority. Regional commercial uses should be allowed, where appropriate, within Business Park areas.

(3) The Land Use Diagram should locate business parks and other industrial land near existing and proposed transportation corridors such as State Highways 99 and 132 and proposed expressways. These business park locations should foster efficient use of land and resources, as well as reduce aggravation of existing circulation problems.

(4) The Land Use Diagram promotes the expansion of the Modesto Urban Area towards the west to ensure that the downtown redevelopment area remains the "central core" of Modesto, and to provide social and economic development for the west side of Modesto.

Policy 11-B.1.b-Provide timely infrastructure

> As the City expands and vacant land becomes developed, infrastructure such as roads, sewer, water and drainage is necessary to support that development. As the City directs the extension of this infrastructure, economic development opportunity sites should receive the highest priority for receiving such infrastructure.

Policy 11-C.l.a- In general, maintenance of a five-year supply of available vacant and agricultural land served with urban infrastructure will be desirable.

Policy 11-C.l.b- Urban development should be kept as contiguous as possible in order to avoid premature urbanization of valuable farm land, foster resident convenience, and provide for economy in City services.

Policy 11-C.l.d- Urban growth should be directed, as long as economically feasible, to areas currently served with City services.

Chapter III - Community Development Policies

Policy 111-C.l.d- Specific Plans, adopted pursuant to Section 65450 et seq. of the California Government Code, may be used to provide primary policy guidance to future development within their respective geographic areas. Specific Plans may be adopted to implement any of the Land Use Designations presented on the Land Use Diagram, and they may be used within any Growth Strategy Designation: Redevelopment Area; Baseline Developed Area; or Planned Urbanizing Area.

Policy 111-D.l.b- The Comprehensive Plan within each Comprehensive Planning District should establish clear and comprehensive implementation tools which identify all subsequent land use approvals required to be consistent with the Comprehensive Plan.

Policy 111-D.1.d- Each Comprehensive Plan should include a long-term financing strategy which provides reasonable estimates of on- and off-site infrastructure to support the proposed development pattern. The strategy should generally address public-facility funding, including schools, for any development project which serves to implement the subject Comprehensive Plan. If new public facilities are required which will also serve the broader community, the Comprehensive Plan should include options for broad-based funding mechanisms.

Chapter VII - Environmental Resources and Open Space

Open Space needs are broadly identified by the State Legislature. It is within this scope that local jurisdictions must identify specific areas and targets of preservation, development, and/or other production.

Government Code section 65560 lists four broad categories to be designated on a local open space plan: Open space for 1) the preservation of natural resources, 2) public health and safety, 3) managed production of resources, and 4) outdoor recreation.

Open Space Policies - River Greenway Program

Open Space Policy VII-B.6.a- Visual corridors of the river will be protected and enhanced.

Open Space Policy VII-B.6.b- Visual corridors and access points on the riverfront will be re-created through redevelopment.

Open Space Policy VII-B.6.c- Public access points and linear foot and bike paths will be incorporated into residential development.

Open Space Policy VII-B.6.d- Riverfront vegetation will be consistent with riparian habitat zones.

Open Space Policy VII-B.6.e- Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values and only uses dependent on such resources shall be allowed within such areas (e.g. nature education and research, fishing and habitat protection).

Open Space Policy VII-B.6f- The scenic resources of Public Trust lands and resources shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect scenic views associated with Public Trust lands and resources.

ENVIRONMENTAL IMPACTS

Significance Criteria. The proposed wastewater collection and treatment system improvements would have a significant environmental impact if it would:

- Physically divide an established community,
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (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, or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Potential Significant impacts. Potential impacts of implementing the Master Plan update and related improvements are analyzed below.

Physical division of an established community. Proposed wastewater collection system upgrades and improvements would be completed within the right-of-way of Oakdale Road from Sylvan Avenue to Mable Avenue and a realignment of the existing River Trunk wastewater line. A majority of collection systems upgrades would occur within existing City of Modesto road rights-of-way, existing City easements or on City owned properties. Minimal work, if any improvements, would occur on non-City owned lands. Therefore, there would be no impacts with a physical division of any existing community and no mitigation measures are required.

Conflicts with applicable land use plans, policies or regulations. Proposed wastewater system improvements would be consistent with applicable policies contained in the 2008 Urban Area General Plan, as outlined above. Upgrades to the wastewater collection system, proposed lift station improvements and improvements to both the Jennings Road Facility and the Primary Facility are generally consistent with the adopted 2006 Wastewater Master Plan. Therefore, there would be no conflicts with any land use plans, policies or regulations and no impacts would result. No mitigation measures are required.

Conflicts with applicable habitat conservation plans or natural community conservation plan. No portion of the Modesto planning area or property occupied by the Jennings Road Facility or the associated Ranch property are included in a habitat conservation plan or a natural community conservation plan. No impacts would therefore result with respect to this topic and no mitigation measures are required.

Cumulative Impacts. Implementation of the proposed project would not directly or indirectly contribute to new development in the Modesto Planning Area over and above what has been included in the Modesto Urban Area General Plan.

4.2 AGRICULTURAL AND FORESTRY RESOURCES

INTRODUCTION

This section of the MEIR analyzes potential impacts to agricultural resources, including conversion of prime farmland, unique farmland or farmland of statewide importance to a non-agricultural use, conflict with existing agricultural zoning or a Williamson Act Land Conservation Contract or otherwise convert farmland to a non-farmland use.

ENVIRONMENTAL SETTING

The project is located within Stanislaus County in the approximate center of the San Joaquin Valley, one of he premier agricultural production areas of the nation. The San Joaquin Valley has good to excellent soil quality, favorable climate conditions and a reliable long-term water supply. Dairy products and almonds are the leading cops grown and harvested in the Modesto area, although other crops are also produced, such as grapes.

Although much of Modesto is likely designated as Prime Farmland, Farmland of Statewide Importance, these areas are either developed for urban uses or are slated for future development under the auspices of the Modesto Urban Area General Plan.

Properties adjacent to the Jennings Facility are largely under cultivation for almonds or other crops and are considered prime farmland or farmland of statewide importance.

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MEIR

The 2007 MEIR identified the following significant impacts and mitigation measures with respect to agricultural resources.

- Impact B.2 found that construction of the Phase 1A tertiary treatment facilities at the Secondary Facility would result in permanent loss of Prime Farmland. Adherence to Mitigation Measure B/2 partially but not fully reduced this impact but not to a less-than-significant level. This measure required creation of a farmland conservation easement on agricultural lands, contributions to a Farmland Trust or to an equivalent program. This impact was deemed to be significant and unavoidable.

- Impact B.3 found that construction of proposed project improvements within the Planned Urbanizing Area would result in cumulative loss of Prime Farmland. Mitigation Measure B.3 required a City contribution to the Farmland Conservancy Fund or an equivalent program to compensate for loss of Prime farmland; however, these actions would not provide for full mitigation and this impact would remain significant and unavoidable.

REGULATORY SETTING

State Policies and Regulations

California Department of Conservation, Division of Land Resource Protection (DLRP) DLRP is responsible for monitoring agricultural land conversion on a statewide basis. DLRP classifies farmland types in the Farmland Mapping and Monitoring Program (FMMP), which provide guidelines for assessing the relative value of agricultural land in the state. The system considers modem soil surveys, recent farming activity, and available farming infrastructure such as irrigation. FMMP maps five categories of farmland as well as urban and other land. Each of these farmland types is defined below.

(1) Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

(2) Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

(3) Unique Farmland consists of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

(4) Farmland of Local Importance is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

(5) Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit is 40 acres.

Much of the land immediately adjacent to the developed portion of the City (especially to the north, west and south) is mapped and classified as Prime Farmland, and land immediately northeast and east is mapped and classified as a mixture of Prime Farmland, Unique Farmland, and Farmland of Local Importance. These lands are within the defined study area of the proposed project and are within the Planned Urbanizing Area as defined in the City's 2008 *Urban Area General Plan.* The Primary Facility is located within the Baseline Developed Area as defined in the City's *Urban Area General Plan.* It is located on land that is designated

as Urban and Built-up Land. The Secondary Facility is located on land designated as Urban and Built-Up Land, approximately six miles west and south of the City of Modesto near the San Joaquin River. The City's Ranch, south of the Secondary Facility is categorized by the Farmland Mapping and Monitoring Program ("FMMP") of the California Department of Conservation's Division of Land Resource Protection mainly as "Prime Farmland" and "Farmland of Statewide Importance," with smaller areas designated as "Farmland of Local Importance" and "Unique Farmland.

DLRP monitors the conversion of California's agricultural lands in two-year increments. During the latest period for which such data are available, 2000-2002, among all of the regions of California, the San Joaquin Valley region led the state in conversion of irrigated farmland to urban uses.

California Land Conservation Act (Williamson Act). The California Land Conservation Act of 1965 provides reduced property taxes to farmland in return for restrictions on the land's development potential. Within the current Modesto Sphere of Influence, the main areas subject to Williamson Act contracts are south of Kiernan Avenue and east of Dale Road, and north of Briggsmore Avenue and east of Oakdale Road. Most of the lands immediately outside the current Sphere of Influence, especially lands to the west, are subject to Williamson Act contracts. According to California regulations, projects resulting in cancellation of Williamson Act open space contracts for parcels of 100 acres or more should be considered as being of statewide, regional or area-wide significance. The City's Primary and Secondary Facilities and the Ranch land are not subject to Williamson Act contracts.

Regional Policies and Regulations

Stanislaus County Policies and Regulations. The County General Plan provides policy direction for unincorporated lands outside the jurisdiction of the City of Modesto, as described below.

> Agricultural Element, Goal 1
>
> The Agricultural Element policies state that proposals will be reviewed on a case-by-case basis. Factors to be considered include soil types, potential for agricultural production, availability of irrigation water, ownership and parcelization patterns, uniqueness and flexibility of use, the existence of Williamson Act contracts, existing uses, and the contributions to the agricultural sector of the local economy. Setbacks from agricultural areas shall be established to minimize adverse impacts of adjacent uses on agriculture.
>
> Agricultural Element, Goal 2
>
> The County recognizes the right of cities and unincorporated communities to grow and prosper and shall not oppose reasonable requests to expand Spheres of Influence of cities or community service districts and sanitary districts serving unincorporated communities to accommodate growth. However, the County shall discourage the expansion of Spheres of Influence of cities or communities into its most productive agricultural areas. To the

greatest extent feasible, the County shall require mitigation of the impacts of farmland conversion.

New areas for urban development (as opposed to expansion of existing areas) shall be limited to less productive agricultural areas. Agriculture, as the primary industry of the County, shall be promoted and protected.

Land Use Element, Goal I, Policy 2

The Land Use Element states that designated agricultural lands shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation and enjoyment of scenic beauty.

City of Modesto Policies and Regulations. The 1995 General Plan, amended through 2008 contains a number of policies aimed at minimizing impacts to agricultural lands in its Baseline Developed Area and Planned Urbanizing Area, as described below.

Policy 2a. The General Plan should attempt to minimize loss of agricultural land by having future development be relatively compact and of reasonable high density.

Policy 3a. If a subsequent project is within the baseline Development Area or Redevelopment Area as identified on the General Plan Growth Strategy Diagram, the project shall be considered to have minimal effect on the conversion of agricultural land and no mitigation for that impact is required.

Policy 4a. The City will not annex agricultural land unless urban development consistent with the General Plan has been approved by the City.

Policy 4b. The City shall support the continuation of agricultural uses on lands designated for urban uses until development is imminent.

Policy 4c. The City shall encourage the County to retain agricultural uses on lands surrounding the General Plan and on lands within the General Plan area pending their annexation to the City of development by mutual agreement with the County.

Policy 4d. Where necessary to promote planned City growth, the City shall encourage development of those agricultural lands that are already compromised by adjacent urban development or contain property required for the extension of infrastructure or other public facilities, before considering urban development on agricultural lands that are not subject to such pressures.

Policy 4e. For any subsequent project that is adjacent to an existing agricultural use, the project proponent may incorporate measures to reduce the potential for conflicts with agricultural use. Potential measures to be implemented may include the following:

1) Include a buffer zone of sufficient width between the proposed

residences and the agricultural use.

2) Restrict the intensity of residential uses adjacent to agricultural lands.

3) Inform residents about the possible exposure to agricultural chemicals.

ENVIRONMENTAL IMPACTS

Standards of Significance. The City of Modesto has adopted the Stanislaus County's Significance Standards for Agricultural Conversion as follows:

> Project impacts will be significant if they convert any areas of prime agricultural land to urban uses, impair the agricultural productivity of prime agricultural land, or result in substantial pesticide overspray, dust and noise at urban uses.

Conversion of prime agricultural or farmland to non-urban use. Proposed Master Plan improvements, described in Section 3.0 of this MEIR, would occur on City-owned properties, within the City's Primary Facility. The Jennings Road Tertiary Plant, within City road rights-of-way or on easements owned or controlled by the City of Modesto. Therefore, no prime agricultural lands would be converted to a non-agricultural use and no impacts would occur with respect to this topic.

Impairment of agricultural productivity of prime agricultural land. For the same reasons noted above, none of the proposed construction activities included in the current Master Plan update would affect existing operations such that agricultural operations would be impaired. Proposed construction would occur at existing City wastewater treatment facilities, within road rights-of-way or on existing City easements that would not impact agricultural operations in this portion of Stanislaus County. No impacts are therefore anticipated to occur with respect to this topic.

Substantially increase pesticide overspray, dust or noise in urban areas. None of the activities included in the Wastewater Master Plan would include agricultural operations, so that there would be no chemical overspray, creation of substantial amounts of dust or noise in urban areas. No impacts would occur with respect to this topic.

Cumulative Impacts. The proposed project would not result in a cumulative considerable contribution to agricultural impacts since no designated prime farmland or other significant farmland would be converted to a non-agricultural use nor would the project impair on-going agricultural uses near wastewater treatment facilities. There would also be no contribution from the project to cumulative impacts related to agricultural spray or overspray, dust or noise in urban areas.

4.3 WATER QUALITY AND HYDROLOGY

INTRODUCTION

This section describes the existing hydrological setting for the Modesto area, including runoff, drainage, and water quality. The analysis is based on information included in the 2007 MEIR, consultation with City staff and a reconnaissance of the existing treatment facilities. This section also identifies impacts that may result from project development and suggests mitigation measures to reduce potential impacts.

ENVIRONMENTAL SETTING

The existing conditions related to hydrology, storm drainage, and water quality in the vicinity of the City's sanitary sewer collection system and at the existing wastewater treatment facilities are described below.

Climate. The climate in Modesto is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warm, dry summers. The mean annual rainfall in the vicinity of the project site, for the period between 1931 and 2005, is approximately 12.4 inches, with the majority of rainfall between October and May. The lowest rainfall year on record is 1913, with only 4.3 inches of rainfall, while the highest was 26.0 inches in 1983. Individual storms that produce more than 10 percent of the annual average rainfall (about 1.2 inches) have occurred on numerous occasions.

Surface Water

Runoff and Drainage. The study area is located within the San Joaquin Valley, a relatively flat, structural and topographic trough. The primary source of surface water flows in the San Joaquin Valley is rainfall and snowmelt runoff from the Sierra Nevada range to the east. The secondary source of surface water flow is local rainfall and runoff from the Coast Range to the west. In general, runoff flows from the Sierra Nevada toward the west across alluvial fans and the valley floor in streams and rivers, including the Kings, Merced, Tuolumne, and Stanislaus Rivers. These westward-flowing rivers join with the San Joaquin River on the west side of the valley, where the combined flows travel northwest toward the Delta and San Francisco Bay.

The study area is located near the confluence of the Tuolumne River and the San Joaquin River. These rivers are the dominant hydrologic features in the vicinity. Dry Creek, which is a major tributary to the Tuolumne River, flows through southern Modesto and joins the Tuolumne River less than one mile east of the Sutter Facility.

The Modesto Irrigation District (MID) operates several irrigation canal "laterals" that traverse the study area. These laterals are open canals that were built in 1903 and lined with concrete approximately 50 years later. They are essentially constructed drainages that divert water from the Tuolumne River (and a series of reservoirs). Their primary function is to distribute water to irrigated farmlands.

To a limited extent, these laterals receive irrigation return flows (mostly into the Cavil Drain in the area northeast of the City) and receive urban stormwater runoff.

Increasingly, discharges of urban stormwater runoff from new development into the laterals are being carefully scrutinized by the MID. The MID is concerned about the quantity and quality of stormwater in the laterals. Quantity is an issue because the laterals were designed to distribute irrigation water and therefore decrease in size downstream (because irrigation water is used along the flow path). Stormwater conveyances typically increase in size downstream as more water is collected. If too much stormwater is discharged to the laterals, they could flood downstream.

The MID is also concerned that urban pollutants in stormwater runoff in the laterals could, either in the near or distant future, affect compliance with National Pollutant Discharge Elimination System (NPDES) requirements regarding discharge into the San Joaquin River. Agricultural return water, including agricultural stormwater runoff, and urban runoff drain to these MID channels. These sources are regulated by the State under the Agricultural Waiver Program and NPDES Permit Program, respectively. These sources likely effect receiving water quality and beneficial uses. The City, however, has implemented Best Management Practices including constructing detention basins upstream of the MID channels to assist in both flood control and water quality improvement.

Wastewater Collection System. Components of the wastewater collection system, including 70 miles of sewer trunk lines, 670 miles of sanitary sewer lines and 40 sanitary sewer lift stations, are distributed throughout the City. Therefore, a discussion of runoff and surface water drainage in the vicinity of the collection system requires a discussion of City-wide drainage issues. In addition, since there are interconnections between the wastewater collection system and the stormwater conveyance system, a discussion of both systems is presented below.

Approximately one-third of the City's stormwater runoff is discharged to surface waters. This happens generally in the City's older areas or the areas adjacent to the Tuolumne River, Dry Creek, or the MID irrigation canals. In the remaining two-thirds of the City, runoff is discharged to rock wells. It is estimated that there are approximately 11,000 rock wells within the City. These rock wells are located in areas with well percolating soils. They typically receive water collected in street gutters and catch basins and are drilled to an average 25- to 50-foot depth. Their intended function is to allow stormwater runoff to percolate through the rock and surrounding soils.

In some areas without permanent storm drain systems, the City uses the wastewater collection system as a temporary or emergency facility for conveying stormwater runoff; however the City is in the process to eliminate this practice. The locations where the storm drainage system is connected to the wastewater collection system are called cross-connections. This method of discharge is used to remove limited quantities of water from small locally flooded areas.

The City has identified 53 storm drain cross-connections where stormwater runoff is discharged into the wastewater collection system. Based on discussions with City staff, review of previous reports, and wet weather flow monitoring results, the City's existing wastewater collection system has experienced some overflow problems in the past. Some of the existing collection system, such as the Emerald, Sutter, and downtown trunks, experience sudden increases in peak wet weather flows during a storm event. This increase in flow causes surcharging in the collection system and may result in overflows during peak storm events.

Wastewater overflows would be expected to adversely impact surface water quality if any of the effluent were discharged to surface water bodies. Water quality issues are discussed in more detail below.

Sutter Avenue Primary Treatment Facility (Sutter Facility). The Sutter Facility is located north of and adjacent to the Tuolumne River. No natural creeks or streams cross the site. The site is internally drained. Stormwater runoff from impervious paved surfaces is retained on-site and treated by infiltration. Runoff from the front driveway and parking lot is collected and discharged to a vegetated area at the eastern edge of the property, adjacent to the Dryden Golf Course (also City property). Runoff from the outdoor process areas of the Facility is collected and discharged to an infiltration basin at the southeastern edge of the property, adjacent to the Tuolumne River. The basin is equipped with pumps and an overflow storm drain line that will convey excess runoff to the treatment Facility headworks during heavy or extended storms if the basin becomes too full. There is no off-site storm drainage at the Sutter Facility.

The Sutter Facility generates biosolids from on-site biosolids drying operations. The unlined sludge drying beds are located adjacent to the Tuolumne River, but are separated from contact with river flows by a levee. However, much of the Sutter Facility site, including the sludge drying beds, is subject to flooding (described in more detail below). The sludge drying beds are cleaned out once per year during the dry season and the biosolids are transported to the Jennings Facility for land application at the City's Ranch. Regulation of this activity is further described below under *Regulatory Framework- Regional Water Quality Control Board.*

Outfalls from Sutter Facility to Jennings Wastewater Treatment Facility (Jennings Facility). The City owns and operates two parallel 6.5-mile-long-outfalls (pipelines) that convey effluent from the Sutter Facility to the Jennings Facility; the recently relined 60-inch-diameter Primary Effluent Outfall pipeline and the Cannery Segregation Outfall pipeline. The land surface along the alignment consists of gently southwest sloping farmland. The agricultural fields (mostly orchards) in the vicinity are predominantly laser-leveled and produce very little runoff or irrigation return flows.

The dominant surface water hydrologic features along the alignment are the TID irrigation laterals and drains (including Lateral No. 1, Lower Lateral Nos. 2 and 2'IS., and the Westport Drain).

Jennings Facility and Ranch. The Jennings Facility is located east of, and adjacent to, the San Joaquin River. The facility includes fixed-film reactors, facultative ponds,

chlorination and dechlorination facilities, and unlined storage ponds. The Jennings Facility also has a recently completed 2.3 million gallon per day (MGD) tertiary treatment facility, which includes fine screens, an oxidation ditch, membrane biological reactor (MBR) and UV disinfection. No natural creeks or streams cross the site. The site is internally drained. Stormwater runoff from the impervious paved surfaces of the driveway and parking areas surrounding the Operations and Maintenance buildings is directed to the recirculation channel of the secondary treatment system, where it combines with wastewater effluent from the Sutter Facility, is routed through the ponds' treatment system, and is ultimately discharged to the San Joaquin River or applied to land as irrigation water. Stormwater runoff from all other impervious paved surfaces, such as treatment Facility roadways, is directed to adjacent vegetated, rocked, or bare soil areas for infiltration. There is no off-site storm drainage at the Jennings Facility.

The Ranch consists of 2,526 acres of land adjacent to, and south of, the Jennings Facility that the City uses for land application of treated municipal wastewater, direct discharge of segregated cannery wastewater, and application of biosolids. The Ranch is located adjacent to, and east of, the San Joaquin River. There are no "blue line" creeks or streams shown crossing the Ranch identified on the USGS topographic map for the area. However, the USGS map does indicate the presence of sinuous channel segments that appear to be abandoned meander bends of the San Joaquin River.

The ranch lands are bermed and graded so excess water (i.e;, water that does not infiltrate into the subsurface) is directed toward low-lying areas where the water can be collected, pumped out, and recycled through the irrigation system. The pumps at these low-lying areas are referred to as "tailwater" pumps. During the rainy season, most of the tailwater pumps are turned off and water collected in the low-lying areas is allowed to drain into the river.

During the irrigation season when treated secondary effluent and/or cannery process water is applied to the land, all the tailwater pump stations are on. All water moving into the tailwater pump stations is recycled in the irrigation system and reapplied to the land. No treated effluent or cannery process water is allowed to enter the ditches, slough, or river. Discharge of runoff into the ditches, slough, or river during the irrigation season can only occur if there is a system or operational error.

Flooding

Storm-Related and Snowmelt Flooding. Due to its climate and geography, flooding is a frequent and natural event in the Central Valley. The San Joaquin River basin has been subject to floods that result from both rainfall that occurs during the late fall and winter months, and unseasonable and rapid melting of the winter snow pack during the spring and early summer months. Major floods in the Central Valley within the past 20 years (1983, 1986, 1995, and 1997) have caused significant damage. The specific flooding issues for each project component are described below.

Wastewater Collection System. Portions of the City's wastewater collection system are located within the 100-year flood hazard zone, as mapped by the Federal Emergency

Management Agency (FEMA). Specifically, those low-lying areas along Dry Creek and the Tuolumne River are within the floodplain and could experience storm-related and rapid snowmelt runoff flooding.

Sutter Facility. The Sutter Facility is located within the 100-year flood hazard zone, as mapped by the FEMA, and therefore the Facility would be expected to be susceptible to storm-related flooding. Portions of the Sutter Facility property, including the sludge drying beds, are located within the floodway. The floodway is where the water is likely to be deepest and fastest. It is the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream. None of the Facility buildings or other structures are located within the floodway.

According to interviews with City personnel (William Wong Master Utility Planning & Projects Department, 9/3/13), the Sutter Facility flooded in 1955 and 1997. Based on review of historic photographs and video, much of the Sutter Facility and the entire sludge drying area were submerged in the 1997 flood event. Recent changes to the facilities allow the Sutter Facility to continue pumping wastewater during flooding situations. However, during major flooding events, the Sutter Facility cannot continue to treat wastewater once primary treatment capacity has been reached and therefore the effluent that is pumped to the Jennings facility is not treated.

Jennings Facility. The Jennings Facility (including the fixed-film reactors, facultative ponds, chlorination and dechlorination facilities, storage ponds and tertiary treatment facilities) and the Ranch are located in FEMA-designated Zone B, which is defined as:

> areas between limits of the 100-year flood and the 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot or where the contributing drainage area is less than one square mile; or area protected by levees from the base flood.

Since the Secondary Facility and Ranch are protected by levees, it is likely that the Zone B designation refers to an "area protected by levees from the base flood."

The levees bordering the Facility and Ranch are maintained by Reclamation District No. 2091 ("District"). The jurisdiction of this District includes the levees that protect the Secondary Facility and Ranch and some neighboring privately owned property, and therefore the main sponsor of the District activities is the City of Modesto. The levees are inspected quarterly by the California Department of Water Resources (DWR). If the DWR identifies deficiencies that are not promptly addressed by the District, the DWR will complete the repairs and require reimbursement from the District. Based on observations by Secondary Facility personnel, the levee has not overtopped in recent history. In 1997, flooding occurred behind the levee as a result of a failed pumping system at a spur levee to the south of the Ranch.

The levees between the Jennings Facility and the San Joaquin River are being maintained on a regular basis by City Staff. Seepage can occurs through the levees during periods of high river flows and sand boils have occurred along the levee which

could exacerbate the seepage problem and/or could eventually destabilize the levee slopes.

Other Types of Flooding. Flooding can also occur as a result of catastrophic dam failure and the release of waters contained in upstream reservoirs. The study area could be impacted if one or more of the several dams in the vicinity were to fail catastrophically. Although a very low probability event, catastrophic structural dam failure can be caused by earthquake or overflow. According to the City of Modesto, Local Hazard Mitigation Plan, failure of one or more of the following dams could affect the project components:

- The La Grange Dam, located in the eastern corner of Stanislaus County, is situated on the Tuolumne River just above the town of LaGrange and operated by the Modesto and Turlock irrigation districts. It has a capacity of 500 acre-feet.
- Don Pedro Dam is located in Tuolumne County on the upper Tuolumne River and is operated jointly by the Modesto and Turlock irrigation districts. It has a capacity of 2,030,000 acre-feet.
- The New Melones Dam, located in both Tuolumne and Calaveras counties, is located on the Stanislaus River and operated by the U.S. Bureau of Reclamation. It has a capacity of 2,420,000 acre-feet.
- The New Exchequer Darn (which retains Lake McClure) is situated on the Merced River and operated by the Merced Irrigation District in Mariposa County. It has a capacity of 1,032,000 acre-feet.
- Pine Flat Darn is located on the Kings River in Fresno County and is owned by the U.S. Army Corps of Engineers. It has a capacity of 1,000,000 acre-feet.

The La Grange, Don Pedro, and New Exchequer darns are under the jurisdiction of State of California, Division of Safety of Dams. The New Melones and Pine Flat darns are under the jurisdiction of the federal government (the U.S. Bureau of Reclarnation and U.S. Army Corps of Engineers, respectively). Existing dams under state and federal jurisdiction are periodically inspected to ensure that they are adequately maintained and to direct the owner to correct any identified deficiencies. Regular inspections and required maintenance of the dams substantially reduce the potential for catastrophic failure.

At coastal locations, flood hazards may include tsunamis, extreme high tides, and/or sea level rise. The inland location and the elevation of the study area would protect the area from coastal hazards.

Groundwater. All components of the project are located within an area underlain by the San Joaquin Valley Groundwater Basin. The City of Modesto (and therefore the City's wastewater collection system) and the Sutter Facility are located within the Modesto Subbasin, while the Jennings Facility and associated ranchlands and river discharge locations overlie the Turlock Subbasin (as designated by the DWR).

The sediments in the vicinity of Modesto are generally poorly sorted and derived from continental and marine sedimentary rocks (with some volcanic rocks) of the Coast Ranges. Groundwater occurs in the geologic materials underlying the site in discrete water-bearing zones or "aquifers." The uppermost zone (from the ground surface to a depth of about 150 feet) is composed of a heterogeneous mixture of gravel, sand, silt, and clay. At a depth of approximately 100 to 200 feet below the surface (depending on location), a lacustrine clay deposit known as the "modified E clay" or "Corcoran Clay" occurs in the vicinity of the project site and acts as a confining layer (or aquitard) for the aquifer below. In general, the depth to first groundwater is greater under the City of Modesto and the Sutter Facility (about 40 to 50 feet below the ground surface [bgs]) than at the Jennings Facility (about 10 feet bgs) Groundwater flow in the vicinity of the project components is generally to the west and southwest toward the San Joaquin River. However, studies indicate that near the San Joaquin River, the dominant groundwater gradient shifts from horizontal to vertically upward. This upward gradient results in discharge of deeper groundwater (which tends to contain higher concentrations of total dissolved solids than shallow groundwater) to surface water flow in the river.

Water Quality. Surface and groundwater quality issues are described below under the context of water quality regulation. The City's wastewater discharge of effluent and land application of wastewater and biosolids are regulated by NPDES permit and Waste Discharge Requirements (WDRs) issued by the Central Valley Regional Water Quality Control Board (RWQCB) and/or the State Water Resources Control Board (SWRCB). Table IV.D-1, Overview of Discharge Limitations for City of Modesto, provides an overview. The permit limitations contained in the NPDES permit and WDRs require effluent concentrations to meet specified levels, specific control measures, inspections, monitoring, and special studies. These regulations and data generated by special studies are described below in *Regulatory Framework- Regional Water Quality Control Board*

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MEIR

The 2007 MEIR identified the following potentially significant impacts and mitigation measures related to water quality and hydrology.

- Impact D.1 identified an impact with respect to excavation and construction activities that could cause erosion, sedimentation and/or result in chemical releases in nearby surface bodies of water or groundwater basins. Adherence to Mitigation Measure D.1 reduced this impact to a less-than-significant level by requiring the City to prepare a Stormwater Pollution Prevention Plan (SWPPP) to reduce impacts to surface waters during construction periods through implementation of Best Management Practices.

- Impact D.2 noted an impact with respect to elimination of cross-connections between the City's stormwater drainage system and the wastewater connection system that could result in localized flooding. Impact D.2 was reduced to a less-than-significant level by requiring the City to design the elimination of each cross-connection to minimize future flooding.

- Impact D.3 found that implementation of the proposed project elements at a rate that does not match the City's population growth my result in an operation-period surface water quality degradation due to a deficient effluent disposal system. Adherence to Mitigation Measure D.3 would partially but not fully reduce this impact by requiring the City to implement potential short-term solutions, but this impact was found to be significant and unavoidable.

- Impact D.4 found that operational-period surface water quality degradation impacts due to pollutant loading associated with treated wastewater discharges. Implementation of Mitigation Measure D.4 would partially reduce this impact but not to a less-than-significant level. This measure required the City to conduct an anti-degradation study; however, even with this measure, Impact D.4 remained significant and unavoidable.

- Impact D.5 found an impact with respect to operational-period surface water quality degradation during daily operations and/or during flooding of the primary Facility sludge drying area. Mitigation Measure D.5 reduced this impact to a less-than-significant level by undertaking floodplain studies to determine if installation of flood walls around the sludge drying area would increase flood impacts upstream or downstream of the Sutter Facility. If this could be the case, other channel improvements would need to be undertaken. If such improvements are infeasible, this impact would remain significant and unavoidable.

- Impact D.8 identified an impact with potential river flow within the San Joaquin River and on river levees due to construction of permanent structures in the river. Construction of the structure could also impact water quality within the river. Adherence to Mitigation Measure D.4 reduced this impact to a less-than-significant level by requiring construction within the river during low-flow periods and avoiding work in river flows. Future outfalls and diffuser structures are to be constructed above the active streambed.

REGULATORY FRAMEWORK

Federal Emergency Management Agency (FEMA). In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The NFIP is managed by FEMA. FEMA is responsible for conducting floodplain studies and publishing Flood Insurance Rate Maps (FIRM) that delineate flood hazard areas. The City of Modesto and County of Stanislaus are participating communities in the NFIP, and therefore all new development must comply with the minimum requirements of the NFIP.

Regional Water Quality Control Board. Water quality in surface and ground water bodies is regulated by the State Water Resources Control Board and Regional Water

Quality Control Boards. The City's discharge of effluent to the San Joaquin River and application of wastewater and biosolids to land are under the jurisdiction of the RWQCB Central Valley Region, which is responsible for implementation of state and federal water quality requirements in the vicinity of the project area. The RWQCB implements the Water Quality Control Plan (Basin Plan), a regulatory and policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region. Beneficial uses of the San Joaquin River where the City discharges its effluent include water contact recreation, noncontact water recreation, industrial process supply, irrigation supply, freshwater habitat, spawning habitat, migration habitat, and wildlife habitat. Beneficial uses of the groundwater aquifer include municipal and domestic supply, industrial process supply, industrial service supply, and agricultural supply.

The proposed project may affect the volume and quality of both stormwater and wastewater discharges. The following discussion describes how both types of discharges are regulated by the RWQCB and current water quality issues of concern that could be affected by the proposed project.

Stormwater Discharges. Urban runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Program (established through the Federal Clean Water Act); the NPDES Program objective for stormwater is to control and reduce pollutants to the maximum extent practicable. Locally, the NPDES program is administered by the RWQCB. The following three stormwater NPDES permits are relevant to the City of Modesto and activities proposed by the project.

Construction General Permit. Construction projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the state NPDES Construction General Permit for discharges of stormwater associated with construction activity. A Stormwater Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the Construction General Permit. A SWPPP should include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality through the construction period.

Municipal Permit. In compliance with the Federal Water Pollution Control Act (also known as the Clean Water Act [CWA]), the City of Modesto has obtained a municipal NPDES permit for the management of stormwater discharges. The municipal permit, which was issued by the Central Valley Regional Water Quality Control Board, requires that the City develop, administer, and implement a Stormwater Management Program (SWMP).

Recent changes to the permit held by the City are detailed in RWQCB Order No. RS-2003-0132. Compliance with the NPDES Permit is mandated by state and federal statutes and regulations. The City of Modesto must comply with all provisions of the permit including ensuring that new development and redevelopment mitigate water

quality impacts to stormwater runoff during both construction and operation periods of projects.

As part of the SWMP, the City has implemented a New Development Management Program, which has the goal of minimizing runoff pollution typically associated with land development. In January 2001, the program published the *Guidance Manual for New Development Stormwater Quality Control Measures.* The manual presents extensive discussion and recommendations for "best management practices" to be incorporated into new development design and post-development monitoring for the protection of water quality.

Rockwells. Stormwater discharges, including discharges to rockwells, are regulated under the City's municipal NPDES permit (Order No. RS-2002-0182). The RWQCB has determined that rockwells pose a potential threat to the shallow groundwater and, under the RWQCB Order, is requiring that the City develop a rockwell assessment plan to evaluate the effectiveness of the rockwells in protecting groundwater. Specifically, the permit states:

> Due to the discharge of stormwater to shallow groundwater through rock wells and the large number of these wells operated by the City of Modesto, this discharge represents a potential threat to groundwater quality. It is the intent of these requirements to quantify the magnitude of this threat, determine if historic discharge to groundwater has impacted groundwater and to minimize the discharge of pollutants to groundwater.

A preliminary report was submitted to the RWQCB in July 2012.

Industrial General Permit. The control of runoff from industrial sources and associated pollutants is regulated in California by the State Water Resources Control Board under the statewide General Permit for Stormwater Discharges Associated with Industrial Activities. The Industrial General Permit presents the requirements for compliance of certain industries. A wide range of industries is covered under the General Permit, including mining operations, lumber and wood products facilities, petroleum refining, metal industries, and some agricultural product facilities, such as dairies. The City has been complying with the requirements of the General Industrial Permit for both the Sutter and Jennings Facilities (including the submittal of annual reports). However, since both Facility sites areinternally drained, the City has submitted a waiver application to the RWQCB for both facilities, which, if approved, would allow the City to discontinue participation in this program for the two facilities.

Wastewater Discharges. Wastewater discharges from the City of Modesto's Wastewater Treatment Facility are regulated by the RWQCB through a WDR for the City's land application of wastewater to the ranch, and an NPDES permit for the City's discharge of effluent to the San Joaquin River. The WDR for the City's land application of wastewater was issued in 1999 and the NPDES permit for the City's discharge of effluent to the San Joaquin River was issued in 2001 (Order No. 99-112 and Order No. 5-01-120, respectively). Under these RWQCB orders, the City operates two wastewater treatment facilities, the Primary and Secondary Facilities, and the Ranch (where treated

water and untreated segregated cannery wastewater are applied for irrigation and biosolids are applied).

The total wastewater flow exceeds that needed for irrigation of the 2,526 acres of crop and pasture lands at the Ranch site. During the summer months, excess wastewater is stored in storage ponds. Winter flows and stored summer flows are discharged to the San Joaquin River during the winter months when there is adequate dilution available.

Salt Loading. Salt loading is a water quality issue of concern in the San Joaquin Valley. The RWQCB recently adopted and the SWRCB and EPA recently approved a Total Maximum Daily Load (TMDL) for Salinity and Boron for the San Joaquin River. As a second phase of this TMDL, an additional Basin Plan amendment is currently in development to consider upstream San Joaquin River water quality objectives. These Basin Plan amendments consider the City's Wastewater Treatment Facility as a relatively small contributor to the overall basin salt load, and have accordingly given the City's wastewater facility a low priority implementation ranking. As stated in the Basin Plan:

> Salt management is becoming increasingly important in the San Joaquin Valley for urban and agricultural interests. If current practices for discharging water containing elevated levels of salt continue unabated, the San Joaquin Valley can have a large portion of its groundwater severely degraded within a few decades.

Salts (generally measured as total dissolved solids [TDS]) are introduced into the basin with imported water supplies. Although the water may leave the basin by evaporation, evapotranspiration, or through the San Joaquin River, much of the salts stay behind, potentially leading to a build-up of salt in the soil and groundwater. Excessive salt loading can result in a degraded water supply, particularly if concentrations exceed the Secondary Drinking Water standard of 900 mg/1 (specific conductance). Salt loading of managed groundwater basins is an important issue throughout the San Joaquin Valley. In addition, many of the naturally-occurring deposits in the vicinity of the project area, particularly in the mountains to the west, are of marine origin and, therefore, have high salt content.

The contribution of human activities (e.g., agriculture, groundwater pumping and water transfers) to the salt balance has been investigated. A United States Geological Survey (USGS) study was conducted in the Sacramento Valley of California to determine whether human activities had affected groundwater quality through time. Substantial increases in TDS and nitrates were observed since the 1950s, indicating that groundwater quality was degraded as a result of increasing application of agricultural chemicals and growth of urban populations. No similar studies for the San Joaquin Valley were reported, but "because agricultural practices in the San Joaquin Valley are similar to those of the Sacramento Valley, it is likely that groundwater quality in the San Joaquin Valley is also degrading as a result of human activity.

The application of treated wastewater to land at the Ranch is regulated under the site-specific WDRs (RWQCB Order No. 99-112). It is possible that the expansion of treatment facilities under the proposed project could result in new or increased impacts to regional salt loading (this potential impact is discussed further below).

Biosolids Processing and Application to Land. The Sutter Facility generates biosolids from on-site biosolids drying operations (typically in the range of 3,000 to 4,000 tons annually). Dried solids from the Sutter Facility are transported and applied directly to City-owned Ranch lands near the Jennings Facility. The RWQCB issued WDRs (Order No. 94-030) for the biosolids application to land. The WDRs include several provisions to protect water quality, including (but not limited to):

- Biosolids (referred to as "sludge" in the permit) shall not be applied to land subject to erosion during a flood, or having a surface slope in excess of two percent.
- The direct or indirect discharge of biosolids to surface waters or surface water drainage courses is prohibited.
- The discharge of tailwater or field runoff within 30 days after application of biosolids is prohibited.

Biosolids from the City's processes are applied only to City-owned land.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section of the MEIR examines potential impacts related to flooding, changed drainage patterns and potential violation of water quality standards.

Standards of Significance. A proposed project would have a significant impact if it were to result in:

- An increase in the frequency and/or magnitude of flooding events at the site or in the region;
- Alteration of drainage patterns that could exacerbate flooding problems;
- Exposure of life and property to increased flood hazards as defined by FEMA;
- Substantial degradation of water quality, including violation of applicable water quality standards;
- Substantial interference with groundwater recharge or depletion of groundwater supplies.

Potential impacts related to increased flooding. With one exception, none of the projects anticipated in this MEIR would increase the amount of impervious surfaces that would increase the amount of either peak hour or total runoff that could increase flooding in the area. Many of the proposed project elements would include upgrades to underground wastewater collection pipelines, lift stations or would involve technological upgrades to existing wastewater treatment equipment at the Jennings

Road facility, none of which would expand or increase the amount of impervious surfaces.

One project component would include rehabilitating and expanding an existing paved surface parking lot at the primary Sutter Wastewater Facility. Additional paving would result in increased stormwater runoff during moderate to intensive rainstorms. Based on discussions with the City of Modesto staff (William Wong, 10/4/13) approximately 6 acres of the parking area would be paved, resulting in approximately 326,000 gallons of storm water being generated during a peak storm event. Proposed plans for the parking lot paving component would include containing the stormwater on the Sutter Facility site with ultimate disposal on an adjacent golf course. No significant impacts are therefore anticipated with respect to increased flooding.

Alteration of drainage patterns that could exacerbate flooding problems. None of the project components identified in the Project Description section (Section 3.0) would be such that existing drainage patterns would be significantly changed or that would exacerbate existing flooding conditions. A number of the proposed project elements would be located underground (the River Trunk realignment and the Oakdale Road sewer main extension) would have no impact on flood patterns or flooding. Other project components would include upgrades to existing above-ground facilities such as lift stations and equipment at the Jennings Road Secondary Facility. The existing parking lot at the Sutter Facility would be expanded within the boundary of the current Facility; however, this is expected to be a small addition that would not significantly change existing drainage patterns or increased flooding potential (source: William Wong, City of Modesto, 9/6/13). No mitigation measures are required.

Exposure of life and property to increased flood hazard. None of the proposed wastewater improvements include structures for human occupancy that would expose employees or visitors to increased flood hazard. Proposed underground improvements such as the River Trunk Realignment and Oakdale Road sewer would not be subject to any flood hazard. Proposed improvements at the Jennings Road Secondary Facility also would not be used for human habitation and the site is located outside of a 100-year flood hazard area. There would therefore be no impact with respect to this topic.

Substantial degradation of water quality. Portions of the project would involve grading, trenching and other ground disturbing activities. Such activities would include grading and trenching to construct portions of the River Trunk Realignment, installation of a 10-inch sewer main within Oakdale Road, potential trenching to upgrade lift stations, expansion of the existing parking lot at the main Sutter Facility and similar actions.

Construction, grading, trenching and excavation and related actions could result in erosion of unprotected graded material into nearby storm sewers, creeks, irrigation canals and potentially into other nearby bodies of water such as Dry Creek, the Tuolumne River and the San Joaquin River. This would be a significant impact during the operational period of each of the project components that would involve ground disturbance.

Impact HYD-1 **(water quality degradation during grading and/or ground disturbance). Grading, trenching and similar ground disturbance could release loose soil, debris and other material into nearby waterways (*significant supplemental impact and mitigation required*).**

The proposed expansion of the surface parking lot at the Sutter Facility could also degrade water quality during the operational phase of the project element by allowing polluted stormwater to run off of the site and into nearby bodies of water. Pollutants could consist of litter and debris, dust, asbestos from car brakes and oils and solvents from parked vehicles. This would be a potentially significant impact.

Impact HYD-2 **(water quality degradation during operation phase of the Sutter Facility parking lot expansion). Nearby surface water could be impacted by runoff of soil, litter, debris and petroleum products (*significant supplemental impact and mitigation required*).**

Adherence to the following measure will mitigate the above impacts to a level of less-than-significant.

Mitigation Measure HYD-1 **(water quality degradation during construction and operation phases of wastewater improvements). Prior to commencement of grading or other earth-disturbing activities and commencement of operation of the expanded parking lot at the Sutter Facility, the City shall prepare a Stormwater Pollution Prevention Plan (SWPPP) that shall include specific, detailed measures to minimize erosion of graded material, debris and other material from both construction site where ground disturbance would occur or the expanded parking lot at the Sutter Facility. The SWPPP shall include measures to:**

a) **limit runoff-off of construction chemicals, debris and similar materials off of construction sites.**
b) **provide construction personnel with information to minimize runoff from the site.**
c) **placement of facilities to limit runoff, including but not limited to silt fences, sediment basins and similar facilities around the perimeter of graded areas.**
d) **installation of vegetated swales around the perimeter of the expanded Primary Facility parking lot and at drainage inlets.**
e) **frequent sweeping of the parking lot to remove dust, litter and similar debris.**
f) **installation of signs at drainage inlets to make users aware of not to litter.**

Substantial interference with groundwater recharge or depletion of groundwater recharge areas. With potential one exception, none of the proposed project elements would include paving currently vacant land or covering existing vacant land with impervious material that would interfere with current groundwater recharge. The one exception would be a proposed expansion of the surface parking lot at the Sutter Facility. This expansion would include paving of approximately 6 acres of land area. As noted above, stormwater runoff from the proposed paved parking lot area would be contained on the site and ultimately piped to an adjacent golf course where the water could recharge into the underground aquifer. No impacts would result with respect to substantial interference with groundwater recharge areas.

Cumulative Impacts. With adherence to Mitigation Measure HYD-1, the project would not contribute a cumulatively considerable impact with respect to area-wide flooding or flood hazards, changes to drainage patterns, degradation of water quality, interference with groundwater recharge or depletion of groundwater resources.

4.4 BIOLOGICAL RESOURCES

This section describes the existing biological resources in the Modesto area, including threatened, endangered, and other special-status species and habitats. This section is based on a biological resources report prepared by H. T. Harvey & Associates[i] and an updated analysis prepared by WRA to address the proposed improvements to the Primary Wastewater Treatment on Sutter Road (the Sutter Facility), the Tertiary Facility on Jennings Road (the Jennings Facility) and related facilities. While agricultural and other human- related activities have greatly modified the natural communities that historically occurred along the east side of the San Joaquin Valley, this region still supports remnants of these communities and the diverse assemblage of plants and wildlife that they once contained. This section evaluates the potential impacts on biological resources that would result from implementation of the proposed improvements to the Modesto Wastewater Master Plan project.

ENVIRONMENTAL SETTING

Ten biotic habitats occur in the MEIR project area: suburban / rural residential, disturbed ruderal, riparian, riverine, fresh-water-emergent wetland, orchards, vineyards, pasture, irrigated row crops, and irrigated grain and hay. These habitats were identified during reconnaissance-level surveys carried out by H.T. Harvey & Associates' biologists on September 29 and October 21, 2005. Areas where project revisions are located were evaluated by WRA biologists using aerial photographs and reference documents including biological reports. WRA biologists also performed reconnaissance-level surveys at the Jennings Facility on May 1, 2013. The habitats and associated vegetation and wildlife are described below. Vegetation communities are described in terms of dominant tree, shrub, and herbaceous vegetation composition.

Suburban and Rural Residential. Much of the overall project area[ii] is located in suburban and rural residential areas. These areas are largely devoid of native vegetation, and tend to support a wide variety of non-native ornamental and ruderal plant species. As an example, the areas surrounding the Sutter Facility contain many ornamental, non-native tree species such as eucalyptus *(Eucalyptus* sp.) and cork oak *(Quercus suber).*

Suburban and rural residential landscapes typically provide habitat for common species accustomed to human disturbance. Common backyard bird species likely to be present at these sites include western scrub-jay *(Aphelocoma californica),* American robin *(Turdus migratorius),* northern mockingbird *(Mimus polyglottos),* house finch *(Carpodacus mexicanus),* and house sparrow *(Passer domesticus).* Western fence lizard *(Sceloporus occidentalis)* and desert cottontail *(Sylvilagus audobonii)* may be present in the vicinity of wood or brush piles. Both the Tivoli Sewer Main Alignment and the River Trunk Realignment are located for the most part in suburban and rural residential habitat. The Sutter Facility is also located adjacent to suburban and rural residential habitat.

Disturbed Ruderal. Disturbed ruderal habitats within the project area are habitats in which vegetative cover has been largely removed by mechanical means on agricultural

lands, as in recently disked fields or along the margins of actively cultivated fields. Bare soil and irregular patches of ruderal plant species characterize this habitat. Plant species occurring in these areas include barnyardgrass *(Echinochloa crus-galli),* Mexican sprangletop *(Leptochloa fusca ssp. uninervia),* bermudagrass *(Cynodon dactylon)* and Johnsongrass *(Sorghum halepense),* carelessweed *(Amaranthus palmeri),* Mexican lovegrass *(Eragrostis mexicana* ssp. *virescens),* puncture vine *(Tribulus terrestris),* heliotrope *(Heliotropicum curassavicum),* western jimsonweed *(Datura wrightii),* and a number of other species, none of which occurred in large populations.

Disturbed habitats within the project area are of limited value to wildlife due to the lack of vegetative cover. Common species such as mourning dove *(Zenaida macroura)* and killdeer *(Charadrius vociferus)* occasionally forage in such areas. Both the Sutter Facility and the Jennings Facility are located within disturbed ruderal habitat. The River Trunk Realignment pump station and junction structure are also located within disturbed ruderal habitat.

Riparian. Riparian habitats are those located along creeks, rivers, and seasonal watercourses. Riparian areas in the vicinity of the proposed project occur along Dry Creek, the Tuolumne River adjacent to the Sutter Facility, and the San Joaquin River west of the Jennings Facility. The following riparian vegetation is associated with each of these locations.

Tuolumne River at the Sutter Facility. The banks above the river on the Sutter Facility site are not thickly vegetated. Species growing on the north side of the Tuolumne River include western jimsonweed *(Datura wrightii),* tree tobacco *(Nicotiana glauca),* willow *(Salix* sp.), barnyardgrass, evening primrose *(Oenothera* sp.), and Coulter's conyza *(Lannecia coulteri).* Species present on the south side of the river include sycamore *(Platanus* sp.) and willow *(Salix* sp.).

Although riparian habitat is located adjacent to the Sutter Facility, the proposed improvements do not encroach upon this habitat.

San Joaquin River at the Jennings Facility. The riparian zone along the outfall from the Jennings Facility is densely vegetated. Species observed included water hyacinth *(Eichhornia crassipes),* which is growing densely in the channel beneath the outfall, button bush *(Cephalanthus occidentalis* var. *occidentalis),* yellow starthistle (*Centaurea solsticialis*), heliotrope *(Heliotropium curassavicum),* and Fremont cottonwood (*Populus fremontii*).

The leaf litter and fallen branches in riparian habitats may provide cover for amphibians such as western toad *(Anaxyrus boreas)* and Pacific tree frog *(Hyla regilla).* Several lizards are also common in these areas, including western fence lizard, Gilbert's skink *(Pleistodon gilberti),* and southern alligator lizard *(Elgaria multicarinata).* Snakes that may be found in riparian habitats include the racer *(Coluber constrictor),* common kingsnake *(Lampropeltis getula),* Pacific gopher snake *(Pituophis catenifer catenifer),* and common garter snake *(Thamnophis sirtalis).*

Riparian habitats provide breeding and foraging areas for a wide range of avian species. Woodpeckers, such as Nuttall's woodpecker *(Picoides nuttallii)* and northern flicker *(Colaptes auratus),* excavate nest holes in trees. Abandoned nest holes are utilized by other birds such as ash throated flycatcher *(Myiarchus cinerascens)* and western screech owl *(Megascops kennicottii).* Other avian species typical of riparian areas in the region include yellow-billed magpie *(Pica nuttalli),* western scrub-jay (*Aphelocoma californica*), northern oriole *(Icterus galbula),* and Bewick's wren *(Thryomanes bewickii).*

Small mammals occurring in riparian habitats may include the ornate shrew *(Sorex ornatus),* California vole (*Microtus californicus*), and desert cottontail. Predators such as the long-tailed weasel *(Mustela frenata)* and gray fox *(Urocyon cinereoargenteus)* are likely to be attracted to the wooded riparian habitats due to the abundance of prey.

Although riparian habitat is located adjacent to the Jennings Facility, the proposed improvements do not encroach upon this habitat.

Riverine. Riverine habitats include rivers, streams, or natural drainages occupied by intermittent or continuously flowing water. Plant growth in riverine areas is restricted to the immediate banks of watercourses during average or near-average precipitation years. Few plant species can become established in the center portions of riverine habitats where water flows the fastest and with greatest energy.

Limited vegetation is present in riverine areas associated with the project. Vegetative growth is limited to a few individuals of Mexican sprangletop were growing within a few inches of the water's edge. The plant species designated in riparian habitats are species that were observed growing on the banks above the existing water level. A dense stand of water hyacinth was rooted in the outfall channel leading to the San Joaquin River from the Jennings Facility.

Riverine habitats can be important wildlife habitat. Steelhead *(Oncorhynchus mykiss),* salmon *(Oncorhynchus* spp.), striped bass *(Morone saxatilis),* shad *(Tenualosa ilisha),* and smallmouth *(Micropterus dolomieu),* spotted *(M. punctulatus),* and largemouth bass *(M. salmoides)* occur in the lower Tuolumne River. Birds, bats, and other mammals often rely on riverine habitats for their supply of water. Other species such as river otters *(Lontra canadensis)* and beaver *(Castor canadensis)* require riverine habitats.

Subsequent to the circulation of the Draft MEIR, the San Joaquin River Restoration Program[iii] (SJRRP) was initiated as a Settlement agreement between a coalition of environmental groups led by the Natural Resources Defense Council (NRDC) challenging the renewal of long-term water service contracts held by the Central Valley Project's Friant Division contractors, concluding the lawsuit known as *NRDC et al. c. Kirk Rodgers et al*[iv]. The settlement requires releases of water from Friant Dam to the confluence of the Merced River, designed primarily to meet the various life stage needs for spring and fall run Chinook salmon. The San Joaquin River Restoration Program began interim flow water releases from Friant Dam into the San Joaquin River on October 1, 2009, and full restoration flows are scheduled to start no later than January 1, 2014. These planned cold-water flows are intended to re-introduce spring-run salmon

populations and maintain naturally reproducing and self-sustaining populations of Chinook salmon and other fish over time[v].

Although riverine habitat is located adjacent to the Sutter Facility and the Jennings Facility, the proposed improvement construction does not encroach upon this habitat.

Freshwater-Emergent Wetlands. Freshwater-emergent wetland habitat was observed in a slough that runs east - west in the Modesto Ranch Lands along the north side of Parcel 5, south of the Jennings Facility, and within a slough running north and south between Parcels 6 and 7 south of the Jennings Facility. Dense stands of bulrush *(Schoenoplectus* sp.), duckweed *(Lemna* sp.), cattail *(Typha* sp.), and smartweed *(Polygonum* sp.) were observed in parts of the slough. Other species such as heliotrope occupy the margins of the slough.

Wildlife species that may use the freshwater wetlands habitat in the project area include exotic bullfrog *(Rana catesbieana),* great egret *(Ardea alba),* snowy egret *(Egretta thula),* sora *(Porzana carolina),* American coot *(Fulica americana),* marsh wren *(Cistothorus palustris),* song sparrow *(Melospiza melodia),* and red-winged blackbird *(Agelaius phoeniceus).*

Orchards. Orchards comprise approximately 19.6 percent of the agricultural acreage in Stanislaus County[vi] and occupy a considerable portion of the overall MEIR project area, especially between the Sutter Facility and the Jennings Facility. Orchards in this vicinity comprise mostly almonds *(Prunus dulcis)* and English walnuts *(Juglans regia).* These orchards support scattered patches of ruderal plant species, including rip-gut brome, Mediterranean barley *(Hordeum murinum* ssp. *gussoneanum),* black mustard *(Brassica nigra),* cheeseweed *(Malva parviflora)* and Mexican sprangletop. These plant species grow below the tree canopy and along the access roads around the perimeters of the orchards. However, the majority of orchard habitat has limited native vegetative growth due to weed control and crop production activities.

Orchards typically provide limited habitats for wildlife, as frequent disturbances associated with crop production (e.g., pruning, spraying, harvesting, and watering) limit the potential for most wildlife species to persist in these habitats. Common reptiles such as the side-blotched lizard *(Uta stansburiana)* are known to persist under these conditions, and some common bird species are attracted to nut crops and can be abundant in orchards, such as the American crow *(Corvus brachyrhynchos)* and yellow-billed magpie. Burrowing animal, such as California ground squirrel *(Spermophilus beecheyi)* and gopher *(Thomomys bottae),* are typically discouraged in orchards due to damage they cause to crops and irrigation systems.

Orchards are located across the road from the proposed improvement locations at the Jennings Facility, but not directly within any of the areas for the proposed improvements.

Vineyards. Although a few vineyards occur between the Sutter Facility and the Jennings Facility, and east of the Jennings Facility along Jennings Road, vineyards collectively comprise only a small area of habitat within the overall MEIR project area.

No vineyards lie directly adjacent to or within the areas of the proposed improvements.

The growth of weedy species in wetter areas of vineyards can be more robust than orchards, because the exposure to sunlight is greater in vineyards. However, typically vineyards support the same general ruderal plant species as described above for orchard habitat. Vineyards provide limited habitats for wildlife, as the frequent disturbances associated with crop production limit the potential for most wildlife species to persist in vineyards. Common animals such as the side-blotched lizard can persist under these conditions. Some bird species, such as American crow, western scrub-jay, and house finch, are attracted to fruit crops and can be quite abundant.

Pasture. Irrigated pastures in Stanislaus County are typically dominated by annual and perennial non- native grasses and forbs commonly grown for forage, including bermudagrass, rabbitsfoot grass *(Polypogon monspeliensis),* Italian ryegrass *(Festuca perennis),* Harding grass *(Phalaris aquatica),* white clover *(Trifolium repens),* and white sweetclover *(Melilotus alba).* Lower-lying areas that are seasonally saturated for long periods of time may support water-loving plant species typically found in freshwater wetlands, including annual bluegrass *(Poa annua),* water primrose *(Ludwigia peploides),* hyssop loosestrife *(Lythrum hyssopifolium),* toad rush *(Juncus bufonius),* and species of flatsedge (*Cyperus* sp.). The unlined irrigation ditches that often provide water to flood-irrigate pastures also may support plant growth.

Bird species typically found in pastures in the Modesto area include mallard *(Anas platyrhynchos),* killdeer, western kingbird *(Tyrannus verticalis),* western meadowlark *(Sturnella neglecta),* and red-winged blackbird.

Irrigated pastures may be found adjacent to the Sutter Facility, the Jennings Facility, the Tivoli Sewer Main Alignment and the River Trunk Realignment. Pastures are not present within any of project areas.

Irrigated Row Crops. Vegetation growing with irrigated row crops, as with other cultivated areas, is almost exclusively ruderal, and typically grows most densely on the edges of fields beyond the range of herbicides and plowing activities. The only row crop species observed with any frequency was corn *(Zea mays).* Naturalized vegetation observed growing with irrigated row crops were similar in general to those observed in orchards and pastures.

Irrigated row crops provide limited habitat for wildlife due to their disturbed nature. The frequent plowing for cultivation and weed-control activities disrupt burrows and ground cover for terrestrial mammals. Species that use cultivated habitats are generally widespread species accustomed to disturbances, such as American kestrel *(Falco sparverius),* American crow, killdeer, mourning dove, western meadowlark, Brewer's blackbird (*Euphagus cyanocephalus*), and house finch. Species such as red-tailed hawk *(Buteo jamaicensis),* snowy egret *(Egretta thula),* great egret (*Ardea alba*), turkey vulture *(Cathartes aura,* and other avian generalist predators forage preferentially in some cultivated fields during tilling as insects, small mammals, and other prey organisms are uncovered and highly vulnerable to predation.

Irrigated row crops may be found adjacent to the Sutter Facility, the Jennings Facility, the Tivoli Sewer Main Alignment and the River Trunk Realignment. No row crops are located in the areas of the proposed improvements.

Irrigated Grain and Hay. Irrigated grain and hay typically contain one, or a few, target species such as alfalfa and/or palatable grasses, such as Harding grass and orchardgrass *(Dactylis glomerata)*. Hay fields must be mowed periodically, but they tend to be tilled less frequently than row crops. As such, these areas often have a mixture of native plant species growing with the targeted species (e.g., alfalfa). These may include species of clover *(Trifolium* sp.), sweetclover *(Melilotus* sp.), and a variety of non-native grass species, including rabbitsfoot grass, bermudagrass, orchardgrass, and others.

Because they are less frequently disturbed than other crops, irrigated grain and hay crops are quite attractive to some wildlife. Alfalfa frequently supports large populations of gopher and vole *(Microtus* sp.), which are attractive prey for birds of prey such as red-tailed hawk, Swainson's hawk *(Buteo Swainson'si)*, and northern harrier *(Circus cyaneus)*. During irrigation, flocks of American crow, white-faced ibis *(Plegadis chichi)*, and great blue heron *(Ardea herodias)* are frequently observed feeding on invertebrate life forced to the surface by irrigation.

Irrigated grain and hay fields may be found adjacent to the Sutter Facility, the Jennings Facility, the Tivoli Sewer Main Alignment and the River Trunk Realignment. Irrigated grain and hay fields may also be found on the lands of the Jennings Facility.

Special-Status Species. Reconnaissance-level surveys were conducted by H.T. Harvey and Associates on September 29 and October 21, 2005 in the project area for habitats capable of supporting special-status plant and animal species and at the Jennings Facility by WRA on May 1, 2013. Prior to the site surveys, information concerning the known distribution of threatened, endangered, or other special-status species with potential to occur in the project vicinity was collected from several sources and reviewed. The sources included the California Department of Fish and Wildlife's (CDFW's) Natural Diversity Database (CNDDB)[vii] and information available through the US Fish and Wildlife Service (USFWS)[viii] and technical publications. CalFlora[ix], California Native Plant Society (CNPS)[x] and Baldwin et al.[xi] supplied information regarding the distribution and habitats of vascular plants in the region of the project area. Jennings and Hayes[xii] provided additional information regarding the distribution and habitats of reptiles and amphibians.

A query of special-status plants and animals in the CNDDB was performed for the nine USGS topographical quadrangles surrounding and including the project area. The CNPS[xiii] was then queried to produce a similar list for Stanislaus County. The specific habitats included in the query were chenopod scrub, riparian scrub, native coastal and valley freshwater marsh and valley and foothill grassland communities, including areas with suitable microhabitats. In addition, CNDDB[xiv] identified coastal and valley freshwater marsh, elderberry savanna, Great Valley Oak riparian forest and Great Valley cottonwood riparian forest as sensitive habitats. These habitats were selected based on the similarity of their constituent species to those occurring in the project area.

As a part of the 2013 update, a query of special-status plants and animals in the CNDDB, CNPS, CDFW RareFind 5 Database[xv] and U.S. Fish and Wildlife Service focused on the nine USGS quadrangles surrounding and including the project area. Potential occurrence of special-status species in the project area was evaluated by first determining which special-status species occur in the vicinity of the project area through a literature and database search. Database searches for known occurrences of special-status species focused on the Brush Lake 7.5 minute USGS quadrangle and the eight surrounding USGS quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the project area:

- California Natural Diversity Database (CNDDB) records[xvi];
- USFWS quadrangle species lists[xvii];
- Modesto Wastewater Phase 1 and 2 Biological Resource Assessments[xviii]
- Species recovery plans[xix,xx];
- CNPS Inventory records[xxi];
- CDFW publication "California's Wildlife, Volumes I-III"[xxii];
- CDFW publication "Amphibians and Reptile Species of Special Concern in California" [xxiii];
- CDFW publication "California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California" [xxiv];
- CDFW publication "Terrestrial Mammal Species of Special Concern in California" [xxv];
- A Field Guide to Western Reptiles and Amphibians[xxvi];
- Fairy Shrimps of California's Puddles, Pools and Playas[xxvii];
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California[xxviii];
- National Marine Fisheries Service Distribution Maps for California Salmonid Species[xxix]; and
- Inland Fishes of California[xxx].

These queries produced two additional potential sensitive habitats, elderberry savanna and Great Valley mixed riparian forest. The habitat requirements of each special-status species were the principal criteria used for inclusion in the list of species potentially occurring in the project area. The special-status plant and wildlife species that occur locally in habitats similar to those found in the project area and that have a moderate or high potential to occur in the project area are discussed below.

Special-Status Vegetation Species. The 2006 reconnaissance-level field survey did not identify any special-status plant species, although the habitat-specific search identified only four special-status species with a potential to occur: lesser saltscale *(Atriplex minuscule),* round-leaved filaree *(California macrophylla*), diamond-petaled California poppy *(Eschscholzia rhombipetala),* and delta button-celery *(Eryngium racemosum).* The 2007 MEIR noted that although small discontinuous patches of ruderal, annual grassland occur in the project area and are associated with the margins of orchards, vineyards, agricultural fields, and irrigation drainage ditches, these areas are highly disturbed, degraded and dominated by non- native grasses and forbs, and thus are not capable of supporting rare plants that grow in valley and foothill grassland habitat.

In this MEIR, 20 special-status plant species have been recorded in the vicinity of the project area. A table in Appendix 8.3 summarizes the potential for each of these species to occur in the project area. Of these, 19 plants require habitat types not present in the project area, including chenopod scrub, valley grassland, and vernal pool communities. As a result, these 19 species were determined to be unlikely or have no potential to occur in the project area.

The River Trunk Realignment project component would pass through the Dryden Golf Course and along the northern boundary of the Modesto Municipal Golf Course, terminating east of Highway 99 immediately adjacent to an existing, maintained right-of-way. The Tivoli Sewer Main Alignment is proposed to be located within the right-of-way for Oakdale and Sylvan Avenues. Therefore, these special-status plants analyzed were rejected from consideration due to the absence of suitable habitat in the project area, the lack of associated native species, and/or the absence of specific habitat variables. No additional surveys are warranted for these species in the project area.

One special-status plant species, delta button-celery *(Eryngium racemosum),* is known from a single historical record in Stanislaus County in an area that has been converted to intensive agriculture[xxxi]. The species requires seasonally flooded clay depressions in riparian scrub for its habitat[xxxii]. Current data suggest that the species has been extirpated from Stanislaus County and suitable habitat is generally absent from areas directly affected by wastewater system improvements. However, marginally suitable habitat may exist in isolated locations in the greater project area, for instance, in the portion of the River Trunk Realignment within the Tuolumne River floodplain.

Delta button-celery *(Eryngium racemosum). Federal Listing Status: None; State Listing Status: State Endangered: CNPS Status: List 1B.*

Delta button-celery is an annual or perennial herbaceous species in the Carrot family *(Apiaceae)* that is endemic to California. Its habitat is riparian scrub in seasonally inundated floodplains on clay soils, at elevations from 10 to 246 feet (3 to 75 m)[xxxiii,xxxiv]. Flowering occurs from June through September. The species has a narrow geographical range and is known from approximately 50 locations[xxxv]. It occurs from Contra Costa, San Joaquin, and Calaveras Counties south to Stanislaus and Merced Counties.

The delta button-celery was not observed during the 2006 reconnaissance-level surveys, but suitable habitat may exist in isolated locations within the greater project area adjacent to the project area suitable habitat may exist in the floodplain of major waterways, including the Tuolumne River adjacent to the River Trunk realignment. However, given the fact that project improvements are proposed largely within existing development and maintained rights-of-way, delta button-celery has a low potential to occur within the area of updated project improvements. The nearest known locality for the species is an unspecified area (exact location unknown) in the vicinity of Grayson about 4.5 miles (7.2 km) northwest of the Jennings Facility site.

Special Status Wildlife Species. Fifty-eight special-status wildlife species have been recorded in the vicinity of the project area. Appendix 8.3 summarizes the potential for

each of these species to occur in the project area. Twelve special-status wildlife species are present or have a high potential to occur in the overall MEIR project area. Twenty special-status wildlife species have a moderate potential to occur in the project area. Special-status wildlife species that were observed, or have a moderate or high potential to occur in project area and area of proposed improvements activities are discussed below.

Mammals

Pallid Bat (*Antrozous pallidus*). *Federal Status: None; State Status: Species of Special Concern (SSC); Western Bat Working Group High Priority (WBWG).*

Pallid Bat is found in a variety of low-elevation habitats throughout California. It selects a variety of day roosts including rock outcrops, mines, caves, hollow trees, buildings, and bridges. Night roosts are usually found under bridges, but also in caves, mines, and buildings. This species is sensitive to roost disturbance. Unlike most bats, pallid bats primarily feed on large ground-dwelling arthropods, and prey is often taken on the ground[xxxvi]. Both rock outcrops and woodland tree cavities in the plan area hills provide potential roost habitat for this species, and there are there are several documented occurrences within 10 miles to the west[xxxvii]. Bridges and buildings in the plan area valley may also provide suitable roosting habitat for this species. This species has a moderate potential to occur in the areas proposed for improvements as roosting habitat including hollow trees, buildings, and bridges are present.

Townsend's big-eared bat (*Corynorhinus townsendii*). *Federal Status: None; State Status: SSC; Western Bat Working Group High Priority*

The Townsend's Pacific big-eared bat occurs in a variety of habitats and uses caves, mines, tunnels, buildings, or other human-made structures for roosting[xxxviii]. This species hibernates during the winter months, frequently waking up to move locations. It feeds almost entirely on moths; the rest of its diet consists of beetles and a variety of fly species. This species feeds relatively late at night, emerging from their roost site about 45 minutes after sunset. During the summer months females and young can be found in maternity colonies, usually constructed in caves and buildings. In California, there may be up to 200 individuals in a single colony. The females arrive at the colony site in March and April and they remain there until September. This species has a moderate potential to occur in the areas proposed for improvements because roosts may be present in existing buildings.

Western Mastiff Bat (*Eumops perotis*). *Federal Status: None; State Status: SSC; Western Bat Working Group High Priority*

The Western mastiff bat ranges from Central Mexico across the southwestern US. In California this species roosts at elevations up to 4,600 feet where significant rock features are present[xxxix]. Mastiff bat roosts are primarily located high on cliffs under exfoliating rock slabs, but have also been found in similar crevices in large boulders and buildings. This species forages in groups high above the ground in broad, open

areas and is most often found in desert washes, flood plains, chaparral, oak woodland, open pine forest, grasslands and agricultural areas. This species has a moderate potential to occur in the areas proposed for improvements because roosts may be present in existing buildings.

Western Red Bat (*Lasiurus blossevillii*). *Federal Status: None; State Status: SSC; Western Bat Working Group High Priority (WBWG).*

Western red bat is considered highly migratory and broadly distributed, reaching from southern Canada through much of the western United States. It is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats (including riparian areas), often adjacent to streams or open fields, or in orchards[xl]. Though perhaps lower in quality, riparian habitats in the plan area also provide potential roost habitat. Most of the plan area provides suitable foraging habitat and thus the potential to occur is moderate.

Hoary Bat (*Lasiurus cinereus*). *Federal Status: None; State Status: None; WBWG High Priority.*

This species is most abundant in the forests and croplands of the plains states and in forests of the Pacific Northwest, and is also found in the forests of the eastern United States and the arid deserts of the Southwest[xli]. Diverse woodland habitats with a mixture of forest and small open areas that provide edges seem ideal for this species[xlii]. This species has been found in Spanish moss, squirrel nests, woodpecker holes, and out in the open on the trunks of trees. Summer tree roosts are typically located along edge habitats close to feeding grounds. Most females rear young in deciduous trees, while males prefer to roost in conifers. Both sexes appear to prefer older trees as roosts, which they use for up to 5 weeks, and apparently provide greater safety[xliii]. Because suitable roosting habitat exists in the area of the proposed improvements, this species has a moderate potential to occur.

Western Small-footed Myotis (*Myotis ciliolabrum*). *Federal Status: None; State Status: None; WBWG High Priority.*

The western small-footed myotis is a common bat of arid uplands in California. In coastal California it occurs from Contra Costa county south to the Mexican border. It also occurs on the west and east sides of the Sierra Nevada, and in Great Basin and desert habitats from Modoc to Kern and San Bernardino counties. It occurs in a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water. This bat seeks cover in caves, buildings, mines, crevices, and occasionally under bridges and under bark[xliv]. Separate night roosts may be used, and have been found in buildings and caves. It prefers open stands in forests and woodlands as well as brushy habitats. Because suitable habitat exists in the area of the proposed improvements, this species has a moderate potential to occur.

Long-eared Myotis (*Myotis evotis*). *Federal Status: None; State Status: None; WBWG High Priority.*

Long-eared Myotis is primarily associated with coniferous forest, but is also found in semiarid shrublands, sage, chaparral, and agricultural areas. This species roosts under exfoliating tree bark, in tree hollows, caves, mines, crevices in rocky outcrops, in buildings, under bridges and occasionally on the ground. Long-eared myotis primarily consume beetles and moths, gleening prey from foliage, trees, rocks and from the ground[xlv]. Because suitable roosting habitat exists in the area of the proposed improvements, this species has a moderate potential to occur.

Fringed Myotis (*Myotis thysanodes*). *Federal Status: None; State Status: None; WBWG High Priority.*

This bat is associated with a wide variety of habitats including coniferous/coniferous-deciduous forest, woodlands, and shrublands. Buildings, mines, and tree cavities are important day and night roosts. This species forages over aquatic habitats, scrub, and woodland habitats. Woodlands and older buildings in the vicinity provide potential roost habitat[xlvi]. Most of the plan area provides suitable foraging habitat. This species has a moderate potential to occur.

Long-Legged Myotis (*Myotis volans*). *Federal Status: None; State Status: None. Western Bat Working Group High Priority (WBWG).*

The long-legged myotis is generally associated with woodlands and forested habitats. Large hollow trees, rock crevices, and buildings are important day roosts. Other roosts include caves and mines[xlvii]. Foraging habitat is variable and includes both aquatic features and terrestrial habitats such as scrublands and woodland. Woodlands and older buildings in the vicinity provide potential roost habitat. Most of the plan area provides suitable foraging habitat. This species has a moderate potential to occur.

American Badger (*Taxidea taxus*), *Federal Status: None; State Status: SSC*

Badgers occur in drier open stages of most scrub, forest, and herbaceous habitats where friable soils and prey populations are present[xlviii]. Small mammals at the proposed improvement areas provide potential foraging opportunities for the badger. The open fields which are relatively undisturbed at the Sutter Facility and Jenner Facility may provide suitable habitat for this species. Potential for the American badger to occur on the site is considered moderate.

Birds

Tricolored Blackbird (*Agelaius tricolor*). *Federal Status: None; State Status: SSC.*

Tricolored blackbird is found almost exclusively in the Central Valley and central and southern coastal areas of California. The tricolored blackbird is highly colonial in its nesting habits and forms dense breeding colonies of up to tens of thousands of pairs. This species nests primarily in tall, dense, stands of cattails or tules, but also nests in blackberry, wild rose bushes and tall herbs. Nesting colonies are typically located near standing or flowing fresh water. Tricolored blackbird forms large, often multi-species

flocks during the non-breeding period and ranges more widely than during the reproductive season[xlix].

Wetland vegetation extensive enough to provide suitable nesting habitat for tricolored blackbird is absent from the project area. Tricolored blackbird forages in agricultural habitats in the project vicinity such as orchards, pasture and alfalfa fields and any field just after disking. Therefore, the species has a moderate potential for occurrence in the proposed improvements project area.

Short-eared Owl *(Asio flammeus). Federal Status: None; State Status: SSC.*

Short-eared owl occurs in open habitats such as grasslands, wet meadows, and marshes. This species requires tules or other tall grasses for nesting or daytime refuge. Short-eared owl once bred across much of the San Joaquin Valley[l]; however, it is now most likely to be encountered as a winter visitor. Areas of tall grass or tules that provide nesting habitat for this species are absent from the project area in general, although wetlands containing tules exist at the Jennings Facility. The project area also contains suitable foraging habitat. Therefore, the species has a moderate potential for occurrence in the overall MEIR project area and within the areas of the proposed improvements.

Western Burrowing Owl *(Athene cunicularia). Federal Status: None; State Status: SSC.*

The burrowing owl is a small, terrestrial owl of open country. Burrowing owl favors flat, open grassland or gentle slopes and sparse-shrub ecosystems. This owl prefers annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owl is found in close association with California ground squirrels. Burrowing owl uses the abandoned burrows of ground squirrels for shelter and nesting[li].

Burrowing owl is known to be resident within the southern San Joaquin Valley. The species is likely to inhabit pastures, fallow fields, and canal and railway right-of-ways where ground squirrels have been allowed to invade. No burrowing owl or signs of its presence, such as feathers, droppings, pellets, or prey remains, were observed in the project area during the reconnaissance-level survey. However, suitable habitat for burrowing owl is present. Therefore, the species has a moderate potential to occur in the in the overall MEIR project area and within the areas of the proposed improvements at the Jennings Facility, the Sutter Facility, and at the River Trunk Realignment in the area of the Tuolumne River floodplain.

Golden Eagle (*Aquila chrysaetos*). *Federal Status: Bird of Conservation Concern (BCC). State Status: Fully Protected Species (FP).*

Golden eagle is found in open and semi-open areas from sea level to 3600 m elevation, in habitats including tundra, shrublands, grasslands, mixed woodlands, and coniferous forests. Golden eagle is usually found in mountainous areas, but it also nests in wetland, riparian and estuarine habitats[lii]. This large raptor typically nests in large isolated trees or cliffs. Golden eagle forages over large areas, feeding primarily

on ground squirrels, rabbits, large birds, and carrion. This species has a moderate potential for occurrence in the areas of project improvements, although nesting is unlikely.

Ferruginous Hawk (*Buteo regalis*). *Federal Status: BCC; State Status: SSC.*

Ferruginous hawk breeds in the semiarid grasslands of the Great Plains. This species is a winter visitor to California and occupies open terrain including, grasslands, agricultural fields, and deserts. Grassland and arid areas of California, Arizona, and New Mexico are used heavily where prairie dogs, rabbits, or pocket gophers (*Thomomys* spp.) are abundant[liii]. This species has a moderate potential for occurrence in the areas of project improvements, although nesting is unlikely.

Swainson's Hawk *(Buteo Swainson'si). Federal Status: None; State Status: Threatened.*

The Swainson's hawk is a large soaring bird of open habitats. Swainson's Hawks are most easily distinguished from other members of its genus, such as the familiar red-tailed hawk *(B. jamaicensis),* by a relatively slender body and narrow, pointed, and slightly upturned wings.

Swainson's hawk was once one of the most common birds of prey in the grasslands of California. Its population has declined at least 90 percent since 1900[liv]. This species once nested in the majority of the lowland areas in the state. Currently, the nesting range is primarily restricted to portions of the Sacramento and San Joaquin Valleys, and northeast California[lv]. It was listed as threatened by the State of California in 1983.

Swainson's hawk requires large amounts of foraging habitat, preferably grassland or pasture habitats. The preferred prey items are voles *(Microtus* spp.), gophers, birds, and insects such as grasshoppers[lvi]. They have adapted to the use of some croplands, particularly alfalfa, but also hay, grain, tomatoes, beets and other row crops[lvii]. Crops such as cotton, com, rice, orchards, and vineyards are not suitable because they either lack suitable prey or the prey is unavailable to the Swainson's hawks due to the crop's structure.

In the Central Valley, Swainson's hawk is generally tied to riparian habitat for nesting sites[lviii]. Some pairs are reported to utilize eucalyptus trees and nest outside riparian areas[lix].

In the fall, Swainson's' hawk collects in flocks called kettles, sometimes in large numbers, and migrate together to South America. Kettles can occasionally be seen in the valley foraging behind tractors or harvesters, hunting mice and insects that have been disrupted by farming activities.

The conversion of land for agricultural purposes in the San Joaquin Valley and the predominance of crops that represent unsuitable foraging habitat, such as cotton, orchards, and vineyards, have led to a loss of patches of suitable habitat large enough to be inhabited by Swainson's hawk.

There are records of Swainson's hawk nesting within 1 mile (1.6 km) of the Jennings Facility[lx]. An additional CNDDB record for nesting Swainson's hawks is within 5 miles (8 km) of the Jennings Facility and several others are within 10 miles (16.1 km). These records are more than 10 years old; however, the habitat in the vicinity appears to be mostly unchanged and remains suitable for Swainson's hawk nesting. A CNDDB record from 1999 noted a nest tree in the Tuolumne River floodplain in the vicinity of the River Trunk realignment and the Dryden golf course[lxi]. Potential foraging habitat is abundant within the overall MEIR project area, and suitable nest locations exist in the riparian areas of Dry Creek, and Tuolumne and San Joaquin Rivers. Therefore, while no hawks were observed during reconnaissance-level surveys, the species has a high potential for occurrence in the areas of proposed improvements.

Northern Harrier *(Circus cyaneus). Federal Status: None: State Status: SSC.*

Northern harrier is commonly found in open grasslands, agricultural areas and marshes. Northern harrier nests on the ground in areas where long grasses or marsh plants provide cover and protection[lxii]. Harrier hunts for a variety of prey, including rodents, birds, frogs, reptiles, and insects, by flying low and slow in a traversing manner, utilizing both sight and sound to detect prey items.

Suitable breeding and foraging habitat for northern harrier exists in the project area. Furthermore, several individuals were observed foraging during the 2005 reconnaissance-level survey. Therefore, the species is present in the overall MEIR project area and has a high potential to occur within the areas of the proposed improvements.

White-tailed Kite (*Elanus leucurus*). *Federal Status: None; State Status: Fully Protected Species.*

Kites occur in low elevation grassland, agricultural, wetland, oak woodland, and savannah habitats. Riparian zones adjacent to open areas are also used. Vegetative structure and prey availability seem to be more important than specific associations with plant species or vegetative communities. Lightly grazed or ungrazed fields generally support large prey populations and are often preferred to other habitats. Kites primarily feed on small mammals, although, birds, reptiles, amphibians, and insects are also taken. Nest trees range from single isolated trees to trees within large contiguous forests. Preferred nest trees are extremely variable, ranging from small shrubs (less than 10 ft. tall), to large trees (greater than 150 ft. tall)[lxiii]. This species likely forages in the fields adjacent to and surrounding the areas of proposed project improvements. This species has a high potential for occurrence.

Prairie Falcon (*Falco mexicanus*). *Federal Status: BCC; State Status: None.*

This is an uncommon resident and migrant that ranges from southeastern deserts northwest along the Coast Ranges and Sierra Nevada. It occurs in many habitats, but typically is associated with grasslands, savannahs, rangeland, agricultural areas, and

desert scrub. This falcon typically nests on cliffs. This species probably occurs as a winter visitor and forages over project areas, but does not have suitable habitat for nesting. This species has a moderate potential for occurrence in the areas of proposed project improvements.

Loggerhead Shrike (*Lanius ludovicianus*). *Federal Status: None; State Status: SSC*

This predatory songbird inhabits much of lower 48 states of the United States. Loggerhead shrike prefers open habitats interspersed with shrubs, trees, poles, fences, or other perches from which they can hunt[lxiv]. Some populations of the loggerhead shrike, primarily those in eastern North America, have declined significantly over the last 40 years. Other populations, including those in western North America, appear to be decreasing as well. Even with this trend, loggerhead shrike is still considered a fairly common species in California. Though it is likely to be more common in less disturbed habitats, loggerhead shrike is still found throughout the Central Valley.

Loggerhead shrike was observed in the project area during the reconnaissance-level surveys, and suitable nesting habitat for loggerhead shrike exists in the vicinity of the Jennings Facility. Therefore, the species is present in the proposed improvements project area.

Song Sparrow - Modesto Population (*Melospiza melodia*). *Federal Status: None; State Status: SSC*

The Modesto population of the song sparrow is endemic to the north-central portion of the Central Valley. Highest densities occur in the Butte Sink area. This song sparrow has an affinity for emergent freshwater marshes, but will also nest in willow thickets, valley oak riparian forests and along vegetated irrigation canals and levees[lxv]. Although typical emergent wetland habitat is present along the San Joaquin River, it has a moderate potential to occur in areas of proposed improvements at the Sutter and Jennings Facilities near existing water bodies.

Long-billed curlew (*Numenius americanus*). *Federal Status: BCC; State Status: SSC.*

Coastal estuaries, open grasslands, and croplands are used in winter while upland shortgrass prairies and wet meadows are used for nesting[lxvi]. There is a moderate potential for occurrence in the vicinity of the Jennings Facility area of updated project activities because the fields provide suitable foraging habitat in winter and during migration.

White-faced Ibis (*Plegadis chihi*). *Federal Status: None; State Status: Wait Listed.*

This species is a year-round resident and breeder within the San Joaquin Valley and a local breeder throughout northeastern California. Ibis inhabit primarily freshwater wetlands, especially cattail (*Typha* spp.) and bulrush (*Schoenoplectus* spp.) marshes, although it feeds in flooded hay meadows, agricultural fields, and estuarine wetlands. Nests are located in emergent vegetation or low trees and shrubs over shallow water; sometimes on ground on small islands[lxvii]. There is a moderate potential for this

species to occur in the vicinity of the Jennings Facility because the spray field provides suitable foraging habitat and the adjacent wetlands provide suitable foraging/nesting habitat. This species had been listed as a CDFW Species of Special Concern but was delisted in 2011.

Reptiles

Western Pond Turtle *(Emys [Clemmys] marmorata). Federal Status: None; State Status: SSC.*

The western pond turtle is a medium-sized brown or olive-colored aquatic turtle, and is found west of the Sacramento-San Joaquin delta, and south to northern Baja, except in desert areas. Both subspecies that occur in California, the northwestern pond turtle *(E. m. marmorata)* and the southwestern pond turtle *(E. m. pallida),* are considered by the state of California to be species of concern. The pond turtle is normally found in and along riparian areas, although gravid females have been reported up to a mile away from water in search of appropriate nest sites. The preferred habitat for this turtle includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), food sources (plants, aquatic invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs). Juvenile and adult turtles are commonly seen basking in the sun at appropriate sites; they are extremely wary and animals often dive into the water at any perception of danger.

The 2006 CNDDB[lxviii] records search lists no records of western pond turtle within the nine-quadrangle area surrounding the project area. However, the 2013 CNDDB records search produced one record of western pond turtle within the nine-quadrangle search, approximately 10 miles southeast of the project area. Additionally, the project area lies within the range of the western pond turtle, and the sloughs that drain through the Jennings and Sutter Facilities and the nearby Tuolumne and San Joaquin Rivers provide suitable aquatic habitat for the species. Therefore, western pond turtle has a moderate potential to occur in the areas of proposed improvements.

Fish Species

Green sturgeon (*Acipsenser medirostris); Federal Status: Threatened; State Status: None.*

The southernmost spawning population of green sturgeon is in the Sacramento River, with the principal spawning area located in the lower Feather River[lxix]. Spawning populations of green sturgeon in the San Joaquin River are presumed to have been lost in the past 25-30 years. Green sturgeon are primarily marine species, entering into fresh water rivers mainly to spawn, although early life stages may reside in fresh water for up to 2 years[lxx]. Adults typically migrate into fresh water from late February through late July. The spawning period occurs from March to July, with peak spawning occurring from mid-April to mid-June[lxxi]. Green sturgeon prefer deep pools in large, turbulent, freshwater river mainstreams to spawn[lxxii]. Juvenile green sturgeon emigrate out to sea primarily during the summer and fall before the end of their second year[lxxiii]. Green sturgeon adults, subadults, and juveniles are widely distributed throughout the San Francisco Delta and Estuary. Adults typically migrate

upstream on the western edge of the Delta, returning to the ocean when river temperatures decrease and flows increase during the fall and early winter. They may hold in low gradient or off-channel sloughs or coves where temperatures are within acceptable thresholds. Larvae prefer open aquatic habitat for foraging, but utilize structure habitat during the day. Juvenile rearing habitats for green sturgeon include spawning areas and migration corridors. Rearing habitat utilization varies dependent on seasonal flows and temperatures. Juvenile green sturgeon are found year round in the Delta and use the region as a migration corridor, feeding area and juvenile rearing area. Juvenile green sturgeon are strong swimmers and thus have the ability to select or avoid habitats. Critical habitat has been designated in tidally-influenced areas of the Sacramento-San Joaquin Delta and the Sacramento River, outside of the areas of proposed project improvements.

Although records are few, there are reported occurrences of green sturgeon upstream of Jennings Facility in the San Joaquin River[lxxiv]. Therefore, potential for this species to occur in the San Joaquin River at the Jennings Facility is high.

San Joaquin Roach (*Lavinia symmetricus* spp.). *Federal Status: None; State Status: SSC.*

The San Joaquin roach is either several subspecies or part of *L. s. symmetricus* (Sacramento roach) and is found in tributaries to the San Joaquin River from the Cosumnes River south.
California roach are generally found in small, warm intermittent streams, and dense populations are frequently found in isolated pools[lxxv,lxxvi]. They are most abundant in mid-elevation streams in the Sierra foothills and in the lower reaches of some coastal streams[lxxvii]. Roach are tolerant of relatively high temperatures and low oxygen levels (1-2 159 ppm)[lxxviii]. However, they are habitat generalists, also being found in cold, well-aerated clear "trout" streams, in human-modified habitats[lxxix,lxxx] and in the main channels of rivers, such as the Russian and Tuolumne. Therefore this species is considered to have a high potential to occur in the San Joaquin River at the Jennings Facility.

Hardhead (Mylopharodon conocephalus). Federal Status: None; State Status: SSC.

Hardhead is a large (occasionally exceeding 600 mm standard length), native cyprinid species that generally occurs in large, undisturbed low- to mid-elevation rivers and streams[lxxxi]. Hardhead are usually found in clear deep streams with a slow but present flow. The species is widely distributed throughout the Sacramento-San Joaquin River system, though it is absent from the valley reaches of the San Joaquin River. Hardhead mature following their second year. Spawning migrations, which occur in the spring into smaller tributary streams, are common. The spawning season may extend into August in the foothill streams of the Sacramento and San Joaquin River basins. Spawning behavior has not been documented, but hardhead are believed to elicit mass spawning in gravel riffles.

Although available reports lack specific information regarding known presence of hardhead in the San Joaquin River at the Jennings Facility outfall, the species cannot be dismissed as not occurring because suitable habitat is present. Therefore this

species is considered to have a high potential to occur in the San Joaquin River at the Jennings Facility.

Steelhead - Central Valley DPS (*Oncorhynchus mykiss irideus*). Federal Status: Threatened; State Status: None.

The steelhead is a species of rainbow trout, the most abundant and wide-spread native salmonid in western North America[lxxxii] weighing from two to 12 pounds at full maturity. The Central Valley ESU includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries.

Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. During the winter or early spring the spawning fish reach suitable gravel riffles (shallow areas with gravel or cobble substrate) in the upper sections of streams and dig their redds. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. When steelhead spawn they nearly always return to the stream in which they were hatched. The project area is outside the current range for this ESU; however, steelhead is anticipated to return to the San Joaquin River following the implementation of the San Joaquin River Restoration Program. Therefore this species is considered to have a high potential to occur in the San Joaquin River at the Jennings Facility.

Chinook Salmon - Central Valley Spring-run ESU (*Oncorhynchus tshawytscha). Federal Status: Threatened, State Status: Threatened.*

The Central Valley Spring-run ESU includes all naturally spawned spring-run populations from the Sacramento San Joaquin River mainstem and its tributaries[lxxxiii].

Chinook salmon are anadromous (adults migrate from a marine environment into the fresh water streams and rivers of their birth) and semelparous (spawn only once and then die). Spring-run Chinook salmon enter the Sacramento River between February and June. They move upstream and enter tributary streams from February through July, peaking in May-June. These fish migrate into the headwaters, hold in pools until they spawn, starting as early as mid-August and ending in mid-October, peaking in September. They are fairly faithful to the home streams in which they were spawned, using visual and chemical cues to locate these streams. While migrating and holding in the river, spring Chinook do not feed, relying instead on stored body fat reserves for maintenance and gonadal maturation. Eggs are laid in large depressions (redds) hollowed out in gravel beds. Some fish remain in the stream until the following October and emigrate as "yearlings", usually with the onset of storms starting in October through the following March, peaking in November-December. Large pools with cold water are essential over-summering habitat for this species. Suitable habitat is present in the project area and spring- run Chinook salmon is anticipated to return to the San Joaquin River following the implementation of the San Joaquin River Restoration Program. Therefore the Central Valley Spring-run ESU is considered to have a high potential to occur in the San Joaquin River at the Jennings Facility.

Chinook Salmon - Central Valley Fall/late fall-run ESU (*Oncorhynchus tshawytscha*). *Federal Status: NMFS Species of Concern; State Status: SSC.*

The Central Valley Fall/late fall-run ESU includes all naturally spawned spring-run populations from the Sacramento San Joaquin River mainstem and its tributaries. Late-fall run Chinook salmon are morphologically similar to spring-run Chinook. They are large salmonids, reaching 75-100 cm SL and weighing up to 9-10 kg or more. The great majority of late-fall Chinook salmon appear to spawn in the mainstem of the Sacramento River, which they enter from October through February. Spawning occurs in January, February and March, although it may extend into April in some years. Eggs are laid in large depressions (redds) hollowed out in gravel beds. The embryos hatch following a 3-4 month incubation period and the alevins (sac-fry) remain in the gravel for another 2-3 weeks. Once their yolk sac is absorbed, the fry emerge and begin feeding on aquatic insects. All fry have emerged by early June. The juveniles hold in the river for nearly a year before moving out to sea the following December through March. Once in the ocean, salmon are largely piscivorous and grow rapidly.

The specific habitat requirements of late-fall Chinook have not been determined, but they are presumably similar to other Chinook salmon runs and fall within the range of physical and chemical characteristics of the Sacramento River above Red Bluff. Suitable habitat is present in the project area and fall/ late fall- run Chinook salmon is anticipated to return to the San Joaquin River following the implementation of the San Joaquin River Restoration Program. Therefore the Central Valley Fall/late fall-run ESU is considered to have a high potential to occur in the San Joaquin River at the Jennings Facility.

Sacramento Splittail *(Pogonichthys macrolepidotus). Federal Status: None; State Status: SSC.*

The Sacramento splittail, a large-sized minnow, is distributed throughout the Delta region. It is distinguished from other minnows by deeply forked, symmetrical tail with a slightly larger dorsal lobe and its preference for brackish water. Adults forage and spawn on inundated floodplains and success of a particular age class is dependent on the length of inundation[lxxxiv]. It is also found in backwater slough areas[lxxxv]. During years of high river flows and lengthy floodplain inundation, splittails move into the lower Sacramento and San Joaquin Rivers[lxxxvi]. Adults spawn on either submerged vegetation or gravel bottom during spring high waters.

Sacramento splittail has successfully spawned in the lower reaches of the Tuolumne River in the vicinity of Modesto in the 1980's and 1990's, 7 miles (11 km) from the river mouth[lxxxvii].

Moyle[lxxxviii], however, considers the San Joaquin and Tuolumne Rivers to be outside the current range of the Sacramento splittail. Nevertheless, the species cannot be dismissed as not occurring within the overall MEIR project area because suitable

spawning habitat is present. Therefore this species is considered to have a high potential to occur in the San Joaquin River at the Jennings Facility.

Invertebrates

Valley Elderberry Longhorn Beetle *(Desmocerus californicus dimorphus). Federal Status: Threatened (proposed for delisting); State Status: None.*

The valley elderberry longhorn beetle historically ranged throughout the Central Valley, from Shasta County south into Kern County[lxxxix]. In contrast, surveys conducted between 1984 and 1991 detected valley elderberry longhorn beetles in only 12 patches of natural riparian vegetation along the Sacramento, American, and San Joaquin Rivers and their tributaries[xc]. The loss of habitat is the single greatest factor contributing to the decline of this species. Riparian forests throughout the Central Valley have been altered as a result of human activities associated with urban development, agriculture, and water diversions.

The valley elderberry longhorn beetle was listed as threatened by the USFWS in 1980. It was proposed for delisting in October 2006. The State of California has not designated any insect as endangered, threatened, fully protected, or a species-of-concern. Conservation efforts aimed at the species' recovery have included protecting existing elderberry thickets, replanting elderberry shrubs, and transplanting elderberry shrubs inhabited by beetle larvae to new sites. The only designated critical habitat for this species is two sections of riparian forest along the American River. Although proposed for delisting, this species is discussed and impacts are identified because delisting has not and may not occur.

Suitable riparian habitat exists throughout the overall MEIR project area. Areas in the vicinity of the Sutter Facility may support habitat for the species. The species potentially occurs in the project area where its host plant is established.

Federal-listed Species With Low or No Potential to Occur

Federal-listed species that are documented to occur elsewhere in Stanislaus County, but are unlikely to occur in the areas of the proposed improvements are discussed below.

Mammals

Fresno Kangaroo Rat (*Dipodomys nitratoides exilis*). *Federal Status: Endangered; State Status: None.*

The Fresno kangaroo rat (*Dipodomys nitratoides exilis*) is one of three subspecies of San Joaquin kangaroo rats[xci]. The project area is over 70 miles from the only known current, verified population, at the Alkali Sink Ecological Reserve in Fresno County, although no individuals have been captured since 1992. No documented occurrences have been found in the project area vicinity. There is no potential for this species to occur in the project improvement areas.

Riparian (San Joaquin Valley) Woodrat (*Neotoma fuscipes riparia*). Federal Status: Endangered; Statue Status: Endangered.

This species is a medium-sized subspecies of the dusky-footed woodrat. Currently, a single population is known to exist in riparian forest habitat along the Stanislaus River in and immediately adjacent to Caswell Memorial State Park[xcii]. The species range is outside the project improvement areas and this species has only a low potential to occur.

Riparian Brush Rabbit *(Sylvilagus bachmani riparius), Federal Endangered Species, State Endangered Species.*

This species is a yearlong resident of dense, brushy areas, and of early successional stages of oak and conifer habitats. Dig or occupy natural cavities for nesting, They graze on a wide variety of grasses and forbs (e.g., clovers, foxtails, bromes, thistles) in grasslands, meadows, and riparian areas. *S. b. riparius* has in recent years been found only at Caswell Memorial State Park on the Stanislaus River, San Joaquin County[xciii]. There is low potential for this species to occur in the project improvement areas.

San Joaquin Kit Fox (*Vulpes macrotis mutica*). *Federal Status: Endangered; State Status: Threatened.*

San Joaquin kit fox is found in the San Joaquin Valley and in surrounding foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa; Alameda and San Joaquin counties to the west; and near La Grange, Stanislaus County to the east.

San Joaquin kit fox occurs in grasslands, scrublands, vernal pool areas, alkali meadows and playas, and an agricultural matrix of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands[xciv]. Habitats with loose textured soils[xcv,xcvi,xcvii] that are suitable for constructing dens are preferred. Dens are generally located in open areas with grass or scattered brush. Preferred sites are relatively flat, well drained terrain[xcviii,xcix]. Loss, fragmentation, and degradation of habitat by agricultural, urban, and industrial development suppress San Joaquin kit fox populations. Livestock grazing is not thought to be detrimental to kit foxes[c,ci]. In some areas, livestock grazing may benefit kit foxes by reducing shrub cover and maintaining grassland habitat.

Habitat fragmentation is a serious threat to this species. Isolation of populations and social groups through habitat degradation and barriers to movement, such as aqueducts and busy highways, can limit dispersal to and habitation of existing and former lands. Fragmentation also leads to inbreeding depression in populations, as well as making populations more susceptible to extinction from droughts, flooding, fire, and periodic declines in prey abundance. Increasing populations of coyotes, red foxes, and feral dogs can contribute to increased mortality of kit foxes. San Joaquin kit fox may rarely disperse throughout the MEIR project area. Surrounding intensive agriculture dominated by orchards and other irrigated land probably limits habitat

suitability. There is only a low potential for occurrence of this species in the proposed areas of project activities.

Birds

Western Yellow-billed Cuckoo *(Coccyzus americanus occidentalis). Federal Status: None; State Status: Threatened.*

In California, western yellow-billed cuckoo is one of the latest spring migrants, arriving from late May to late June, depending on location and annual variation. In the western United States, yellow-billed cuckoo is nearly restricted to tall, cottonwood/willow riparian forests[cii] where nests are placed predominately in large willows with a humid microclimate[ciii]. Humidity may play an integral role in preventing water loss in eggs, especially when DDT exposure caused eggshell thinning[civ,cv,cvi]. Yellow-billed cuckoo does not defend territories, but generally is found evenly spaced in suitable habitat, although nests have been as close as 190 ft (58 m) along the Sacramento River where habitat is limited[cvii,cviii]. Foraging areas may overlap among different pairs during the breeding season[cix].

In California, where much of its historical range has been greatly reduced, yellow-billed cuckoo still occurs in isolated sites in the Sacramento Valley from Tehama to Sutter Counties, along the South Fork of the Kern River, in the Owen's Valley, Prado Basin, and in the Lower Colorado River Valley[cx, cxi].

Yellow-billed cuckoo is believed to be extirpated as a breeding species in the San Joaquin Valley[cxii]. None of the riparian habitats in the project vicinity provide suitable nesting habitat for yellow-billed cuckoo. Therefore, the potential for occurrence of this species is unlikely in the areas proposed for project improvements.

Least Bell's Vireo (*Vireo bellii pusillus*), *Federal Status: Endangered, State Status: Endangered*

The least Bell's vireo, a subspecies of Bell's vireo, is a neotropical migrant and summer resident in California and northern Baja California, wintering in southern Baja California[cxiii]. This vireo was once common in lowland riparian habitats throughout California but declined precipitously during the twentieth century[cxiv]. By the time of federal listing in 1986, an estimated 300 pairs were restricted to southern California, primarily San Diego County[cxv]. The population has increased since, with the number of nesting territories in the state in 2006 estimated to be approximately ten times greater than in 1986[cxvi]. However, the distribution of the vireo at that time remained almost entirely within southern California[cxvii].

Least Bell's vireo breeding habitat consists of riparian vegetation, usually in an early successional state (i.e., between 5 and 10 years old), and near water[cxviii]. Such habitat is preferred because it provides both dense cover in the lower shrub layer for nest concealment, and a stratified canopy structure favorable to insect abundance and thus vireo foraging[cxix]. Riparian habitat types used for breeding include those dominated by willows, cottonwood, and/or oaks, with a dense understory of species such as

willows, mulefat, California wild rose, poison oak, and mugwort[cxx]. Nests are typically placed within one meter of the ground. Least Bell's Vireo may attempt multiple broods during the breeding season from mid-March to late September, although one brood is typical[cxxi]. Habitats such as chaparral and coastal sage scrub adjacent to riparian areas are used for foraging and even nesting, and thus provide another potentially important habitat component[cxxii]. Along with habitat destruction, brood parasitism by the brown-headed cowbird (*Molothrus ater*) is widely considered a major contributor to the decline of least Bell's vireo, and a continuing challenge to its recovery. Typical nesting and foraging habitat for this species is not present in the project area. There has been one documented occurrence within 10 miles of the project area to the north in the San Joaquin River National Wildlife Refuge[cxxiii]. Therefore, there is a low potential for occurrence in the areas of proposed project activities.

Amphibians

California Tiger Salamander (*Ambystoma californiense*), *Federal Status: Threatened; State Status: Threatened.*

The California tiger salamander is restricted to grasslands and low-elevation foothill regions in California (generally under 1500 feet) where it uses seasonal aquatic habitats for breeding. The salamanders breed in natural ephemeral pools, or ponds that mimic ephemeral pools (stock ponds that go dry), and occupy substantial areas surrounding the breeding pool as adults. California tiger salamanders spend most of their time in the grasslands surrounding breeding pools. They survive hot, dry summers by living underground in burrows (such as those created by ground squirrels and other mammals and deep cracks or holes in the ground) where the soil atmosphere remains near the water saturation point. During wet periods, the salamanders may emerge from refugia and feed in the surrounding grasslands. Conversion to agriculture and other ground disturbance have resulted in poor habitat conditions for this species within the project area. Therefore there is a low potential for occurrence of this species.

California Red-legged Frog (*Rana draytonii*), *Federal Threatened Species, CDFW Species of Special Concern.*

The California red-legged frog is dependent on suitable aquatic, estivation, and upland habitat. During periods of wet weather, starting with the first rainfall in late fall, red-legged frogs disperse away from their estivation sites to seek suitable breeding habitat. Aquatic and breeding habitat is characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving water. Breeding occurs between late November and late April. California red-legged frogs estivate (period of inactivity) during the dry months in small mammal burrows, moist leaf litter, incised stream channels, and large cracks in the bottom of dried ponds. Over 90 percent of the historic wetlands in the Central Valley have been lost due to conversion for agriculture or urban development[cxxiv,cxxv]. This has resulted in a significant loss of frog habitat throughout the species' range[cxxvi]. Due to loss of habitat this species is likely extirpated from the valley floor. No occurrences of California red-legged frog are

recorded within the nine-quadrangle search from CNDDB[cxxvii]. There is no potential for occurrence of red-legged frog in the proposed areas of project activity.

Reptiles

Blunt-nosed leopard lizard (*Gambelia sila*). *Federal Status: Endangered. State Status: Endangered; CFP.*

The blunt-nosed leopard lizard is endemic to California's San Joaquin and smaller adjacent valleys to the southwest from 120 feet to 2,300 feet in elevation. They inhabit alkali sink habitat with playas, saltbush scrub, non-native grasslands. Leopard lizards eat smaller lizards, including its own species and arthropods such as grasshoppers, crickets, beetles, etc. Adults mate in May and June. Females may lay up to four clutches of three to four eggs which hatch out from July to September[cxxviii]. There are no records of this species in northern Stanislaus County[cxxix].

Giant Garter Snake *(Thamnophis gigas). Federal Status: Threatened: State Status: Threatened*

The giant garter snake is the largest member of the genus *Thamnophis,* growing to lengths of 4.5 feet (1.3 m) or greater. The habitat components most important to the survival of giant garter snakes are: 1) water, including permanent water that persists through the summer months; 2) emergent aquatic vegetation and steep, vegetated banks for cover; and 3) an abundant food supply. Other important components are adjacent upland areas with small mammal burrows or other suitable winter retreats and local habitat diversity including water.

Land development, especially the disking, channeling, and draining of wetlands has fragmented or eliminated much of the habitat formerly occupied by this species[cxxx]. Due to reductions in the snake's historical habitat, the giant garter snake's typical habitat today is canals, and permanent and seasonal tule-cattail marshes. Giant garter snake is also found in flooded rice fields, streams, and sloughs, especially with muddy bottoms[cxxxi]. Giant garter snake could also utilize rock piles, small mammal burrows, and other suitable sites adjacent to the water conveyance systems as hibemacula.

The giant garter snake was listed as threatened by the USFWS in 1993. Once occurring from Buena Vista Lake southwest of Bakersfield in Kern County into Shasta County in the north, the specie's present range is restricted to Fresno County, from the vicinity of Mendota, north through the Central Valley to the vicinity of Gridley, Butte County[cxxxii]. Giant garter snake has been observed repeatedly near the Santa Fe Grade, north of Los Banos. Giant garter snake has survived in a few wetlands managed as duck-hunting preserves or water bird sanctuaries along the San Joaquin River, but the flooding of State and Federal preserves in winter and spring, and draining by summer is the opposite wet/dry seasonal pattern than what this snake requires[cxxxiii]. In the northern Sacramento Valley, rice fields may provide the best habitat for this snake, but the acreage dedicated for rice production is dependent on market conditions and water availability[cxxxiv].

The CNDDB[cxxxv] lists no records of the giant garter snake in the nine-quadrangle area surrounding the project area. Although the USFWS lists records for giant garter snake in the nine-quadrangle area, the species account for giant garter snake acknowledges that the species has likely always been absent from the northern San Joaquin Valley due to the restricted riparian areas of the San Joaquin River in this area[cxxxvi]. The project area lies in an area in which a gap in the distribution of giant garter snakes occurs that separates populations in Merced County from those in the Delta region of San Joaquin County[cxxxvii,cxxxviii]. Lying outside the known range of the giant garter snake, the species is presumed absent from the project area.

Fishes

Delta Smelt (*Hypomesus transpacificus*) *Federal Status: Endangered; State Status: Threatened.*

Delta smelt is a California endemic species found only within the San Francisco and Sacramento-San Joaquin Delta Estuary. While aspects of this species life history are known, certain key components of wild fish, such as spawning habitat requirements and locations are less well known and often inferred by laboratory observations, trawl and sample catch locations of spent females and young larvae, and comparisons with similar speciescxxxix. Delta smelt is a pelagic species, meaning they spend their lives within the water column and are not associated with a structural physical habitat. All life stages are generally found within 6 feet (2 m) of the surface, and they tend to concentrate near the mixing zone where the salinity of 2 parts per thousand (ppt) on the bottom occurscxl. This point is also known as the "X2" and moves up and downstream based on freshwater inflow through the Delta. When the X2 is centered in the shallows of Suisun Bay during the spring, the abundance of smelt in the fall generally increasescxli. Because all life stages of Delta smelt are associated with the X2 gradient, years where this zone is within Suisun and San Pablo Bays provide the greatest quality and area of habitat for the speciescxlii. Although the 2013 nine-quadrangle search revealed that critical habitat for Delta smelt is located along the San Joaquin River, the proposed project areas are located far from the X2 gradient, and these upstream portions of the San Joaquin and Tuolumne Rivers do not provide suitable spawning or foraging habitat for the species, and is considered outside the species documented range; therefore, there is no potential for Delta smelt occurrence.

Invertebrates

Conservancy Fairy Shrimp (*Branchinecta conservatio*), *Federal Status:Endangered; State Status: None.*

This species ranges in size from about ½ to 1 inch long. Conservancy fairy shrimp inhabit rather large, cool-water vernal pools with moderately turbid water (Eriksen and Belk 1999). They have been collected from early November, when pools start to fill, to early April. Hatching can begin within the same week that a pool starts to fill. Average time to maturity is forty-nine days. In warmer pools, it can be as little as nineteen[cxliii]. There is no suitable vernal pool habitat in the updated project area.

Longhorn Fairy Shrimp *(Branchinecta longiantenna), Federal Status: Endangered ; State Status: None.*

Only eight populations of the longhorn fairy shrimp are known[cxliv]. Longhorn fairy shrimp occurrences are rare and highly disjunct with specific pool characteristics largely unknown[cxlv]. Populations in the middle and southern range of the species occur in loam and shallow alkaline soil, respectively[cxlvi]. There is no suitable vernal pool habitat in the updated project area.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*), *Federal Status: Threatened: State Status: None.*

The vernal pool fairy shrimp is widespread but not abundant; populations are known from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County (additional disjunct populations exist at various locations throughout state). Vernal pool fairy shrimp occupy a variety of different vernal pool habitats, from small, clear sandstone rock pools to large, turbid, alkaline, grassland valley floor pools[cxlvii]. There is no suitable vernal pool habitat in the updated project area.

Vernal Pool Tadpole Shrimp *(Lepidurus packardi), Federal Status: Endangered; State Status: None.*

This crustacean typically occurs in turbid seasonal pools with a hydroperiod of at least seven weeks. They inhabit sites in the Central Valley from Shasta County to northern Tulare County, and in the Central Coast Range from Solano County to Alameda County[cxlviii]. The VPTS is a California Central Valley endemic species, with the majority of the populations occurring in the Sacramento Valley[cxlix].

Study Area Wetlands. Reconnaissance-level field surveys of the project area in 2006 revealed several areas that will be considered jurisdictional waters by the U.S. Army Corps of Engineers (USACE). All reaches of the Tuolumne River and Dry Creek include navigable waters routinely claimed by the USACE. Furthermore, several waterways that can be traced to the San Joaquin River in the project area are under USACE jurisdiction. These drainages, canals, and waterways include the following:

- Outfall of the Jennings Facility into the San Joaquin River;
- Lower Lateral No. 3, also called the Westport Drainage channel, which parallels W. Taylor Road as it enters the Jennings Facility;
- Lower Lateral No. 2, which bisects the pipeline pathway between the Sutter Facility and the Jennings Facility in an east-west direction, and which connects directly to the San Joaquin River about 4 miles (6.4 km) northwest of the existing Jennings Facility;
- Lower Lateral No. 2-1/2, located 1.5 miles (2.4 km) south of Lateral No.2, which also bisects the pipeline pathway between the Sutter Facility and the Jennings Facility in an east-west pathway, but turns south between Lair and Quisenberry Roads before merging into the Westport Drainage channel along the northern edge of one of the settling ponds at the Jennings Facility.

The north/south-trending slough located south of the Jennings Facility in the Modesto Ranch lands supports wetlands, which are also regulated by the USACE. A small wetland area also exists in Ranch Parcel 5, south of the chlorination/de-chlorination facility south of the Jennings Facility. Finally, a drainage channel that connects to the eastern end of the chlorination/de- chlorination plant and which runs east-west just south of the irrigation forebay supports dense wetland vegetation.

The proposed improvements project area contains numerous other drainage channels and irrigation channels in agricultural areas within the City's Sphere of Influence not specifically discussed in this MEIR. Future improvements to the wastewater collection and treatment system may impact these channels. It is assumed that potential impacts and associated avoidance and mitigation measures discussed in this MEIR will address future potential impacts to these areas, and site-specific surveys and agency approvals will be implemented as necessary.

REGULATORY FRAMEWORK

Special-Status Plant and Wildlife Species. Federal and state endangered species legislation gives special status to several plant and animal species known to occur in the vicinity of the project area. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the project area. Such species are referred to collectively as "species of special status" and include plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA); animals listed as "fully protected" under the California Fish and Game Code; animals designated as "Species of Special Concern" by the CDFW; and plants listed as rare or endangered by the CNPS[cl]. The special-status species that have been recorded within the vicinity of the project area are shown in Table 4.1-1.

ESA provisions protect federally listed threatened and endangered species and their habitats from unlawful take. Under the ESA, "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." USFWS regulations define harm to mean "an act which actually kills or injures wildlife." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering"[cli]. Activities that may result in "take" of individuals are regulated by the USFWS. On November 11, 2012, the USFWS produced an updated list of candidate species[clii]. Candidate species are not afforded any legal protection under ESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

Provisions of CESA protect state-listed threatened and endangered species. CDFW regulates activities that may result in "take" of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation

or modification is not expressly included in the definition of "take" under the California Fish and Game Code. Additionally, the California Fish and Game Code contain lists of vertebrate species designated as "fully protected"[cliii]. Such species may not be taken or possessed.

In addition to federal and state-listed species, the CDFW also has produced a list of Species of Special Concern to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Species of Special Concern may receive special attention during environmental review, but they do not have statutory protection. USFWS also uses the label, Species of Concern, as an informal term that refers to those species that might be in need of concentrated conservation actions. Species of Concern receive no legal protection as a result of their designation as Species of Special Concern, and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species. However, most, if not all, of these species are currently protected by state and federal laws.

Raptors *(e.g.,* eagles, hawks, and owls) and their nests are protected under both federal and state regulations. The federal Migratory Bird Treaty Act[cliv] (MBTA) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of prey are protected in California under the State Fish and Game Code[clv]. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW.

Vascular plants listed as rare or endangered by the CNPS, but which might not have designated status under state endangered species legislation, are defined as follows:

- List 1A-Plants considered by the CNPS to be extinct in California.
- List 1B -Plants rare, threatened, or endangered in California and elsewhere.
- List 2A-Presumed extirpated in California, but more common elsewhere.
- List 2B-Plants rare, threatened, or endangered in California, but more numerous elsewhere.
- List 3 - Plants about which we need more information - a review list.

Wetlands. The U.S. Army Corps of Engineers (USACE) identifies wetlands[clvi] under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). Wetlands are identified using the USACE protocol manual[clvii].

Construction activities within wetlands are regulated by the USACE. The placement of fill into wetlands must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state

agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

Project-related activities with the potential to impact areas that fall with the USACE's regulatory jurisdiction must comply with permit-applicable requirements and will involve coordination and consultation with the USACE.

The CDFW definition of stream includes "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (shown on U.S. Geological Survey topographic maps), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife"[clviii]. The presence of such areas in the project area were determined using CDFW's methodology[clix].

The CDFW maintains a specific policy regarding impacts to wetland habitats. Wetland habitats are important to a wide variety of plant and wildlife species. The CDFW considers projects that impact these resources as significant under CEQA if they result in a net loss of wetland acreage or habitat value. When wetland habitat cannot be avoided, impacts to wetlands should be compensated for with the creation of new habitat, preferably on-site, at a minimum ratio of 1:1. Wetlands that have been inadvertently created by leaks, dams, or other structures, or failures in man-made water systems are not exempt from this policy.

Activities that result in the diversion or obstruction of the natural flow of a stream, or which substantially change its bed, channel or bank, or which utilize any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFW.

Local Regulations and Programs. The Environmental Resources and Open Space section of Modesto's Urban Area General Plan provides three measures related to sensitive wildlife and plant habitat[clx]. Elements of those measures are relevant to the implementation of the proposed project. Those measures are:

- VII-E.3.a: For all lands within the Planned Urbanizing Area, site-specific surveys shall be conducted by a qualified biologist to determine whether any sensitive natural communities or species are present within the proposed development area. These studies shall particularly focus on proposed development within any lands included within a potential biological resource study area as delineated on Figure 7-1 in the Final Master Environmental Impact Report (Riparian Corridor Diagram). Prior to considering development applications, the City shall coordinate with the U.S. Fish and Wildlife Service (USFWS) regarding listed species and potential for impacts. The City shall employ the measures recommended by the USFWS to avoid an incidental take.

  Surveys should be conducted at the appropriate season to best determine the likelihood of occurrence and should employ accepted methodologies as determined by the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS). The significant results of such surveys

should be recorded onto the City's existing biological resources map for future planning purposes.

- VII-E.3.b: All habitat found to contain or potentially contain sensitive species shall be preserved, where feasible. Areas that can be avoided shall be protected by fencing, signage, or establishment of buffer zones appropriate to the species and/or habitat involved. Generally, a minimum 100-foot buffer of undeveloped land would be necessary. This buffer area should be improved through sustainable habitat restoration. The protected habitat shall be required to be managed so as to contribute to the long-term conservation of the species and ecosystems on which they depend.

- Where formally listed species are determined to be present, consultation shall be carried out with the CDFW and/or USFWS in accordance with the California and/or federal Endangered Species Acts to determine mitigation measures to avoid and minimize impacts to those species. If other special-status species are determined to be present and cannot be avoided, then species-specific mitigation measures shall be implemented to minimize impacts on those species through informal consultation with CDFW and/or USFWS. The mitigation measures and other recommendations of these agencies shall be incorporated into the development plan. Where a Community Plan is prepared, these shall become policies of the plan.

- VII-E.3.c: Other measures to protect sensitive habitats may be implemented. Potential measures to be implemented may include those measures listed in Table 7-1 in the Final Master Environmental Impact Report.

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MEIR

The certified 2007 Wastewater Master Plan MEIR identified the following impacts and mitigation measures.

- Impact E.1 identified an impact with construction of project facilities along the Tuolumne River and other riparian habitats near the Sutter Road Facility could damage the habitat of the valley elderberry longhorn beetle. Adherence to Mitigation Measures E.1.1 through E.1.2c reduced this impact to a less-than-significant level by mandating pre-construction surveys, coordinating with appropriate regulatory agencies, avoiding construction in habitat areas and, if necessary, transplanting elderberry plants.

- Impact E.2 found an impact with respect to loss of occupied burrowing owl habitat. Mitigation Measures E.2.1 and E.2.2 reduced this impact to a less-than-significant level by requiring pre-construction surveys for burrowing owl and avoiding areas with active nests. If avoidance is not possible, limits are placed on eviction of owls from nests, establishing an exclusion buffer and providing compensatory habitat land in cooperation with biological resource agencies.

- Impact E.3 noted that construction of project facilities could cause disturbance to nesting raptors. Adherence to Mitigation Measures E.3.1 and E.3.2 reduced these impacts to a less-than-significant level by requiring avoidance of nesting raptor habitat by limiting time of construction and pre-construction surveys for raptors.

- Impact E.4 found an impact with respect to biological resources and regulated habitats of Dry Creek and the Tuolumne River. Adherence to Mitigation Measure E.4.1 and E.4.2 reduced this impact to a less-than-significant level by requiring pre-construction surveys and then providing suitable mitigation in conjunction with other applicable biological resource agencies.

- Impact E.5 identified an impact with loss of Swainson's Hawk habitat due to project construction. Adherence to Mitigation Measures E.5 reduced this impact to a less-than-significant level by requiring provision of off-site, compensatory Swainson's Hawk habitat at specific replacement ratios.

- Impact E.6 found that construction of wastewater improvements could result in loss of Swainson's Hawk fertile eggs, nestlings or lead to nest abandonment. Mitigation Measures E.6.1 and E.6.2 reduced this impact to a less-than-significant level by requiring completion of pre-construction surveys and establishing limits on removal of nest trees near construction sites.

- Impact E.7 identified an impact with construction of improvements at the Secondary Facility to regulated habitats, including wetlands and other waters. Mitigation Measure E.7 reduced this impact to a less-than-significant level by requiring pre-construction surveys and agency coordination.

- Impact E.8 noted that proposed microtunnelling could result in impacts to riparian habitats under the jurisdiction of biological resource agencies. Mitigation Measure E.8 reduced Impact E.8 to a less-than-significant level by requiring preconstruction surveys and agency coordination.

- Impact E.11 found that growth facilitated by the project would result in cumulative loess of Swainson's Hawk and Burrowing Owl habitat. Adherence to Mitigation Measures E.2, E.5 and E.6 reduced this impact to a less-than-significant level.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Significance Criteria. A project would have a number of potential effects on the biological resources of the project area. The California Environmental Quality Act (CEQA) defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment."

Under CEQA Guidelines Section 15065, a project's effects on biotic resources are deemed significant where the project would:

- 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, and/or
- substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G within the CEQA Guidelines lists other potential impacts to consider when analyzing the effects of a project. The following are applicable to the assessment of impacts stemming from the proposed project:

- Would the project 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 CDFW or USFWS?
- Would the project 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 CDFW or USFWS?
- Would the project 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?
- Would the project 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?
- Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preserve policy or ordinance?
- Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Environmental Impacts. The following potentially significant impacts have been identified to biological resources.

Impacts to special-status wildlife species. Approval and construction of the proposed project could result in potentially significant impacts as follows:

Impacts to habitat of the valley elderberry longhorn beetle. Elderberry shrubs *(Sambucus* species), which are a host plant of the federally threatened valley elderberry longhorn beetle (valley elderberry longhorn beetle) *(Desmocerus californicus dimorphus),* are present in the project area in riparian areas. Individual shrubs were observed during the 2005 reconnaissance-level survey in the vicinity of the Shackelford Crossing along the south side of the Tuolumne River; none were observed in the riparian area near the Sutter Facility. This species has the potential to occur in other riparian areas within the proposed improvements project area such as the banks of the San Joaquin River.

Physically damaging elderberry shrubs, causing dust or other debris to cover foliage, or harming elderberry shrubs in any other manner during project activities would

constitute a significant impact and require consultation with the USFWS prior to the occurrence of such impacts. The USFWS's Conservation Guidelines establish three categories of mitigation that are distinguishable by the degree of impacts on individual elderberry plants. The proposed improvements will not change the anticipated impacts or approved mitigation from that of the 1995 MEIR.

Impact BIO-1 (impacts to the habitat of the valley elderberry longhorn beetle). Construction of wastewater facilities adjacent to the Tuolumne River could damage the habitat of the valley elderberry longhorn beetle (*significant supplemental impact and mitigation required*).

Implementation of the mitigation measure below would reduce this impact to less than significant levels.

Mitigation Measure BIO-1 (impacts to the habitat of the valley elderberry longhorn beetle). Prior to construction of any wastewater project element near the Tuolumne River, the following shall be implemented:

a. **The project area and immediately adjacent area shall be surveyed and mapped by a qualified biologist for the presence of the valley elderberry longhorn beetle and its elderberry host species plant. Mitigation is not required for plants with no stems measuring 1.0 inch (2.5 cm) or greater in diameter at ground level and surveys are valid for a period of two years.**

b. **Appropriate state or federal biological resource agencies shall be consulted if resources are identified that meet the U.S. Fish & Wildlife Service programmatic formal consultation criteria.**

c. **If suitable habitat for the valley elderberry longhorn beetle occurs in a project component area, these areas shall be designated as avoidance areas that will be protected from disturbance during construction. Any valley elderberry longhorn beetle habitat that cannot be avoided should be considered impacted and appropriate mitigation shall be implemented as described in the remainder of this measure.**

   Core avoidance areas include all areas within 20 feet of the dripline of any elderberry plant with a stem measuring 1.0 inch or greater in diameter at ground level. Such core areas should not be disturbed during construction. Buffer avoidance areas include all the area within 100 feet of any elderberry plant with a stem measuring 1.0 inch or greater at ground level. If complete avoidance within a 100-foot wide buffer cannot be provided, the USFWS must be consulted before any disturbances within the buffer area are considered. In addition, the USFWS must be provided with a map identifying the avoidance areas and written details describing the avoidance and protective measures. Protective measures include:

   i) **Temporary construction fencing shall be constructed to provide a minimum setback of at least 20 feet from the dripline of each potential**

host elderberry plant.

ii) A tailgate education program on the valley elderberry longhorn beetle shall be given to each construction worker and all personnel working within the project area to avoid adverse effects on the beetle.

iii) Signs every 50 feet (15.2 m) along the edge of the fence shall be placed along the exclusion fence to help identify the area as a protected area for the valley elderberry longhorn beetle for the duration of construction.

Restoration and maintenance activities should be implemented if activities occur within the 100-foot buffer zone. Restoration and maintenance activities include:

i) Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants.

ii) Buffer areas must continue to be protected after construction. Measures such as fencing, signs, weeding, and trash removal are usually appropriate.

iii) No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level.

iv) The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed.

v) Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within 5 feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment).

d. If elderberry shrubs cannot be avoided, elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level should be transplanted to a mitigation area. The following guidelines shall be followed.

i) A qualified biologist shall monitor the project and mitigation sites for the duration of the transplanting to ensure no unauthorized take or loss of individuals occurs.

ii) Elderberry plants will be transplanted after shrubs have lost their leaves and are dormant, usually from November through the first two weeks in February.

iii) **Transplanting shall be conducted according to standard procedures set forth by the USFWS, which includes planting additional seedlings or cuttings at various ratios for plants removed for translocating.**

iv) **A mitigation area set aside for translocated plants shall provide habitat for the beetle in perpetuity. The mitigation area should provide at least 1,800 square feet for each transplanted elderberry shrub and follow USFWS guidelines for other associated native plants to be planted within the area. This mitigation area shall be weeded by mechanical means (no herbicides) once a year.**

v) **The mitigation area will be monitored for the general condition of the mitigation area, the condition of the elderberry plants, and the associated native plants, for a period of 10 consecutive years with surveys and reports every year, or for 15 years of monitoring with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15. Reports shall be provided to the USFWS.**

Impacts to burrowing habitat. While no burrowing owls or signs of their presence, such as feathers, droppings, pellets, or prey remains, were observed in the project area during the reconnaissance level survey, they are likely to inhabit pastures, fallow fields, and canal and railway right-of-ways where ground squirrels have been allowed to occupy. Furthermore, suitable habitat for burrowing owls is present throughout the project area. The proposed improvements will not change the anticipated impacts or approved mitigation from that of the 2007 MEIR.

If burrowing owls are present within a construction zone, or adjacent to such an area, at the time of construction, disturbance could destroy occupied burrows. Construction during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. The loss of occupied burrowing owl habitat (habitat known to have been occupied by owls during the nesting season within the past three years) or reductions in the number of this rare species within Stanislaus County, directly or indirectly through nest abandonment or reproductive suppression, would constitute a significant impact. Furthermore, raptors, including owls and their nests, are protected under both federal and state laws and regulations, including the Migratory Bird Treaty Act and California Fish and Game Code Section 3503.5.

Impact BIO-2 (impacts to the habitat to occupied burrowing owl habitat). Construction of wastewater facilities could impact the habitat of burrowing owl (*significant supplemental impact and mitigation required*).

Implementation of the mitigation measure below would reduce this impact to less than significant levels.

Mitigation Measure BIO-2 (impacts to the habitat to occupied burrowing owl habitat). Prior to construction of any wastewater project components on vacant fields, the following shall be implemented:

a. **In conformance with Federal and State regulations regarding the protection of raptors, a pre-construction survey for burrowing owls shall be completed, in**

conformance with CDFW guidelines, prior to the start of construction within suitable habitat. f no burrowing owls are located during these surveys, no additional action would be warranted. However, if breeding or resident owls are located on, or immediately adjacent to, the site, the following mitigation measures shall be implemented:

i) No burrowing owls shall be evicted from burrows during the nesting season (February 1 through August 31). Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFW authorizing the eviction.

ii) A 250-foot buffer, within which no new activity shall be permissible, shall be maintained between project activities and nesting burrowing owls. This protected area would remain in effect until August 31, or at the CDFW's discretion and based upon monitoring evidence, until the young owls are foraging independently.

iii) If accidental take (disturbance, injury, or death of owls) occurs, the CDFW shall be notified immediately.

b. If a pre-construction survey finds that burrowing owls occupy the project site and avoiding construction in occupied areas is not feasible, then habitat compensation on off-site mitigation lands should be implemented. Habitat Management lands comprising existing Burrowing owl foraging and breeding habitat shall be acquired and preserved. An area of 6.5 acres (2.6 ha) (the amount of land found to be necessary to sustain a pair or an individual owl) should be secured for each pair of owls, or individual in the case of an odd number of birds. As part of an agreement with the CDFW, the project applicant should secure the performance of its mitigation duties by providing the CDFW with security in the form of funds that would:

i) Allow for the acquisition and/or preservation of 6.5 acres (2.6 ha) of Habitat Management lands.

ii) Provide initial protection and enhancement activities on the Habitat Management lands, potentially including but not limited to such measures as fencing, trash clean-up, artificial burrow creation, grazing or mowing, and any habitat restoration deemed necessary by CDFW.

iii) Establish an endowment for the long-term management of the Habitat Management lands.

iv) Reimburse the CDFW for reasonable expenses incurred as a result of the approval and implementation of this agreement.

Pending CDFW approval, Habitat Management lands providing foraging habitat for Swainson's' Hawk (see "Loss of Swainson's Hawk Foraging Habitat" below) may also be used to mitigate impacts to burrowing owl provided the

Habitat Management lands provide existing burrowing owl foraging and breeding habitat.

Impacts to nesting raptors. Several raptor species are known, or are expected, to nest in the vicinity of the proposed improvements, and could nest in areas planned for development. Raptors *(e.g.,* eagles, hawks, and owls) and their nests are protected under both federal and state law. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFW. Loss of fertile raptor eggs or nesting raptors, or any activities resulting in raptor nest abandonment, could constitute a significant impact if the species is particularly rare in the region. Construction activities such as tree removal, site grading, etc., that disturb a nesting raptor on-site or immediately adjacent to the construction zone could constitute a significant impact. The proposed improvements will not change the anticipated impacts or approved mitigation from that of the 2007 MEIR.

Impact BIO-3 (impacts to nesting raptors). Construction of wastewater facilities may impact nesting raptors (*significant supplemental impact and mitigation required*).

Implementation of the mitigation measure below would reduce this impact to less than significant levels.

Mitigation Measure BIO-3 (impacts to nesting raptors). Prior to construction of any wastewater project components on vacant fields, the following shall be implemented:

a. **To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from January through August.**

b. **If it is not possible to schedule construction between August and January, then one of the following options shall be implemented:**

   i) **With the approval of the CDFW, trees containing known or potential raptor nest sites may be removed to discourage future nesting attempts on the condition that no raptor pair is currently utilizing the site; or,**
   ii) **Pre-construction surveys for nesting raptors shall be conducted by a qualified ornithologist or wildlife biologist to ensure that no raptor nests would be disturbed during project implementation. A pre-construction survey shall be conducted prior to the initiation of demolition/construction activities during the early part of the breeding season (January through April) and prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the qualified person shall inspect all trees in and immediately adjacent to the impact areas for raptor nests.**
   iii) **If an active raptor nest is found close enough to the construction area to be disturbed by these activities, the ornithologist, in consultation with CDFW, shall determine the extent of a construction-free buffer zone to be established around the nest.**

Impacts to biological resources and regulated habitats of the Tuolumne and San Joaquin River. Sensitive riparian and riverine resources and regulated habitats are located within the banks of the Tuolumne River and San Joaquin River outside of the immediate vicinity of the planned construction areas. Project activities near these resources would generally be avoided and not result in significant impacts. However, if construction activities would encroach into regulated habitats or disturb native vegetation, significant impacts under CEQA could result. Accordingly, Mitigation Measure BIO-4 shall be implemented where necessary.

Impact BIO-4 (impacts to biological resources and regulated habitats of the Tuolumne and San Joaquin Rivers). Construction of wastewater facilities may impact sensitive biological resources and habitat area within the Tuolumne River (*significant supplemental impact and mitigation required*).

Adherence to the following measure will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-4 (impacts to biological resources and regulated habitats of the Tuolumne and San Joaquin Rivers). Construction of wastewater facilities near the banks of the Tuolumne or San Joaquin Rivers shall adhere to the following:

a. **Pre-construction surveys shall be conducted prior to project-related activities that would impact the resources of the San Joaquin River or Tuolumne River in order to identify potentially significant impacts to potential steelhead and Chinook salmon and their habitats. If the San Joaquin River, the Tuolumne River, or their tributaries could be impacted by project activities, USACE permits and a Streambed Alteration Agreement from CDFW and permits from NMFS may be required. If project activities impact regulated habitats, USACE permits, NMFS permits and a Streambed Alteration Agreement from CDFW would be required. Early consultation with the USACE, CDFW and NMFS is recommended to determine adequate protocols, as project modification and/or protection measures may be necessary and would require agency approval.**

b. **If construction activities would result in impacts to any of the special-status species identified as possibly occurring in the project area, protection for that species shall be implemented. These shall be determined through coordination with the City of Modesto, CDFW, USFWS, and NMFS.**

Impacts to Swainson's hawk foraging habitat. While Swainson's hawk was not observed nesting during reconnaissance-level surveys, the project area does contain suitable foraging habitat for Swainson's hawk. Preferred foraging habitat for Swainson's hawks includes dry land and irrigated pasture, alfalfa, fallow fields, low growing row or field crops, rice land, and cereal grain crops. Project implementation could result in the loss of foraging habitat, resulting in a significant adverse effect to this state-designated threatened species through habitat modification.

Impact BIO-5 **(impacts to Swainson's hawk foraging habitat). Construction of project facilities may impact Swainson's hawk foraging habitat (*significant supplemental impact and mitigation required*).**

Adherence to the following will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-5 **(impacts to Swainson's hawk foraging habitat). If project facilities are constructed on lands identified as potential foraging habitat for Swainson's hawk, then the impacts shall be mitigated by providing offsite Habitat Management lands as described in the CDFW protocol[clxi]. The final acreage of offsite management lands to be provided would depend on the distance between the project area and the nearest active nest site[clxii]. Prior to grading of any site with potential foraging habitat, protocol-level surveys should be conducted to determine the nearest active nest.**

Impacts to Swainson's hawk species. Removing a tree with an active Swainson's hawk nest and other construction activities occurring within 1 mile of an active nest, could result in sufficient disturbance to cause Swainson's hawk breeding pairs to abandon their nest or otherwise harm eggs or nestlings. Swainson's hawk is a state listed threatened species. Disturbance that causes Swainson's hawk to abandon the nest and/or results in the loss of reproductive effort would be a significant impact.

Impact BIO-6 **(impacts to Swainson's hawk nests). Construction of project facilities may impact Swainson's species by removing trees with active nests (*significant supplemental impact and mitigation required*).**

Adherence to the following will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-6 **(impacts to Swainson's hawk nests). The following steps shall be taken to minimize impacts to Swainson's Hawk nesting areas.**

a. **In order to assure that nesting Swainson's hawks will not be disturbed by construction activities at the Jennings Facility site, in developing areas where collection system extensions are being constructed on or within one mile of undeveloped properties that could have trees with active nests, a qualified ornithologist shall conduct pre-construction surveys of the project site and adjacent areas within one mile of the project site. Survey Period I occurs from January 1 to March 20, Period II from March 20 to April 5, Period III from April 5 to April 20, Period IV from April 21 to June 10, and Period V from June 10 to July 30. Surveys are not recommended during Period IV because identification is difficult as the adults tend to remain within the nest for longer periods of time. No fewer than three surveys shall be completed, in at least each of the two survey periods immediately prior to project initiation. If a nest site is found, consultation with CDFW shall be required to ensure project initiation will not result in nest disturbance.**

b. Nest trees on the project site(s) should not be removed unless avoidance measures are determined to be infeasible. If a nest tree must be removed, a Management Authorization (including conditions to off-set the loss of the nest tree) must be obtained. The Management Authorization will specify the tree removal period, generally between October 1 and February 1. If construction or other project related activities which may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site by a qualified biologist should be required to determine if the nest is abandoned. If it is abandoned, and if the nestlings are still alive, the City shall fund the recovery and hacking (controlled release of captive reared young) of nestling(s).

Impacts to wetlands and waters of the U.S. Most of the Jennings Facility improvements would be made within the existing facility and ranch. Based on a review of site conditions in the vicinity of the Jennings Facility and Ranch, the connecting pipelines, and the alignment of waterways and canals in the area, it has been determined that several waterways including the drainage channel north of Parcel 5 and the slough oriented north and south between Parcels 6 and 7 drain into Waters of the U.S. (the San Joaquin River) and thus are USACE jurisdictional (see Wetlands section). Furthermore, areas under the regulatory jurisdiction of CDFW, and areas meeting the policy definition of "wetlands" are located in these areas. If construction activities associated with the improvements to the Jennings Facility are sited or carried out in such a way that these resources would be impacted, significant impacts could result.

Impact BIO-7 (impacts to wetlands and other waters of the U.S.). Construction or improvements to the Jennings Facility may cause impacts to wetlands and waters of the US (*significant supplemental impact and mitigation required*).

Adherence to the following measure will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-7 (impacts to wetlands and other waters of the U.S.). If project facilities are constructed on or adjacent to wetland areas and those areas potentially under the jurisdiction of the USACE and/or CDFW, pre-construction surveys shall be conducted. If these areas would be impacted by project activities, USACE permits and a Streambed Alteration Agreement from CDFW would be required. These agencies would request adequate measures to offset impacts to riparian and aquatic resources. Early consultation with the USACE and CDFW is recommended to determine adequate protocol, as project modification and/or mitigation measures may be necessary and would require agency approval.

Impacts to riparian habitats. Although no project activities are proposed in riparian corridors. However, if construction activities occur in the vicinity of riparian corridors, CDFW may request that appropriate measures be taken to avoid and/or minimize impacts, such as establishing adequate riparian buffer zones to minimize impacts to sensitive habitats. CDFW, USFWS, and NMFS may also request that a biological monitor conduct pre-construction surveys or be on-site during ground-disturbing activities.

Impact BIO-8 (impacts to riparian habitats). Construction activities could cause impacts to riparian habitats under the jurisdiction of the California Department of Fish and Wildlife and/or the U.S. Army Corps of Engineers (*significant supplemental impact and mitigation required*).

Adherence to the following will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-8 (impacts to riparian habitats). Prior to performing construction activities in or adjacent to a riparian area, a survey should be conducted to determine whether special-status species or habitats are present on or immediately adjacent to the construction area. If it is determined that such species or habitats are present, and if the temporary impacts are determined to be significant, coordination with CDFW, USFWS, NMFS, and USACE shall occur to determine appropriate avoidance steps or detailed mitigation measures to carry out prior to and during construction. These measures could include establishing a riparian buffer between the construction area and the identified resource or habitat, and monitoring during construction by appropriately qualified scientist(s).

Impacts to other special-status bats. Pallid bat, Townsend's big-eared bat, Fresno kangaroo rat, western mastiff bat, western red bat, hoary bat, western small-footed myotis, long-eared myotis, fringed myotis, and long-legged myotis have not been documented within the proposed project areas. However, these species have the potential to use portions of the plan area for day roosting and/or maternity roosting.

Demolition of buildings or bridges, removal of trees containing suitable roosting cavities, and removal of other suitable habitat that may be used as day and/or maternity roosts by these bats would be a significant impact. If bats are present during these activities, especially during the maternity season, the incidental take of adults and/or young may also occur. These impacts may be permanent or temporary. Potential indirect impacts on special-status bats may result from increased treatment plant night lighting, activities causing substantial vibrations such as jackhammering, or activities that produce loud or high frequency noises, such as the application of brakes or use of generators near a maternity roost.

Impact BIO-9 (impacts to riparian habitats). Construction activities could impact the habitat for western pond turtles, the nesting and foraging habitat for loggerhead shrikes, and foraging habitat for short-eared owls, northern harriers, and the habitat for western yellow-billed cuckoo, Modesto song sparrow, long-billed curlew, white-faced ibis, and tricolored blackbirds (*less-than-significant impact and no mitigation required*).

Sewage treatment ponds frequently support populations of western pond turtle. While no individuals were identified during the reconnaissance-level surveys, suitable habitat occurs at the Jennings Facility, and individuals may be present. No modifications to the sewage treatment ponds are proposed and minor to moderate fluctuations in the water level at the treatment ponds occur regularly and would not be expected to have a

significant effect on pond turtles. Impacts to western pond turtles would be less than significant.

Loggerhead shrike was observed in the project area during the 2013 reconnaissance-level survey and could nest within the project area in the emergent vegetation associated with the artificial wetlands and forage within irrigated pastures. Similar potential breeding and foraging habitat for loggerhead shrike associated with agricultural operations and urban areas are regionally abundant. Therefore, impacts to this species would be less than significant.

Dry-farmed forage crops, disked fields, irrigated pasture, wet meadows, moist scrub and marsh areas within which badger, short-eared owl, tricolored blackbird, long-billed curlew, and white-faced ibis may forage are regionally abundant. Project implementation will not substantially reduce the foraging habitat available for these species, restrict their range, or cause their regional populations to drop below a self-sustaining level. Therefore, impacts to these species resulting from a loss of foraging habitat would be less than significant.

Riparian areas and open meadows with large trees provide nesting and foraging habitat for western yellow-billed cuckoo and Modesto song sparrow. Although western yellow-billed cuckoo is believed to be extinct as a breeding species from the project area, there is suitable riparian vegetation along the San Joaquin River in the project area and vicinity. Typical emergent wetland habitat for Modesto song sparrow is present along the San Joaquin River. Project implementation will not substantially reduce the habitat available for these species, restrict their range, or cause their regional populations to drop below a self- sustaining level. Therefore, impacts to these species resulting from a loss of foraging habitat would be less than significant.

Impacts to special-status bat species. Certain project components could impact special-status bat species.

Impact BIO-10 (impacts to special-status bat species). Construction activities may result in direct, temporary, and indirect impacts on roosting special-status bats (*less-than-significant impact and no mitigation required*).

This impact will be reduced to a less-than-significant level by adherence to the following measure.

Mitigation Measure BIO-10 (impacts to special-status bat species). Special-status bat roost habitat may be removed between September 1 and October 31 without surveys or special measures to protect bats. However, if evidence of roosting is observed during vegetation removal, structure demolition, and/or disturbance in other suitable roosting habitat, work should be halted and a qualified wildlife biologist should be contacted for recommendations on how to proceed. Consultation with CDFW may be required to determine appropriate actions.

Removal of potential roost habitat should not be conducted during the hibernation season, between November 1 and March 31. Emergence surveys are not effective at

determining bat presence (due to suppressed flight and foraging activities) during this period.

If removal of suitable roosting habitat is to occur between April 1 and August 31, a qualified biologist shall assess the suitability of affected habitat no later than 30 days prior to the start of construction to determine if there are signs of roosting activity. If suitable habitat is present that contains signs of roost activity, evening emergence surveys and/or internal searches to determine presence/absence of bat maternity roosts shall be conducted. All active roosts identified during surveys shall be protected by a 250-foot exclusion buffer around the roost or as determined appropriate by a qualified biologist.

Impacts to other special-status species. The MEIR is intended to address a broad range of species and habitats occurring in the City of Modesto's Sphere of Influence and the MEIR project area and provide general long-term strategies for avoiding and minimizing impacts to sensitive species and habitats as related to municipal wastewater improvements. The MEIR is a long-range planning document and it is anticipated that implementation of the activities discussed in the updated project description may take place over several years. The rankings of sensitive species are updated by the USFWS and CDFW on a regular basis. As a result, this MEIR addresses species currently of concern in the project area but is not intended to exclude species occurring in habitats not covered in this document or species listed by Federal or State agencies in the future.

Impact BIO-11 (impacts to other special-status species). Construction activities may result in direct, temporary, and indirect impacts on special-status species not addressed in this MEIR (*significant impact and mitigation required*).

Adherence to the following will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-11 (impacts to other special-status species). Prior to implementation of individual project components, the City shall:

a. **Conduct an inquiry of special-status plants and wildlife near the construction area. This includes a review of the** CNDDB, CNPS, CDFW **RareFind 5 Database.**

b. **Pre-construction surveys shall be conducted prior to project-related activities that would impact sensitive species and their habitats. If it is determined that suitable habitat for special-status species is present in a proposed project area, potential impacts, along with avoidance and minimization measures, shall be evaluated as part of the biological resources assessment report. Impacts on special-status bat species are typically avoided and minimized by conducting pre-construction surveys and using work windows to remove occupied habitat.**

   If sensitive species and their habitats are impacted, permits from USACE, CDFW, USFWS, and/or NMFS may be required. Early consultation with the USACE, CDFW and NMFS is recommended to determine adequate protocols, as

project modification and/or mitigation measures may be necessary and would require agency approval.

c. **Appropriate species protection methods shall then be implemented.**

Potential impacts to species of special concern. Hardhead, green sturgeon, San Joaquin roach, Sacramento splittail, steelhead, and Chinook salmon may occur in the San Joaquin River and the lower reaches of the Tuolumne River. The timing and quality of effluent discharged from the Jennings Facility are currently subject to Waste Discharge Requirements (WDRs) enforced by the California Regional Water Quality Control Board. While improvements to the City's treatment plant facilities may result in year-round discharges to the San Joaquin River in the vicinity of the Jennings Facility, these discharges would also be subject to WDRs. These requirements would ensure that the timing and quality of discharges to the river would not degrade water quality and significantly impact fish or wildlife species. Therefore, impacts to hardhead, green sturgeon, San Joaquin roach, Sacramento split-tail, steelhead, and Chinook salmon in the San Joaquin River would be less than significant. No mitigation measures are required.

Impact BIO-12 (impacts to fish species of special concern). Upgrading activities of the Jennings Facility may result in changes to treated effluent into local rivers (*less-than-significant impact and no mitigation required*).

Cumulative Impacts. Loss of nesting and foraging habitat due to agricultural and urban expansion has greatly reduced the breeding range and abundance of Swainson's hawk and burrowing owl in California. Modesto, as the largest city in Stanislaus County, is expected, and planned, to accommodate a substantial share of the County's projected population growth[clxiii]. Development in the Modesto area under the Urban Area General Plan would convert approximately 26,100 acres of agricultural land identified by the California Department of Conservation as either Prime Farmland, Unique Farmland, or farmland of state or local importance[clxiv]. A portion of this development would be facilitated by improvements and expansion of the wastewater collection and treatment facilities. In addition, construction of some projects in the Wastewater Master Plan Update could contribute to loss of these habitats.

Considering agricultural conversion in the Modesto area, conversion of suitable Swainson's hawk foraging habitat and suitable burrowing owl habitat within the would contribute to significant cumulative impacts to Swainson's hawks and burrowing owls.

Impact BIO-13 (growth facilitated by the project would result in cumulative loss of Swainson's hawk and burrowing owl habitat (*significant impact and mitigation required*).

Implementation of Mitigation Measures BIO-2, BIO-5 and BIO-6 would reduce these cumulative impacts to less-than-significant levels if applied to construction activities for the proposed project and to individual development projects as they are approved.

4.5 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

INTRODUCTION

This report addresses air quality impacts associated with the proposed wastewater system in Modesto. Project elements facilitated by the Master Plan are anticipated to include collection system improvements (upgrades to pipes and pump stations), treatment Facility improvements at the Primary and Secondary Facilities, and operation and maintenance activities at existing and proposed facilities. Because the Plan Update would not change travel patterns in the area, mobile emissions of criteria air pollutants would not increase. However, construction of the projects would emit air pollutants. This analysis was conducted following guidance provided by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

This section of the MEIR was prepared by Illingworth & Rodkin dated December 20, 2013 and included in Appendix 8.4 of the MEIR.

ENVIRONMENTAL SETTING

Background. The project is located in the San Joaquin Valley Air Basin. Ambient air quality standards have been established at both the State and Federal level. The San Joaquin Valley meets all ambient air quality standards with the exception of ground level ozone and fine particulate matter ($PM_{2.5}$). The Valley is classified as attainment under the federal standards for respirable particulate matter (PM_{10}); however, it is classified as nonattainment under the more stringent State standard.

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_X). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the San Joaquin Valley's attempts to reduce ozone levels. High ozone levels were recorded in the San Joaquin Valley. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant in the San Joaquin Valley. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm)

or micrograms per cubic meter ($\mu g/m^3$). Modesto is located in the San Joaquin Valley, where winds are predominantly up-valley (flowing from the north) in all seasons, but more so in the summer and spring months. Winter and fall are characterized by mostly light and variable wind flow. Air temperatures are cooler and in the winter and hotter in the summer. Daytime temperatures in the summer often approach or exceed 100 degrees, with lows in the 60s. In the winter, daytime temperatures are usually in the 50s, with lows around 35 degrees. Radiation fog is common in the winter, and may persist for days. Partly to mostly cloudy days are common in winter, as most precipitation received in the Valley falls from November through April.

The pollution potential of the San Joaquin Valley is very high. The San Joaquin Valley has one of the most severe air pollution problems in the State and the Country. Surrounding elevated terrain in conjunction with temperature inversions frequently restrict lateral and vertical dilution of pollutants. Abundant sunshine and warm temperatures in late spring, summer, and early fall are ideal conditions for the formation of ozone, where the Valley frequently experiences unhealthy air pollution days. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high PM_{10} concentrations and elevated carbon monoxide levels.

N**ational and state ambient air quality standards**. The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

As required by the Federal Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter, including respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$), sulfur oxides, and lead. Pursuant to the California Clean Air Act, the State of California has established the California Ambient Air Quality Standards (CAAQS). Relevant State and Federal standards are summarized in Table 4.5-1.

Air Quality Monitoring Data. The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population. The California Air Resources Board (CARB), in cooperation with SJVAPCD, monitors air quality throughout the San Joaquin Valley Air Basin. The closest monitoring station to the project site is in Modesto, located at 814 14th Street. NO_2 concentrations were not available at Modesto, so reporting values from the S. Minaret Street monitoring station in Turlock were used. Summarized air pollutant data for this station is provided in Table 4.5-2. This table shows the highest air pollutant concentrations measured at the station over the three-year period from 2010 through 2012.

Table 4.5-1. Relevant California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone	8-hour	0.070 ppm ($137\ \mu g/m^3$)	0.075 ppm ($147 \mu g/m^3$)
	1-hour	0.09 ppm ($180\ \mu g/m^3$)	—
Carbon monoxide	1-hour	20 ppm ($23\ mg/m^3$)	35 ppm ($40\ mg/m^3$)
	8-hour	9.0 ppm ($10\ mg/m^3$)	9 ppm ($10\ mg/m^3$)
Nitrogen dioxide	1-hour	0.18 ppm ($339\ \mu g/m^3$)	0.100 ppm ($188\ \mu g/m^3$)
	Annual	0.030 ppm ($57\ \mu g/m^3$)	0.053 ppm ($100\ \mu g/m^3$)
Sulfur Dioxide	1-hour	0.25 ppm ($655\ \mu g/m^3$)	0.075 ppm ($196\ \mu g/m^3$)
	24-hour	0.04 ppm ($105\ \mu g/m^3$)	0.14 ppm ($365\ \mu g/m^3$)
	Annual	—	0.03 ppm ($56\ \mu g/m^3$)
Particulate Matter (PM_{10})	Annual	$20\ \mu g/m^3$	—
	24-hour	$50\ \mu g/m^3$	$150\ \mu g/m^3$
Particulate Matter ($PM_{2.5}$)	Annual	$12\ \mu g/m^3$	$12\ \mu g/m^3$
	24-hour	—	$35\ \mu g/m^3$

Notes: ppm = parts per million mg/m3 = milligrams per cubic meter μg/m3 = micrograms per cubic meter

Source: Illingworth & Rodkin, 2013

Table 4.5-2. Highest Measured Air Pollutant Concentrations in Modesto & Turlock

Pollutant	Average Time	Measured Air Pollutant Levels		
		2010	2011	2012
Ozone (O_3)	1-Hour	**0.105 ppm**	**0.091 ppm**	**0.104 ppm**
	8-Hour	0.081 ppm	0.078 ppm	0.091 ppm
Carbon Monoxide (CO)	8-Hour	1.78 ppm	2.71 ppm	2.10 ppm
Nitrogen Dioxide (NO_2)[1]	1-Hour	50 ppm	54 ppm	61 ppm
	Annual	10 ppm	ND	ND
Respirable Particulate Matter (PM_{10})	24-Hour	**58.9 ug/m^3**	**73.5 ug/m^3**	**74.6 ug/m^3**
	Annual	**22.1 ug/m^3**	**25.5 ug/m^3**	**25.6 ug/m^3**
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	**53.2 ug/m^3**	**71.7 ug/m^3**	**62.3 ug/m^3**
	Annual	**12.2 ug/m^3**	**14.6 ug/m^3**	11.9 ug/m^3

Source: CARB, 2012.

Notes: ppm = parts per million and ug/m^3 = micrograms per cubic meter.
Values reported in bold exceed ambient air quality standard.
ND = No data.
[1]Data reported from Turlock Monitoring Station.

Ambient Air Quality Status. Areas with air pollutant levels that exceed adopted air quality standards are designated as "nonattainment" areas for the relevant air pollutants. Nonattainment areas are sometimes further classified by degree (marginal, moderate, serious, severe, and extreme for ozone, and moderate and serious for carbon monoxide and PM_{10}) or status ("nonattainment-transitional"). Areas that comply with air quality standards are designated as "attainment" areas for the relevant air pollutants. "Unclassified" areas are those with insufficient air quality monitoring data to support a designation of attainment or nonattainment, but are generally presumed to meet the ambient air quality standard. State Implementation Plans must be prepared by states for areas designated as federal nonattainment areas to demonstrate how the area will come into attainment of the exceeded federal ambient air quality standard. The San Joaquin Valley is considered an extreme nonattainment area for ozone under the NAAQS and severe nonattainment for ozone under the CAAQS. The Valley is also designated as nonattainment for $PM_{2.5}$ under both the NAAQS and CAAQS. For PM10, the Valley is designated nonattainment under the CAAQS, but is designated an attainment-maintenance area under the NAAQS. The region is designated attainment or unclassified for all other ambient air quality standards. The attainment status for the Valley with respect to various pollutants of concern is displayed in Table 4.5-3.

Table 4.5-3. Plan Area Attainment Status

Pollutant	Federal Status	State Status
Ozone (O_3) – 1-Hour Standard	No Federal Standard	Severe Nonattainment
Ozone (O_3) – 8-Hour Standard	Extreme Nonattainment	Nonattainment
Respirable Particulate Matter (PM_{10})	Attainment-Maintenance	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)[1]	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment-Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Sulfates and Lead	No Designation	Attainment
Hydrogen Sulfide	No Designation	Unclassified
Visibility Reducing Particles	No Designation	Unclassified

Notes: [1] The Valley is designated nonattainment for the 1997 federal $PM_{2.5}$ standards. EPA released final designations for the 2006 $PM_{2.5}$ standards (effective in 2009), designating the Valley as nonattainment.
Source: Illingworth & Rodkin, 2013

Sensitive Receptors. There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. The closest sensitive receptors are residences located to the north of the Sutter Facility on Garden Avenue, residences adjacent to the proposed 10-inch sewer main route along Oakdale Road and Sylvan Avenue, and residences adjacent to the proposed River Trunk realignment along Tuolumne Boulevard and Colorado Avenue. For the River Trunk Lift Station, the closest sensitive receptor is the Tuolumne Christian Daycare located approximately 475 feet north of the proposed site. The closest sensitive receptor to the Jennings facility is a farmhouse located approximately 0.25 miles east of the site.

Toxic Air Contaminants. Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of diesel particulate matter (DPM). Several of these regulatory programs affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles. The regulation requires affected vehicles to meet specific performance requirements between 2012 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

The SJVAPCD is the regional agency tasked with managing air quality in the region. At the State level, CARB (a part of the California Environmental Protection Agency) oversees regional air district activities and regulates air quality at the State level. The SJVAPCD published CEQA Air Quality Guidelines are used in this assessment to evaluate air quality impacts of projects.[1]

REGULATORY FRAMEWORK

Federal Regulations

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). While the United States signed the Kyoto Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the United States announced a strategy to reduce the GHG intensity of the American

[1] SJVAPCD, 2012, op. cit.

economy by 18 percent over a 10-year period from 2002 to 2012. At this time, there are no federal regulations or policies pertaining to GHG emissions that relate to the proposed projects.

State Regulations

The State of California is concerned about GHG emissions and their effect on global climate change. The State of California recognizes that "there appears to be a close relationship between the concentration of GHGs in the atmosphere and global temperatures" and that "the "evidence for climate change is overwhelming." The effects of climate change on California, in terms of how it would affect the ecosystem and economy, remain uncertain. The State of California has many areas of concern regarding climate change with respect to global warming. According to the 2006 Climate Action Team Report, the following climate change effects and conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, affecting the state's water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit (°F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution standards are exceeded in most urban areas;
- Coastal erosion along the length of California and seawater intrusion into the Sacramento River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.
-

Assembly Bill 1575 (1975). In 1975, the Legislature created the California Energy Commission (CEC). The CEC regulates electricity production that is one of the major sources of GHGs.

Title 24, Part 6 of the California Code of Regulations (1978). The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Assembly Bill 1493 (2002). Assembly Bill (AB) 1493 required the California Air Resources Board (CARB) to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks.

State of California Executive Order S-3-05 (2005). The Governor's Executive Order established aggressive emissions reductions goals: by 2010, GHG emissions must be reduced to 2000 levels; by 2020, GHG emissions must be reduced to 1990 levels; and by 2050, GHG emissions must be reduced to 80 percent below 1990 levels.

In June 2005, the Governor of California signed Executive Order S-3-05, which identified the California Environmental Protection Agency (Cal/EPA) as the lead coordinating State agency for establishing climate change emission reduction targets in California. A "Climate Action Team," a multi-agency group of State agencies, was set up to implement Executive Order S-3-05. Under this order, the State of California plans to reduce GHG emissions to 80 percent below 1990 levels by 2050. GHG emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006.

Assembly Bill 32, California Global Warming Solutions Act (2006). AB 32, the Global Warming Solutions Act of 2006, codifies the State of California's GHG emissions target by directing CARB to reduce the state's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, CARB, CEC, CPUC, and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State of California's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It required CARB and other state agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of carbon dioxide equivalent ($MMTCO_2e$) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008). The State of California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 would develop emissions-reduction goals in which regions can apply in planning activities. SB 375 provides incentives for local governments and developers to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows developers to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable

community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB would work with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Regional

In August 2008, SJVAPCD's Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies and project proponents in assessing and reducing the impacts of project-specific GHG emissions on global climate change. On December 17, 2009, SJVAPCD adopted its Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.[2] The guidance and policy rely on the use of performance based standards, or Best Performance Standards (BPS), to mitigate and assess the significance of project-specific greenhouse gas emissions on global climate change.

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MASTER EIR

The 2007 Master EIR identified the following potentially significant air quality impacts and included the following mitigation measures.

- Impact G.1 found that emissions of criteria pollutants during construction of wastewater systems would contribute to existing violations of ambient air quality standards. Adherence to Mitigation Measure G.1 required that, among other provisions, City contractors review local air quality regulations prior to commencement of construction, review new construction technologies to determine the feasibility of low-polluting equipment, limit speed of construction equipment on unpaved roads, limit the amount of graded area at any one time, use alternative-fueled vehicles where feasible, minimize idling time of equipment and limit construction during period of high pollutant concentrations. Even with adherence to Mitigation Measure G.1, this impact was found to be significant and unavoidable.

- Impact G.2 identified an impact with emission of criteria pollutants during operations of propose wastewater system improvements would contribute to existing violations of the ambient air quality standards in the region. Mitigation Measure G.2 required the City to abide by conditions of SJVAPCD air quality permits; however, even with adherence to this requirement, this impact was deemed significant and unavoidable.

[2] SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.

- Impact G.5 noted that residential and non-residential growth that would occur in the Modesto Planning Area would cause direct and cumulatively considerable air quality impacts as identified in the City's Urban Area General Plan. Mitigation Measure G.5 required that the mitigation measures contained in the Urban Area General Plan related to carbon monoxide and other pollutants be enforced. This would reduce cumulative air quality impacts, but not to a less-than-significant level, so that Impact G.5 remained significant and unavoidable.

- Impact G.6 found that construction of wastewater treatment facilities included in the Master Plan would cause a cumulative considerable net increase in air pollutants in the San Joaquin Valley, which is a non-attainment area. Adherence to Mitigation Measures G.1 and G.2 would reduce this impact but not to a less-than-significant level.

The topic of greenhouse gas emissions was not analyzed in the 2007 MEIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The proposed project would include new wastewater capital improvement projects that could contribute to air and greenhouse gas emissions. These are analyzed below.

Significance criteria. The SJVAPCD has developed the *Guide for Assessing and Mitigating Air Quality Impacts*, also known as the GAMAQI. The current GAMAQI was adopted by the SJVAPCD Board in 1998 and last revised in 2002. However, SJVAPCD has recently published the Draft GAMAQI in 2012.[3] While the Draft 2012 GAMAQI has not yet been adopted by the SJVAPCD board, they represent the latest guidance for addressing air quality impacts in the SJVAB. Changes to the GAMAQI are primarily administrative in nature to update air basin information, attainment status, and general guidance to reflect updated conditions. The following thresholds of significance, from the SJVAPCD's GAMAQI, are used to determine whether a proposed project would result in a significant air quality impact:

- Regional significance thresholds. SJVACD has identified regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SJVAB. Table 4 lists SJVAPCD's regional significance thresholds.
- Localized Air Pollutant Concentrations. Emissions of any criteria air pollutant that would exceed the applicable threshold of significance identified in Table 4 or that would generate emissions that equal or exceed 100 lbs per day is considered to result in elevated concentrations of air pollutants that have the potential to exceed the AAQS.
- Localized CO Concentrations. Traffic emissions associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the ambient air quality standards (i.e., CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour).

[3] SJVAPCD, 2012, op. cit.

- Toxic Air Contaminants and Health Risk. Exposure to toxic air contaminants (TACs) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual would exceed 10 in 1 million or would result in a Hazard Index greater than 1 for non-cancer health effects.
- Odors. Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors through development of a new odor source or placement of receptors near an existing odor source. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine the presence of a significant odor impact. Rather, SJVAPCD recommends that odor analyses strive to fully disclose all pertinent information.

With respect to cumulative air quality impacts, the GAMAQI provides that any proposed project that would individually have a significant air quality impact (i.e. exceed significance thresholds for ROG, NO_X, or PM_{10}) would also be considered to have a significant cumulative impact.

Table 4.5-4. SJVAPCD Regional Significance Thresholds

Criteria Air Pollutant	Construction and Operational Significance Thresholds (Tons/Year)
ROG	10
NO_x	10
PM_{10}	15
$PM_{2.5}$	15

Source: San Joaquin Valley Air Pollution Control District (SJVAPCD), 2012. Draft Guide for Assessing and Mitigating Air Quality Impacts.

Under CEQA Guidelines, any project that would conflict with or obstruct a regional Clean Air Plan would be considered significant.

Regarding greenhouse gas emissions, the SJVAPCD has published recommended methodology for determining the significance of a project's contribution to global climate change. According to the Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,[4] projects requiring preparation of an EIR would require quantification of project-specific GHG emissions. Projects implementing Best Performance Standards (BPS) or achieving at least a 29 percent GHG emission reduction compared to Business As Usual (BAU) would be

[4] SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.

determined to have a less than significant individual and cumulative impacts for GHG. There are no thresholds applicable to GHG emissions associated with Plans.

The following significant air quality impacts and mitigation measures are identified in this MEIR.

Contribution to cumulatively considerable air pollutants. The San Joaquin Valley is considered a non-attainment area for ground-level ozone and fine particulate matter ($PM_{2.5}$) under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM_{10}) under the California Clean Air Act, but not the Federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict emissions from construction of the site assuming full build out of the project components. However, at this time, project-specific information is not available to accurately calculate operational emissions due to a potential increase in energy use from new wastewater treatment equipment. Because no changes in traffic volumes from employees or maintenance activity are expected, mobile operational emissions would not increase.

Construction activities would temporarily affect local air quality, causing a temporary increase in particulate dust and other criteria pollutants. Dust emissions during periods of demolition and construction would increase particulate concentrations at neighboring properties, and emissions from construction equipment exhaust, and worker and vendor vehicle trips would increase pollutant concentrations locally and regionally. This impact is potentially significant, but is normally mitigable.

Construction Period Emissions. Five main construction projects are envisioned as part of the Master Plan: (1) the 10 inch sewer main on Oakdale Road, (2) relocation of the existing primary treatment equipment from the Sutter facility to the Jennings facility, (3) the River Trunk Lift Station, (4) realignment of the River Trunk collection system and (5) parking lot paving and installation of a septic waste receiving station at the Sutter facility. Construction would occur over the course of an approximate 6-year period from Spring 2014 to Fall 2020. CalEEMod provided annual emissions for the assumed construction. CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker and vendor traffic. A construction build-out scenario, including anticipated schedule and equipment to be used and soil hauling volumes was provided by the project applicant. Appendix 8.3 includes the provided information and the CalEEMod output for construction emissions.

Land Use Descriptions. A separate CalEEMod model was run for each of the five project components. Land uses were input into CalEEMod as "User Defined Industrial." For (2) relocation, an approximate square footage (s.f.) provided by the City of Modesto of 20,875 s.f. was entered for all building improvements. For (3), the River Trunk Lift

Station, 700 s.f. was entered. The other project components would not include new building construction.

Table 4.5-5 shows annual construction emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ exhaust during construction of the five project components. As indicated in Table 4.5-5, predicted project emissions would not exceed the SJVAPCD recommended significance thresholds under either option.

Table 4.5-5. Construction Period Emissions (tons/year)

Year	ROG	NOx	PM_{10} Exhaust[2,3]	$PM_{2.5}$ Exhaust[2,3]
2014 – Project components (1) and (5)	0.07	0.59	0.04 (exhaust) 0.01 (dust) 0.05 (total)	0.04 (exhaust) < 0.01 (dust) 0.04 (total)
2016 – Project component (4)	0.09	1.08	0.04 (exhaust) 0.07 (dust) 0.11 (total)	0.04 (exhaust) 0.02 (dust) 0.05 (total)
2017– Project component (4)	0.11	1.25	0.05 (exhaust) 0.07 (dust) 0.13 (total)	0.05(exhaust) 0.02 (dust) 0.07 (total)
2018 – Project components (2) and (3)	0.34	3.52	0.18 (exhaust) 0.94 (dust) 1.11 (total)	0.17 (exhaust) 0.48 (dust) 0.65 (total)
2019 – Project components (2) and (3)	0.15	1.43	0.08 (exhaust) 0.32 (dust) 0.40 (total)	0.08 (exhaust) 0.16 (dust) 0.24 (total)
2020 – Project components (2) and (3)	0.22	0.70	0.04 (exhaust) 0.02 (dust) 0.06 (total)	0.04 (exhaust) <0.01 (dust) 0.04 (total)
Highest Annual Emissions	0.34	3.52	1.11	0.65
SJVAPCD Thresholds (pounds per day)	*10*	*10*	*15*	*15*
Exceed Threshold?	*No*	*No*	*No*	*No*

Notes: No construction activities are anticipated for 2015.

[1] Emissions do not include the effects of implementing Rule 9510 (Indirect Source Review) or Rule 9410 (Employer Based Trip Reduction).

[2] While fugitive dust emissions are excluded from ISR emissions estimates in the AIA, these emissions are considered in the CEQA impact assessments. Consequently, total emissions are compared to SJVAPCD's significance thresholds.

[3] Total may not add to exactly 100 percent due to the effects of rounding.

Consistency with SJVAPCD Regulation VIII – Fugitive Dust Control. As part of the development process for individual, site-specific projects under the project, applicants would be required to develop and obtain approval of a Fugitive Dust Control Plan (from the City or SJVAPCD, as appropriate) to mitigate, as feasible, fugitive dust emissions to satisfy the requirements set forth under then-applicable SJVAPCD Rules and Regulations, including, without limitation, Regulation VIII. The effect of this rule would, at a minimum, reduce PM_{10} fugitive dust emissions by approximately 55 percent.

Consistency with SJVAPCD Rule 9510. The SJVAPCD Indirect Source Review Rule (Rule 9510) applies to construction of the proposed project. As part of the development process for individual, site-specific project components, each applicant would be required, to the extent specific development at issue is subject to Rule 9510, to prepare a detailed air impact assessment (AIA). To the extent applicable under Rule 9510 for each such individual development, SJVAPCD requires a calculation of the construction and operational emissions from the development at issue. The purpose of the AIA is to confirm a projects's construction exhaust emissions and therefore be able to identify appropriate mitigation, either through implementation of specific mitigation measures or payment of applicable off-site fees. Under Rule 9510, each project that is subject to this Rule is required to reduce construction exhaust emissions by 20 percent for NO_X and 45 percent for PM_{10}[5] or pay offset mitigation fees for emissions that do not achieve the mitigation requirements. Using less-polluting construction equipment, such as newer equipment or retrofitting older equipment, reduces on-site construction emissions. A combination of on-site and off-site measures can be implemented to meet the overall emission reduction requirements. Offset fees would be calculated in accordance with the procedures identified in the Rule 9510 and approved by the SJVAPCD.

Operational Period Emissions. SJVAPCD adopted Rule 2201, *New and Modified Stationary Source Review*, to control emissions from new stationary sources and all modifications to existing stationary sources which are subject to SJVAPCD's permit requirements (i.e. "permit projects" for which the SJVAPCD is the lead agency). Permit projects that exceed the Source Performance Standards are required to install Best Available Control Technology (BACT) to control emissions to the maximum extent practicable. Rule 9510 also applies to operational emissions, requiring reductions of 33.3 percent for NO_X and 50 percent for PM_{10}.

Long-term operational emissions would be generated from the day-to-day operations associated with the various elements that are part of the project. Operational emissions for land use development projects are typically distinguished as mobile, energy, and area sources of emissions. Mobile-source emissions are those associated with vehicles coming to and leaving a project site, such as employees and delivery vehicles. Energy sources of emissions are associated with natural gas combustion for space and water heating. Area-source emissions are those associated with landscape maintenance activities, use of consumer products, and periodic architectural coatings. Because no changes in traffic volumes from employees or maintenance activity are expected, mobile operational emissions would not increase. The impacts from future operational (permitted sources) are not considered because (1) source information is not known at this time and (2) permitted sources are required to adhere to additional permitting mandates through the SJVAPCD. Specifically, for stationary sources, the SJVAPCD would evaluate them under their New and Modified Source Review program to ensure that emissions from permitted sources do not exceed the federal standards (which also ensure they do not generate a significant health risk). Specifically, Regulation II (Permits) requires stationary sources to obtain permits, and includes Rule 2010 that specifies requirements for individual sources, Rule 2201 for review of new or modified

[5] While this rule would not directly affect ROG emissions, it would likely indirectly reduce ROG.

stationary sources and implements emissions reduction and banking requirements specified in Rule 2301. According to SJVAPCD GAMAQI, Regulation II ensures that stationary source emissions (permitted sources) will be reduced or mitigated below SJVAPCD significance thresholds. While these sources may incrementally contribute to the Plan Update's inventory, individually these emissions sources are considered less than significant because they would be required by SJVAPCD permitting requirements to meet the standards identified above.

Based on the above, cumulatively considerable net increases of criteria pollutants for which the project region is non-attainment under an applicable Federal or State ambient air quality standard would be less-than-significant and no mitigation measures are needed.

Violation of any air quality standard or contribute substantially to an existing or projected air quality violation. As discussed above, the project would not exceed SJVAPCD standards for construction-period emissions. Operational period emissions would be computed once project-specific information is available for project components that include stationary equipment. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels are at healthy levels in the San Joaquin Valley. As a result, the region has been designated as attainment for the standard. As discussed above, the proposed project would not change travel patterns in the area and, as a result, would not have a significant impact with respect to localized CO hotspots. No mitigation measures are required.

Exposure of sensitive receptors to substantial pollutant concentrations. Project impacts related to increased health risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. The proposed project would not introduce new sensitive receptors (residences or similar uses) to the project component sites.

Project Operations. As discussed above, the proposed project would not change travel patterns in the area, including from maintenance and delivery trucks and, as a result, would not have a significant impact with respect to community health risk.

Stationary sources, besides the clarifiers, digesters, sludge handling equipment, gas handling equipment, and the septic waste receiving station have not been identified. It is possible that the project could include diesel-powered emergency generators. Specific plans or equipment selection of these generators are not known at this time. If installed, diesel generators would be a source of air pollutant emissions during routine testing. These generators are typically tested for 15 minutes to one hour each month, resulting in emissions of air pollutants. The primary emissions are NO_X and diesel particulate matter. Since these types of generators would likely exceed 50 horsepower, they would be subject to SJVAPCD permitting requirements. Sources of air pollutant emissions

complying with all applicable SJVACPD regulations generally will not be considered to have a significant air quality impact.

Construction Period. Emissions from construction of the proposed project would temporarily expose nearby sensitive receptors (i.e., residences) to elevated levels of TACs. Construction equipment and trucks fueled by diesel emit diesel particulate matter or DPM, which is a TAC. The closest sensitive receptors are residences located to the north of the Sutter Facility on Garden Avenue, residences adjacent to the proposed 10-inch sewer main route along Oakdale Road and Sylvan Avenue and residences adjacent to the proposed River Trunk realignment along Tuolumne Boulevard and Colorado Avenue. For the River Trunk Lift Station, the closest sensitive receptor is the Tuolumne Christian Daycare located approximately 475 feet north of the proposed site. The closest sensitive receptor to the Jennings facility is a farmhouse located approximately 0.25 miles east of the site.

All project components would be individually constructed over durations of time ranging from about five to eight months, except for the relocation of the primary treatment equipment from the Sutter facility to the Jennings facility. Relocation-related construction activity would occur over an approximate 27-month construction period. Construction work along sewer main routes and pipeline replacement would progress steadily and would not be expected to remain in any one spot for a substantial amount of time. Construction work at the Sutter and Jennings facilities would be temporary and would not be expected to result in a significant community health risk impact. This impact would therefore be less-than-signficant.

Create objectionable odors affecting a substantial number of people. Some construction activities may cause localized odors that would be temporary and are not anticipated to result in frequent odor complaints.

The Sutter and Jennings facilities are the two project elements with the potential to result in operational odor impacts. To determine the existing odor environment surrounding these two facilities, odor complaint records were obtained from SJVAPCD for the most recent three-year period.[6] A review of the complaint records indicated two confirmed odor complaints in the vicinity of Sutter facility and one confirmed odor complaint in the vicinity of the Jennings facility over three years. These are not considered to be frequent complaints.

The project would include relocation of primary sewage treatment equipment from the Sutter facility to the Jennings facility and to install a septic receiving station at the Sutter facility. Because the Jennings facility is further from residences then the Sutter facility (0.25 miles compared with 500 feet from the closest Sutter facility building or structure to residences) and because residences are much more sparse in the vicinity of the Jennings facility, it is concluded that odor impacts would be relatively less under the proposed project. In addition, one to two confirmed odor complaints in the vicinity of a wastewater treatment facility over the course of a three-year period would not be considered substantial. However, upset or new conditions could lead to odors,

[6] Personal correspondence between Joshua Carman, Illingworth & Rodkin, Inc., and Theresa Haywood, San Joaquin Valley Air Pollution Control District, December 4, 2013.

including the proposed septic receiving station. Therefore, the City of Modesto should ensure that proper measures are taken to prevent adverse odor impacts. The impact is considered potentially significant.

Impact AIR-1 (creation of objectionable odors affecting a substantial number of people). Some project components, including continued operation of the Jennings Road and Sutter facilities, could generate odors that would affect surrounding sensitive receptors (*potentially significant impact and mitigation required*).

Adherence to the following measure will reduce odor impacts on surrounding uses to a less-than-significant level by requiring the City to develop and implement an odor control plan for the two wastewater treatment facilities.

Mitigation Measure AIR-1 (creation of objectionable odors affecting a substantial number of people). Prior to operation of future facilities that could generate substantial odors, the City shall develop an Odor Control Plan and install odor control systems. The Plan shall specify the installation of necessary odor control facilities and include measures to ensure on-going maintenance of odor control facilities.

Wastewater treatment facilities are a source of odors that can result in odor complaints. Modern facilities typically can manage odors to prevent complaints. An odor control plan should be instated that would identify measures and procedures for dealing with and responding to odor complaints. Wastewater treatment design specifications would contain requirements for odor control systems. The requirements may include: enclosed head works with enclosed sludge removal and storage, ultra-violet disinfection, and constantly aerated ponds. Air from the enclosed headworks could be exhausted through an odor control unit. If necessary, solid material should only be removed from the stream in this enclosed area. The solids should be stored within an enclosed area until they are transported off site. When sewage leaves the headworks, it typically moves into a membrane bioreactor that adds a large amount of oxygen to grow the necessary biomass and oxidize organic material that can result in odors. Provisions should be made that if odors occur, more oxygen can be added to the process to eliminate odors. Processing of waste sludge could be done inside a building with a ventilation system that would exhaust air through an odor control unit. If necessary, the dewatered sludge could be stored in this building.

In addition, the proposed septic receiving station should be located as far practical and feasible from residences to the north on Garden Avenue, and at a distance of at least 200 feet. A spill clean-up program shall be in place to immediately deal with and clean up any sewage spill to reduce the potential for odor impacts to neighboring residences. As necessary, the septic receiving station could be enclosed to prevent or minimize potential odor impacts.

Conflict with applicable air quality plan. The GAMAQI does not include methodologies for assessing the effect of a plan on consistency with clean air plans developed by the SJVAPCD. Regional clean air plans developed by SJVAPCD rely on local land use designations to develop population and travel projections that are the

basis of future emissions inventories. Air pollution control plans are aimed at reducing these projected future emissions. As discussed above, vehicle trips are not expected to increase due to implementation of the project and the project is not anticipated to result in a substantial and unplanned level of growth. Therefore, the project would not conflict with or obstruct implementation of efforts outlined in the region's air pollution control plans to attain or maintain ambient air quality standards. There would therefore be no impact with respect to this topic.

Greenhouse gas emission impacts. Gases that trap heat in the atmosphere, greenhouse gases (GHGs), regulate the earth's temperature. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide and water vapor but there are also several others, most importantly: methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities.

- Carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion.
- Nitrous oxide is associated with agricultural operations such as fertilization of crops.
- Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock) and landfill operation.
- Chlorofluorocarbons were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with carbon dioxide being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of carbon dioxide equivalents (CO_2e).

In August 2008, SJVAPCD's Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies and project proponents in assessing and reducing the impacts of project-specific GHG emissions on global climate change. On December 17, 2009, SJVAPCD adopted its Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.[7] The guidance and policy rely on the use of performance based standards, or Best Performance Standards (BPS), to mitigate and assess the significance of project-specific greenhouse gas emissions on global climate change.

Construction Period Emissions. The same CalEEMod model run that was used to calculate construction period criteria pollutants was also used to estimate GHG

[7] SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.

emissions from construction associated with the project. Under the construction scenario described above, construction of the project would emit up to 381 metric tons (MT) of CO_2e during 2018. Neither the City of Modesto nor the SJVAPCD have an adopted threshold for temporary construction activity.

Operational Period Emissions. Long-term operational emissions would be generated from the day-to-day operations of the proposed project. As discussed above, project-specific information is not available at this time to accurately calculate operational GHG emissions due to a potential increase in energy or water use from new wastewater treatment equipment. Because no changes in traffic volumes from employees or maintenance activity are expected, mobile operational emissions would not increase. Because details, such as wastewater stationary equipment type and horsepower of individual project components are not known, operational emissions cannot be calculated at this time. This represents a potentially significant impact.

Impact AIR-2 (greenhouse gas emissions). Future operations of wastewater facilities could emit greenhouse gasses exceeding the regional standard of significance (*potentially significant impact and mitigation required*).

Adherence to the following measure will reduce odor impacts on surrounding uses to a less-than-significant level by requiring the City to analyze GHG emissions of future project components, once the details of such components are identified.

Mitigation Measure AIR-2 (greenhouse gas emissions). Each individual project component that includes new stationary equipment, such as the relocation of the primary treatment equipment from the Sutter facility to the Jennings facility and the proposed River Trunk Lift Station shall be analyzed for significant GHG impacts. For each project-level analysis, appropriate BPS will be implemented or a 29 percent GHG emission reduction compared to BAU will be demonstrated. Means of mitigating GHG impacts to a less-than-significant level include, but are not limited to, technological controls for stationary sources (such as for boilers, generators, and process heaters) and the GHG emission reduction measures (such as energy efficiency, transportation, and site design measures) for development projects listed in the SJVAPCD CCAP.[8]

[8] SJVAPCD, 2009. *Final Staff Report – Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act*. December 17.

4.6 NOISE

INTRODUCTION

This section of the MEIR analyzes potentially significant noise impacts from implementation of wastewater system components as set forth in the Project Desciption chapter

This DSEIR section is based on a project specific noise study prepared by Illingworth & Rodkin dated December 4, 2013 and the full text of the study is included in Appendix 8.5 of the MEIR.

ENVIRONMENTAL SETTING

Environmental noise fundamentals. Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in Table 1 of the attached acoustic report (see Appendix 8.5).

Most of the sounds that are heard in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-weighted levels measured in the environment and in industry are shown in Table 2 for different types of noise. Table 2 is contained in the full noise report in Appendix 8.5.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{01}, L_{10}, L_{50}, and L_{90}, are commonly used. They are the A-weighted noise levels equaled or exceeded during 1%, 10%, 50%, and 90% of a stated time period. A single number descriptor called the L_{eq} is also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable.

Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, DNL (day/night average sound level), was developed. The DNL divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes both an evening and nighttime weighting.

Table 1 contained in Appendix 8.5 contains definitions of terminology used in this EIR.

Existing noise environment. Some activities and land uses are more sensitive to noise than others. The City of Modesto's Urban Area General Plan ("General Plan") identifies the various types of land uses that are considered noise-sensitive. These sensitive receptors include residences, hospitals, parks, churches, and schools.

The proposed Wastewater Master Plan Update includes a collection system improvement titled the "River Trunk Realignment" located primarily on City property and along Colorado Ave and Tuolumne Ave between the Sutter Wastewater Treatment Facility and a new lift station called the "River Trunk Lift Station" that may be built on the east side of US Highway 99. The City also plans to install a new 10-inch sewer main on Oakdale Road, from the existing terminus of the Sonoma Trunk on Sylvan Avenue to Mable Avenue.

Improvements are also proposed at the Jennings Facility located on Jennings Road and the Sutter Facility. The existing noise environment at sensitive receptors in the vicinity of project components is discussed in this section.

The noise environment in the site vicinity results primarily from vehicular traffic. Illingworth & Rodkin, Inc. completed a series of noise measurements to quantify existing ambient noise levels. The noise monitoring survey consisted of seven short-term (10-minute) noise measurements during the daytime at representative sensitive receptor locations. Noise monitoring data are shown in Table 4.6-1. Measured noise levels were 64 to 65 dBA L_{eq} along Oakdale Road near residences located along the route of the proposed Tivoli Sewer Main, and in a mobile home park on Zeff Road in the vicinity of State Route 99 (Highway 99) near the site for the possible new River Trunk Lift Station. Measured noise levels at the other representative sensitive receptor locations ranged from 49 to 56 dBA L_{eq}, typical of rural and suburban areas not near major roadways.

Table 4.6-1. Noise Measurement Data

Noise Measurement Location (Date, Time)	Project Component	L_{max}	$L_{(1)}$	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	L_{eq}
ST-1: ~140 feet from the center of Oakdale Road at Bridgewood Way. (10/22/2013, 12:00-12:10 p.m.)	Collection System Improvements – Tivoli 10-in. Sewer Main	73	71	69	63	51	65
ST-2: ~170 feet from the center of Sylvan Avenue at Lydia Lane. (10/22/2013, 12:20-12:30 p.m.)	Collection System Improvements – Tivoli 10-in. Sewer Main	65	62	58	53	47	55
ST-3: ~420 feet east of Highway 99 along Zeff Road, near mobile homes. (10/22/13, 1:00-1:10 p.m.)	Lift Station Improvements – Pump Station	71	69	66	64	62	64
ST-4: ~150 feet from the center of Tuolumne Boulevard at Fresno Avenue. (10/22/2013, 1:30-1:40 p.m.)	Collection System Improvements – River Trunk Realignment	64	59	56	50	44	52
ST-5: ~100 feet from the center of Colorado Avenue at Lema Avenue. (10/22/2013, 1:50-2:00 p.m.)	Collection System Improvements – River Trunk Realignment	71	65	56	47	38	53
ST-6: Front of 1421 Garden Avenue. (10/22/2013, 2:10-2:20 p.m.)	Collection System Improvements – River Trunk Realignment and Sutter Facility Improvements – Parking Lot Rehabilitation and Expansion	75	69	57	46	40	56
ST-7: ~Near entrance of Jennings Facility and nearby residences. (10/22/2013, 3:00-3:10 p.m.)	Jennings Facility Improvements – Relocated Primary Treatment Equipment	60	57	53	46	41	49

Notes:
L_{max} - the maximum A-weighted noise level during the measurement period.
L_1, L_{10}, L_{50}, L_{90} - the A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
L_{eq} - the average A-weighted noise level during the measurement period.

REGULATORY BACKGROUND

The State of California, Stanislaus County and the City of Modesto establish guidelines, plans, and policies designed to limit noise exposure at noise sensitive land uses. The State CEQA Guidelines, Appendix G, and the policies contained in the Stanislaus County General Plan and City of Modesto Urban Area General Plan are used as significance criteria in the impact assessment. Applicable criteria are as follows:

State CEQA Guidelines. The significance of environmental noise impacts resulting from a proposed project are evaluated based on the California Environmental Quality Act (CEQA) guidelines. CEQA asks the following applicable criteria.

- 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.
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- 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.
- For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

CEQA does not define what noise level increase would be considered substantial. Typically, project-generated noise level increases of 3 dBA L_{dn} or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard (60 dBA L_{dn} for residential land uses). Where noise levels would remain at or below the normally acceptable noise level standard with the project, noise level increases of 5 dBA L_{dn} or greater would be considered significant.

Stanislaus County General Plan. Goal Two of the Stanislaus County General Plan Noise Element is to "protect the citizens of Stanislaus County from the harmful effects of exposure to excessive noise." Policy Two states "it is the policy of Stanislaus County to develop and implement effective measures to abate and avoid excessive noise exposure in the unincorporated areas of the County by requiring that effective noise mitigation measures be incorporated into the design of new noise generating

and new noise sensitive land uses." The following implementation measure would be applicable to the project:

2. New development of industrial, commercial or other noise generating land uses will not be permitted if resulting noise levels will exceed 60 L_{dn} (or CNEL) in noise-sensitive areas. Additionally, the development of new noise-generating land uses which are not preempted from local noise regulation will not be permitted if resulting noise levels will exceed the performance standards contained within Table 4.6-2 in areas containing residential or other noise sensitive land uses.

Table 4.6-2. Maximum Allowable Noise Exposure-Stationary Noise Sources

	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Hourly L_{eq}, dBA	55	45
Maximum level, dBA	75	65

Source: Stanislaus County General Plan

Each of the noise level standards specified in Table 4.6-2 shall be reduced by five (5) dBA for pure tone noises, noise consisting primarily of speech or music, or for recurring impulsive noises. The standards in Table 4.6-4 should be applied at a residential or other noise-sensitive land use and not on the property of a noise-generating land use. Where measured ambient noise levels exceed the standards, the standards shall be increased to the ambient levels.

Policy Three states "It is the objective of Stanislaus County to protect areas of the County where noise-sensitive land uses are located." The following implementation measure would be applicable to the project:

1. Require the evaluation of mitigation measures for projects that would cause the Ldn at noise-sensitive uses to increase by 3 dBA or more and exceed the "normally acceptable" level, cause the Ldn at noise-sensitive uses to increase 5 dBA or more and remain "normally acceptable", or cause new noise levels to exceed the noise ordinance limits (after adoption).

Stanislaus County Noise Ordinance. The Stanislaus County Noise Control Ordinance (Chapter 10.46 of the Stanislaus County Code) establishes exterior noise level standards in order to control unnecessary, excessive and annoying noise in the county. Construction or maintenance activities performed by or at the direction of any public entity or public utility are specifically exempted from these standards in Section 10.46.080 of the Stanislaus County Code.

City of Modesto, Urban Area General Plan. The City of Modesto strives to reduce noise pollution from development projects. The General Plan's Noise Mitigation Policy for construction states:

a. The City of Modesto shall require construction activities to comply with the City's noise ordinance (Title 4, Chapter 9), and noise-reducing construction practices to be implemented as conditions of approval for development projects where substantial construction-related noise impacts would be likely to occur (e.g., where construction would include extended periods of pile driving, where construction would occur over an unusually long period, or where noise-sensitive uses like homes and schools would be in the immediate vicinity, etc.). The City should consider potential mitigation measures, including, but not limited to, the following:

   (1) Construction equipment and vehicles should be equipped with properly operating mufflers according to the manufacturers' recommendations. Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.

   (2) Equipment that is quieter than standard equipment should be utilized.

   (3) Haul routes that affect the fewest number of people should be selected.

City of Modesto Municipal Code. Generally the Modesto Municipal Code prohibits any noise that can be deemed "loud and raucous." Determining what noises are "loud and raucous" depends on a number of factors such as its volume and duration, whether the nature of the noise is usual or unusual, when the noise occurs, and whether it is recurrent, intermittent, or constant. The Municipal Code prohibits "loud and raucous" construction-related noise before 7:00 a.m. or after 9:00 p.m. daily. It also forbids the loud and raucous operation of many specific types of construction equipment. For example, it prohibits loud and raucous noise from exhaust of any stationary internal combustion engine.

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MEIR

The 2007 MEIR identified the following potentially significant impacts and mitigation measures related to water quality and hydrology.

- Impact H.1 identified an impact with respect to construction of project facilities that would cause a substantial altough intermittent and short-yerm increase in noise levels which would add to noise levels predicted in the Modesto Urban Area General Plan. Adherence to Mitigation Measure H.1 reduced this impact to a less-than-significant level by requiring project contractors to limit hours of constructed between 7 a.m and 9 p.m. Monday-Friday and 9 a.m to 9 p.m on Saturdays, Sundays and holidays. Minor tune-up and servicing of equipment is exempt. The mitigation measure also requires constuction equipment be equipped with mufflers, including air compressors. Stationary equipment should be located as far away as possible from existing residences and other noise sensitive receptors.

- Impact H.4 found that construction of proposed wastewater facilities would

support cumultive develoment in the community that would exceed noise above the City and County noise exposure levels. This impact was deemed significant and unavoidable.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Implementation of the proposed wastewater improvements would result in the following impacts. Mitigation measures are also identified.

Standards of Significance. The following criteria were used to evaluate the significance of environmental noise impacts resulting from the project:

- Operational Noise. The impact would be considered significant for components within the City of Modesto or Stanislaus County if operational noise sources generated by the project would:

  * cause the Ldn to increase by 5 dBA or more but remain below the normally acceptable noise threshold (65 dBA Ldn for residential uses);
  * cause the Ldn to increase by 3 dBA or more and exceed normally acceptable noise threshold.

  Further, the impact would be considered significant for components within San Joaquin County if operational noise generated by the project would exceed the maximum allowable noise exposure limits for stationary noise sources (Table 4.6-1).

- Temporary Construction Noise. A significant short-term noise impact would occur if noise from construction activities would exceed 65 dBA L_{eq} and the ambient noise environment by 5 dBA L_{eq} or more for a period greater than one year.

Significant impacts. The following potentially noise impacts have been identified in this Master EIR.

Operational Noise impacts. On-going operation of proposed wastewater improvements would increase localized noise near wastewater facilities.

Impact NOISE-1 (operational noise). Project operations could substantially increase noise levels at nearby noise sensitive receptors (*potentially significant supplemental impact and mitigation required*).

This analysis of operational noise is based on the conceptual design information provided by the City of Modesto as presented in the project description. Reanalysis and confirmation of noise impacts and findings may be required if subsequent final design plans locate noise-generating equipment closer to receptors than currently proposed.

Collection System Improvements. The operation of proposed collection system improvements would not result in measurable noise levels above ground or cause a permanent change in the noise environment along the project alignment.

Lift Station Improvements. The proposed River Trunk Lift Station would be located southeast of Tuolumne Boulevard approximately 850 feet from the nearest noise sensitive land uses (mobile homes along Zeff Road). Noise levels at the mobile home park are primarily the result of vehicle traffic on State Route 99, South 7th Street, and Zeff Road. Ambient daytime noise levels were measured to be approximately 64 to 65 dBA L_{eq} at these nearest receptors. At night, ambient noise levels would be approximately 5 to 10 dBA L_{eq} lower due to lower traffic volumes on area roadways (Stanislaus County General Plan Support Documentation, Chapter 4 – Noise). The operation of the proposed River Trunk Lift Station would be expected to result in steady noise levels of about 50 dBA at the pump station boundary (approximately 25 feet from the pump station). Assuming 24-hour/ day operation the Ldn would be 56 dBA Ldn. When accounting for attenuation with distance from the noise source, operational noise levels would not be expected to exceed ambient noise levels during the daytime or at night at the nearest receptors along Zeff Road, and would not contribute measurably to the existing ambient noise environment.

Jennings Facility Improvements. Existing primary treatment equipment is proposed to be relocated from the Sutter Facility to the Jennings Facility. The relocated equipment would include primary clarifiers, anaerobic digesters, sludge handling equipment, and digester gas handling equipment. The immediate area surrounding the Facility is agricultural, with a few residences located approximately one-half mile from the facility boundaries. Typical maximum noise levels resulting from the operation of the noise-generating equipment are 85 dBA at a distance of 3 feet. At a distance of one-half mile from the facility, operational noise levels are calculated to be more than 10 dBA below existing background noise levels. Operational noise levels would not exceed 55 dBA L_{eq} during the day or 45 dBA L_{eq} at night, or exceed the maximum instantaneous noise level limits of 75 dBA L_{max} (day) or 65 dBA L_{max} (night). Operational noise levels would not contribute measurably to the existing ambient noise environment.

Sutter Facility Improvements. A new paved parking area and access road are proposed on the west northwest side of the Facility. A modified Facility entrance and new septic receiving station are proposed at the north end of the Facility property near the north the property line. Residences border the Facility property to the north.

The nearest corner of the new paved parking area would be located about 300 feet from the nearest residence located at the intersection of Robertson Road and Sutter Avenue. The noise from intermittent vehicle circulation in the parking area would be at least 15 dBA lower than existing ambient traffic noise, and therefore, would not make a measurable contribution to existing noise levels at the nearest receptor.

Plans for the modified Facility entrance and new septic receiving station are conceptual at this time. Noise from these project elements could result from increased truck activity closer to residences and from new mechanical equipment. The increase in noise at the nearest residences located along Garden Avenue would depend upon the level of trucking activity and the circulation plan, and the locations and noise levels of any new mechanical equipment. This is a potentially significant impact.

Adherence to the following measure will reduce significant noise near the Sutter Facility to a less-than-significant level by requiring a future noise analysis to ensure that City and County noise exposure limits are met for nearby noise receptors.

Mitigation Measure NOISE-1 (operational noise). The following measures apply to the modified Facility entrance and new septic receiving station. Noise from the activities and equipment shall be controlled so as to comply with the noise limits shown in Table 4.6-1. This will limit the increase in the ambient to approximately 3 dBA L_{dn} and minimize possible disturbance due to nighttime noise resulting from mechanical equipment. A noise study shall be prepared when the design for the facility is completed to determine what control measures, if any, are necessary to meet City noise exposure noise limits. These measures may include, but are not limited to, constructing a noise barrier at the property line or around high activity areas, limited operating hours and equipment muffling using sound attenuators or mufflers.

Temporary construction noise. Construction of proposed project elements would increase localized noise on a temporary basis.

Impact NOISE-2 (temporary construction noise). The construction of project components would temporarily increase ambient noise levels in the project vicinity above levels existing without the project (*less-than-significant with adherence to existing City requirements*).

Collection System Improvements. Noise levels at sensitive receptors adjacent to the pipeline alignments would increase during the construction period when activities are located in close proximity. Pipeline installation would likely occur at a rate of 100 to 200 linear feet per day; therefore, construction noise levels at any individual sensitive receptor would only be substantially increased over a short period of time. Construction activities would only occur during the daytime hours; no evening or nighttime work is proposed.

Noise impacts from project construction activities are a function of the level of noise generated by individual pieces of construction equipment, the amount of equipment operating at any given time, the distance and sensitivities of nearby land uses, the presence of noise barriers or other structures that provide acoustical shielding, and the timing and duration of the noise-generating activities. Where noise from construction activities exceeds 65 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA L_{eq} at noise-sensitive residential uses in the project vicinity for a period of more than one year, the impact would be considered significant.

Construction noise would primarily consist of the operation of vehicles and equipment during pavement removal, excavation, pipeline installation, backfill operations, and the repaving of the portion of the street disturbed by the project. The highest construction noise levels would be generated during trenching operations. Table 4.6-3 presents the typical range of hourly average noise levels generated by different phases of construction measured at a distance of 50 feet. Hourly average noise levels generated by

public works-type projects at a distance of 50 feet from the center of a busy construction site typically range from 79 dBA to 88 dBA L_{eq}.

Table 4.6-3. Typical Range of Noise Levels at 50 Feet from Construction Sites (dBA L_{eq})

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.
Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

During construction activities, maximum instantaneous noise levels would vary depending on the specific pieces of equipment operating on-site. Large pieces of earth-moving equipment, such as excavators or front-end loaders, generate maximum noise levels of 85 to 90 dBA at a 50-foot distance. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding provided by barriers or structures can provide an additional 5 to 10 dBA noise reduction at distant receptors.

Representative sound levels for the most common types of construction equipment and usage factors, contained in FHWA's Roadway Construction Noise Model, were used to calculate noise levels related to proposed construction activities. The cumulative noise level would assume all pieces of construction equipment were operating simultaneously at the site and represents a conservative worst-case prediction of site construction noise levels during each construction phase. These data are summarized in Table 4.6-4 for representative receptor locations near proposed collections system improvements.

The installation of pipelines (pavement removal, excavation, pipeline installation, compacting backfill, and repaving the roadway) would result in average noise levels of approximately 86 dBA L_{eq} at a distance of 50 feet. Maximum instantaneous noise levels during this phase would reach 89 dBA L_{max} at a distance of 50 feet assuming that a jack hammer would be required to remove the existing pavement. The calculated hourly average noise level of 86 dBA L_{eq} would exceed ambient noise levels (plus 5 dBA) at the receptors by approximately 16 to 29 dBA L_{eq}, which is a substantial increase in noise. Pipeline installation would occur at a rate of approximately 100 to 200 linear feet per day. Therefore, construction noise levels would only exceed the significance criterion of 65 dBA L_{eq} for a short period of time (less than one month). This would be considered a

less than significant noise impact recognizing the relatively short duration of project construction activities.

Table 4.6-4. Construction Noise Levels During Installation of Pipelines at 50 Feet

Receptor	Maximum Instantaneous Construction Noise Level, L_{max}	Average Construction Noise Level, L_{eq}	Daytime Ambient Noise Level, L_{eq}	Noise Increase above Ambient + 5 dBA
ST-1	89 dBA	86 dBA	65 dBA	16 dBA
ST-2	89 dBA	86 dBA	55 dBA	26 dBA
ST-4	89 dBA	86 dBA	52 dBA	29 dBA
ST-5	89 dBA	86 dBA	53 dBA	28 dBA
ST-6	89 dBA	86 dBA	56 dBA	25 dBA

Source: Illingworth & Rodkin, 2013

Lift Station Improvements. Based on the construction noise levels cited above (79 dBA to 88 dBA L_{eq} at 50 feet), and the distance between the proposed lift station and the nearest receptors along Zeff Road (850 feet), construction of the lift station improvements is calculated to result in noise levels ranging from 54 to 63 dBA L_{eq}. Ambient daytime noise levels were measured to be approximately 64 to 65 dBA L_{eq} at these nearest receptors; therefore, construction noise levels would not exceed the significance criterion of 65 dBA L_{eq}. This would be a less than significant noise impact.

Jennings Facility Improvements. Similar to the discussion of the lift station improvements, above, construction noise levels are calculated to result in noise levels ranging from 45 to 54 dBA L_{eq} at the nearest receptors one-half mile from the facility. Construction noise levels would not exceed the significance criterion of 65 dBA L_{eq}, and the impact would be less than significant.

Sutter Facility Improvements. Construction activities at the Sutter Facility could occur in areas immediately adjacent to residential receptors in the vicinity of Robertson Road, Sutter Avenue, and Garden Avenue. Construction noise levels would be expected to range from 79 dBA to 88 dBA L_{eq} when activities occur near these existing residences. Hourly average noise levels would substantially exceed ambient noise levels at the adjacent receptors; however, it is anticipated given the scope of the Sutter Facility improvements that the overall duration of construction would be less than one year. This would be considered a less than significant noise impact recognizing the relatively short duration of project construction activities.

The Municipal Code prohibits "loud and raucous" construction-related noise before 7:00 a.m. or after 9:00 p.m. daily. The following available controls are assumed to be

included in the project to reduce construction noise levels as low as practical. In Modesto, the inclusion of these controls is assumed to reduce the impact from project construction to less-than-significant levels.

The General Plan's Noise Mitigation Policy for construction states:

a. The City of Modesto shall require construction activities to comply with the City's noise ordinance (Title 4, Chapter 9), and noise-reducing construction practices to be implemented as conditions of approval for development projects where substantial construction-related noise impacts would be likely to occur (e.g., where construction would include extended periods of pile driving, where construction would occur over an unusually long period, or where noise-sensitive uses like homes and schools would be in the immediate vicinity, etc.). The City should consider potential mitigation measures, including, but not limited to, the following:

(1) Construction equipment and vehicles should be equipped with properly operating mufflers according to the manufacturers' recommendations. Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.

(2) Equipment that is quieter than standard equipment should be utilized.

(3) Haul routes that affect the fewest number of people should be selected.

Cumulative Impacts. Based on the findings of the site-specific acoustic analysis, no cumulatively considerable noise impacts are anticipated within the City of Modesto or within Stanislaus County near proposed wastewater improvements.

4.7 VISUAL RESOURCES

INTRODUCTION

This section of the MEIR evaluates the potential for the project to create a substantial adverse impact on a scenic vista, substantially damage scenic resources, substantially degrade the existing visual character of a site or sites and its respective surroundings and create light and glare that could adversely affect any views.

ENVIRONMENTAL SETTING

Regional and Local. The City of Modesto is located within California's Central Valley. This nearly flat area is bounded by the Sierra Nevada mountain range to the east and by the coastal range to the west. The flatness and openness of the terrain afford expansive vistas across open land. Agriculture defines the visual character of a majority of this region interspersed with towns and farmsteads in the agricultural portion of the Valley.

The historic downtown core of Modesto consists of a one-mile square area. Its street grid, historic structures and civic and cultural institutions give the downtown area a distinctive and historic visual character. Over time, development has occurred incrementally from the central core in all directions.

Project Vicinity and Project Site.

Primary Facility. The land immediately to the north and west of the Primary Facility is generally open and flat. These parcels are dedicated and planned to be developed as part of the Tuolumne River Regional Park. Bellenita Park is an existing park to the northwest of the sludge drying beds. North of the drying beds is the adjacent undeveloped Tuolumne River Regional Park (currently under construction). Southward views from John Street and from Bellenita Park, across this undeveloped open area, are defined by a row of Valley Oak that has been planted along the fenceline of the Primary Facility to screen views of the sludge drying beds beyond. Eastward views from this area, toward the eastern portion of the Primary Facility, are unscreened by vegetation. A cluster of waste treatment Facility structures is visible. These vary in size and configuration to suit their varied functions. The most prominent of these are the cylindrical digesters, up to two to three stories and about 130 feet in diameter. Visual access to the Tuolumne River is not available to the public from this future park area. The riverbed south of this area of the park is roughly 15-20 feet lower in elevation and is screened by riparian vegetation. However, houses along the south bank of the river are visible in the distance through breaks in the vegetation.

South of the Primary Facility, across the Tuolumne River, lands along the southern bank of the river are developed mainly in low-density residential use (there is also an auto repair and dismantling business). Northward views of the river and the Primary Facility beyond from public vantage points in this area are limited, obscured by

buildings, fencing and vegetation. However, public views of the river and the Primary Facility from the Tuolumne River would be available to recreational users on the river.

No scenic resources exist on the Primary Facility site, such as major stands of trees, unique rock outcroppings and similar features. No parks, playgrounds or other public gathering places exist on the Facility. A number of light fixture have been installed on the site to allow for 24-hour operation of the Facility and for security purposes.

Secondary Facility. The Secondary Facility is surrounded by open agricultural land. The visual character of these lands is defined by its flatness and openness, and by its agricultural use. A strong rectilinear "patchwork" pattern is formed by alternating roads, fields, orchards and row crops. This pattern, familiar throughout the Central Valley, affords expansive views across open land. The combined flatness and openness of the land and the rectilinear orientation of its features result in a clear sense of linear perspective with lines converging at a point on the horizon. Randomly scattered farmhouse compounds, surrounded by clusters of mature ornamental trees, provide a counterpoint to this regular horizontal pattern. Although the San Joaquin River is not visible from most of the Secondary Facility, the riparian vegetation along the banks of San Joaquin River is a linear element in the distance. The Diablo Range rises from beyond the San Joaquin River in the distance as a backdrop to flat agricultural land in this region.

Despite the flatness and openness of the landscape, the Secondary Facility has a minimal visual presence from the nearest public roads in the area (i.e., Jennings Road to the east and Keyes Road to the north). Features within the Secondary Facility facility, like pump stations and clarifiers, are located at the interior of the site, set back from public roads by approximately one-half mile or more. At such distances, these structures are minimally discernible from those of the surrounding agricultural operations in the area or from adjacent public roads. No major scenic resources are present on the Secondary Facility site; however, a number of light fixtures have been installed to allow operation of Facility facilities.

REGULATORY FRAMEWORK

Relevant plans and policies related to protection of visual resources in the vicinity of the project site are discussed below.

Tuolumne River Regional Park Master Plan. The 2001 Tuolumne River Regional Park Master Plan (TRRP Master Plan) provides a long-range vision for the park and is intended to provide the overall guidance for the conservation and improvement of the park. The 185-acre Carpenter Road Area would be adjacent to the Primary Facility, wrapping around it to the north, west and south. The TRRP Master Plan envisions a regional sports complex immediately north of the Primary Facility. The Plan calls for a network of trails through new meadows and forests to the west of the Primary Facility. These trails would have visual access to the river from wooden overlooks and a pier to launch small non-motorized boats. The riverbank would be enhanced with riparian restoration work. The Plan also discusses the possibility of an expanded riparian corridor immediately south of the Primary Facility.

In the future, it may be possible to expand the Carpenter Road Area of the TRRP by upgrading the treatment Facility and consolidating the treatment ponds, making more of the riverfront land available or park-oriented recreation and restoration.

City of Modesto General Plan, Open Space Policies - River Greenway Program. The Modesto Area Urban Area General Plan contains the following applicable polices:

- Open Space Policy VII.B.7.a: Visual corridors of the river will be protected and enhanced.
- Open Space Policy VII.B.7.b: Visual corridors and access points on the riverfront will be re-created through redevelopment.
- Open Space Policy VII.B.7.j: Riverfront vegetation will be consistent with riparian habitat zones.
- Open Space Policy VII.B.7.q: The scenic resources of Public Trust lands and resources shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect scenic views associated with Public Trust lands and resources.

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MEIR

No significant visual impacts were identified in the 2007 MEIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Significance Criteria. A project would have a significant environmental effect on visual resources if it would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light and glare which would adversely affect day or nighttime views in the area.

ENVIRONMENTAL IMPACTS

Effects on scenic vistas. All of the proposed elements analyzed in this MEIR would either be located underground (new or replacement sewer pipes), or would involve changes to existing above-ground structures or facilities, such as upgrading existing sewer lift stations and upgrading existing equipment at the Secondary Facility. None of these project elements would have any effect on existing or planned scenic vistas.

The proposed repaving and expansion of the parking lot at the Primary Facility would be at ground level and also would not have any effect on a scenic vista.

Overall, there would be no impacts with respect to substantial adverse impacts on scenic vistas with approval and implementation of proposed project elements identified in the Project description of this MEIR.

Potential damage to scenic resources. No major scenic resources exist on any portion of the project sites that could be damaged by construction of project elements. No impacts would therefore result with implementation of proposed project elements.

Potential to degrade visual character or quality of the sites. All project improvements would occur either underground (new and upgraded sewer lines) that would not be visible following construction, or would include minor upgrades to existing wastewater facilities that would occur within either the Primary or Secondary Facilities. Upgrades of existing facilities would occur within areas already devoted to wastewater purposes and would therefore not result in degradation of the visual quality of these sites. Overall, there would be no impact with respect to degradation of the visual character of any project element site.

Creation of substantial light and glare. Implementation of the proposed project could result in installation of limited new lighting standards and fixtures, especially at the Secondary Facility that would receive relocated wastewater equipment transferred from the Primary Facility. The Secondary Facility currently is fully lighted as well as being isolated from any nearby residential receptors (William Wong, City of Modesto, 9/13/13). The addition of limited new lighting fixtures would result in a less-than significant impact with respect to the potential creation of substantial light and glare and no mitigation measures are required.

Cumulative Impacts. Since the project would not result in ay significant visual resource impacts, implementation of the project would not result in any significant cumulative impacts.

4.8 HAZARDS AND HAZARDOUS MATERIALS

INTRODUCTION

The following section evaluates the effects of the proposed project related to releases of hazardous materials during the construction and operation of project components. During construction activities, workers and the general public could be exposed to releases of fuels, gases, and chemicals used as pipe coatings, solvents, adhesives, and lubricants. During operation of the wastewater treatment facilities, workers and the public could be exposed to accidental releases of chlorine and sulfur dioxide gases, sodium hypochlorite or sodium bisulfite, and other materials used for the operation and maintenance of the facilities. This section describes the regulatory framework and Modesto and Stanislaus County General Plan policies regarding releases of hazardous materials, including requirements for storage and handling of hazardous materials. Potential public health and safety impacts that would result from implementation of the proposed project are described, and mitigation measures are recommended, as appropriate.

ENVIRONMENTAL SETTING

This setting section summarizes the components of the project as they relate to the storage and handling of hazardous materials where workers or the general public may come into contact with hazardous materials.

Hazardous materials at existing wastewater treatment facilities.

Collection System. The primary use of hazardous materials for the operation of the existing collection system is the use of diesel fuel to run emergency generators to provide power to the lift station pumps in the event of a power failure. Many lift stations have diesel generators, along with diesel fuel storage tanks.

Operation of the collection system also includes small quantities of cleaning materials and lubricants. These materials may be stored and used in the lift stations. Only minimum quantities, such a few gallons, are stored at each lift station.

Spills of fuels and other chemicals are relatively rare. The City is not aware of any recent violations of hazardous material or waste management laws at the treatment facilities.

Primary and Secondary Facilities. Hazardous materials are used at the Primary and Secondary Plants. The primary hazardous materials present are chlorine gas, used at the Secondary Treatment Plant to disinfect the final effluent, and sulfur dioxide, used to dechlorinate the final effluent before discharge to the San Joaquin River.

Operation of the Primary Treatment Facility also involves the use of ferric chloride. Ferric chloride is stored within the Facility in above ground tanks. Annual throughput of ferric chloride is approximately 58,000 gallons per year. Ferric chloride storage capacity is approximately 14,000 gallons. In addition, ferric chloride is used to reduce hydrogen sulfide in the digester gas.

Diesel fuel is used at the treatment facilities to operate back-up generators in the event of a power failure. Motor vehicles are used within the treatment facilities for maintenance activities within the facilities. At the Primary Treatment Facility, motor vehicles are also used to spread and remove materials in the sludge drying beds. Approximately 500 gallons of unleaded gasoline and 5,200 gallons of diesel fuel for the generators and vehicles are stored in above ground storage tanks.

Chlorine and sulfur dioxide are used at the Secondary Facility. Chlorine gas and sulfur dioxide are both regulated substances under the California Accidental Release Program (CalARP) and are therefore two of the subjects of the City's Risk Management Plan. The properties of chlorine and sulfur dioxide make it necessary to observe safety precautions in their handling to prevent human exposure, and to reduce the threat to the facilities' workers and nearby members of the community. It is the facilities' policy to adhere to all applicable federal and state rules and regulations regarding chemical use and storage. Safety depends upon adherence to safe procedures for handling chlorine and sulfur dioxide, the safety devices and systems designed and constructed into the facilities, and the training of the facilities' personnel.

Wastewater Outfalls. Other than possible chemical coatings, no hazardous materials are used in the outfall pipelines connecting the two treatment facilities.

IMPACTS AND MITIGATION MEASURES FROM THE 2007 MEIR

The 2007 MEIR identified the following significant impacts and mitigation measures.

- Impact K.1 found that excavation for installation of wastewater system improvements could encounter contaminated soil and/or groundwater. This would expose workers and the public to hazardous substances. Adherence to the following measures will mitigate this impact to a less-than-significant level.

    * Mitigation Measure K.1a required the City to use reasonable means to determine the presence of soil or water contamination. This could include completion of a Phase I Environmental Site Assessment or similar methods.

    * Mitigation Measure K.1b required that, if warranted by preliminary testing, additional soil or groundwater testing is to be completed.

    * Mitigation Measure K.1c required the preparation of a site remediation plan and worker safety plan if a significant quantity of hazardous materials are found on a site.

    * Mitigation Measure K.1d required the City or City contractor to prepare a Health and Safety Plan prior to any site work.

    * Mitigation Measure K.1e required preparation of a waste disposal and hazardous materials transportation plan to safely remove significant quantities of hazardous materials found on any site.

* Mitigation Measure K.1f required City contractors to notify the City if significant quantities of contaminated material are encountered during construction. This would include underground storage tanks, drums or similar find. In turn, the City is required to notify the County. The contractor is required to have a Contingency Plan for hazardous materials prepared in advance of any such finds.

- The effects of "pipe bursting" could result in release of potentially hazardous materials into the soil or groundwater (Impact K.2). Adherence to Mitigation Measure K.2 reduced this impact to a less-than-significant level by requiring pipes to be replaced to be empties of liquid before construction.

- Impact K.3 noted that construction activities involving demolition or modification of structures could result in exposure of workers and the public to added health risk. This impact was reduced to a less-than-significant level by adherence to Mitigation Measure K.3 which required that testing and remediation for asbestos and lead based paint be conducted prior to building demolition.

REGULATORY FRAMEWORK

The use, storage and disposal of hazardous materials are regulated by local, state, and federal laws and regulations. The U.S. Environmental Protection Agency (U.S. EPA) is the federal agency that administers hazardous materials and hazardous waste regulations. State agencies with jurisdiction over hazards include the California EPA (Cal/EPA), which includes the California Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), and the California Air Resources Board (CARB). The Central Valley Regional Water Quality Control Board (CVRWQCB), the San Joaquin Valley Air Pollution Control District (SJAPCD), and Stanislaus County Environmental Resources Department (SCERD) have jurisdiction on a regional or local level.

A description of each agency's jurisdiction and involvement in managing hazardous materials and wastes is provided below.

Federal Agencies

US. Environmental Protection Agency. U.S. EPA is responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (40 CFR). The legislation is outlined in the Resource Conservation and Recovery Act of 1976 (RCRA), the Superfund Amendments and Reauthorization Acts of 1986 (SARA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). U.S. EPA provides oversight for the storage and use of hazardous materials.

State Agencies

Department of Toxic Substances Control. In California, the California EPA, Department of Toxic Substances Control (DTSC) is authorized by U.S. EPA to enforce and implement federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials equal or exceed the federal regulations. Most state hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). The DTSC implements RCRA regulations regarding the storage and use of hazardous materials.

State Water Resources Control Board. The State Water Resources Control Board (SWRCB) enforces regulations on implementation of underground storage tank (UST) programs. The SWRCB also enforces the Porter-Cologne Water Quality Act through its nine regional boards.

California Air Resources Board. The California Air Resources Board (CARB) is responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988 and the Toxic Air Contaminant Program. The agency has also developed state air quality standards and is also responsible for monitoring air quality in conjunction with the local air districts.

Regional and Local Agencies

Central Valley Regional Water Quality Control Board. The project site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). The RWQCB enforces the Porter-Cologne Water Quality Act of 1969 for protection of the waters of the state. The RWQCB can act as lead agency to provide oversight for sites where the quality of groundwater or surface waters is threatened or affected by releases of hazardous materials, and has the authority to require investigations and remedial actions.

San Joaquin Valley Air Pollution Control District. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has the primary responsibility for the control of air pollution from sources other than motor vehicles and consumer products (which is the responsibility of U.S. EPA and CARB). The District is responsible for implementing the Toxic Air Contaminant Program, control of stationary sources, and issuing permits for activities involving the use of diesel generators.

Stanislaus County Environmental Resources Department. The Stanislaus County Environmental Resources Department (SCERD) is the primary agency for local enforcement of state and federal laws controlling hazardous materials management. SCERD is a Certified Unified Program Agency (CUPA), the local agency responsible for coordination of the hazardous waste generator program, underground and aboveground storage tank management, and emergency planning under EPCRA. SCERD also administers the Hazardous Materials Business Plan program.

Local Plans and Policies.

Modesto General Plan. The Modesto General Plan (1995, amended 2003) contains the following hazardous materials management policies regarding hazardous materials storage and use:

> Section V.M, Community Services -Hazardous Materials Management
>
> 1. *Overview*
>
> The County has prepared a Hazardous Waste Management Plan which is the guideline for managing hazardous waste in Stanislaus County. The goals, objectives, conclusions, recommendations, and implementation measures of that plan are hereby incorporated as part of this document (referring to the Modesto General Plan), along with any modifications which may result from state review of the Hazardous Waste Management Plan.
>
> 2. *Hazardous Materials Management Policies*
>
> a. The City shall comply with all existing federal and state laws which regulate the generation, transportation, storage, and disposal of hazardous materials.
>
> b. The City of Modesto should require that businesses and industries using hazardous material provide mitigation measures commensurate with the hazards they bring to the community, in accordance with the applicable Articles and Sections of the most current adopted edition of the Uniform Fire Code.
>
> d. For each specific project that would generate hazardous waste, the City shall require as a condition of building permit and/or business license approval that the project sponsor prepare a hazardous materials transportation program. The City Fire Department shall review and approve the applicant's hazardous materials transportation program or, working with the applicant, modify it to the satisfaction of both parties.

Stanislaus County General Plan (Safety Element). The Stanislaus County General Plan, Safety Element (1994), contains the following policy and implementation measures that are relevant to hazardous materials identification and hazardous wastes:

> Policy Thirteen
>
> The Department of Environmental Resources shall continue to coordinate efforts to identify locations of hazardous materials and prepare and implement plans for management of spilled hazardous materials as required.
>
> *Implementation Measures*
>
> 1. The County will continue to provide planning efforts to locate and minimize the effects of hazardous materials through the County's adopted emergency plan.

2. The County has prepared a Hazardous Waste Management Plan which is the guideline for managing hazardous waste in this County. The goals, objectives, conclusions, recommendations and implementation measures of that plan are hereby incorporated as a part of the Safety Element, along with any modifications which may result from state review of the Hazardous Waste Management Plan.
3. The Area Plan for Emergency Response to Hazardous Substance Release, required by the California Health and Safety Code, will be incorporated as part of the Safety Element when that plan is adopted.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Significance Criteria. A project would cause a significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- 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, including but not limited to contaminated soils or groundwater.

Impacts related to routine transport, use or disposal of hazardous materials. Two impacts are analyzed with respect to this potential impact: construction phases and operational phases.

Construction phases. Construction of proposed wastewater improvements would likely include use of paints, solvents, diesel fuels and similar materials that, based on quantities, could be considered hazardous. Release of these materials into the environment would be a potentially significant impact; however, the transport, use and storage of such materials are regulated by local, state and federal agencies to ensure that a release of a significant quantity of materials would not occur. Consistency with these regulations, as required by law, would ensure that there would be no impact with respect to this topic.

Operational phase. Operational phases of the Primary Sutter Road Facility and the Secondary Jennings Road Facility would continue to use potentially hazardous materials, including but not limited to chlorine, sulfur dioxide, anhydrous ammonia, hydrochloric acid, ferric chloride, sodium hypochlorite, phosphoric acid, citric acid. The City also uses an ultraviolet light process to kill bacteria and other pathogens contained in the solid waste stream. Use of ultraviolet light replaces use of chemical treatment and is not subject to releases of chemical contaminants in the environment, so that the routine use, transport or disposal of hazardous materials during the long-term operational phase of the project would be less-than-significant.

Impacts related to upset or accidents involving release of hazardous materials into the environment. Construction and operational impacts are analyzed below.

Construction phases. Construction of the proposed River Trunk realignment and the Oakdale Road sewer main would involve excavation, trenching and other ground disturbing activities. Ground disturbing activities could release potentially hazardous concentrations of agricultural chemicals from adjacent uses, buried petroleum products or similar materials into the environment. This would be a significant impact.

Impact HAZ-1 (release of contaminated material during grading an/or ground disturbance). Grading, trenching and similar ground disturbance could uncover contaminated soil or groundwater that could be released into the environment (*significant supplemental impact and mitigation required*).

The proposed expansion of the surface parking lot at the Primary Sutter Road Facility could also degrade water quality during the operational phase of the project element by allowing polluted stormwater to run off of the site and into nearby bodies of water. Pollutants could consist of litter and debris, dust, asbestos from car brakes and oils and solvents from parked vehicles. This would be a potentially significant impact.

Mitigation Measure HAZ-1 (release of contaminated material during grading and/or ground disturbance). Prior to commencing excavation, grading or trenching of any project component:

a) **A preconstruction survey shall be conducted of the project area that may include completion of a Phase I Environmental Site Assessment by a qualified consultant,**
b) **If potentially significant concentrations of hazardous materials are found in site soils or groundwater, soil and/or groundwater sampling and analysis shall be completed by a qualified environmental professional.**
c) **If warranted based on the soil sampling, a site remediation plan shall be prepared by a qualified environmental professional and approved by appropriate regulatory agencies.**
d) **The City's contractor shall completed a Health and Safety Plan prior to commencement of work and filed with the City and appropriate regulatory agencies.**
e) **Waste Disposal and Hazardous Materials Transportation Plan shall be prepared dealing with appropriate methods for safe handling and disposal of hazardous materials.**

Operational phase. Operational phases of the Primary Sutter Road Facility and the Secondary Jennings Road Facility would continue to use potentially hazardous materials, including but not limited to chlorine, sulfur dioxide, anhydrous ammonia, hydrochloric acid, ferric chloride, sodium hypochlorite, phosphoric acid, citric acid. The City also uses an ultraviolet light process to kill bacteria and other pathogens contained in the solid waste stream. Use of ultraviolet light replaces use of chemical treatment and is not subject to releases of chemical contaminants in the environment, so that the routine use, transport or disposal of hazardous materials during the long-term operational phase of the project would be less-than-significant.

5.0 ALTERNATIVES TO THE PROPOSED PROJECT

The California Environmental Quality Act requires identification and comparative analysis of feasible alternatives to the proposed project which have the potential of achieving most of the project objectives, but would avoid or substantially lessen any significant impacts of the project. Feasibility of an alternative may be determined based on a variety of factors, including but not limited to site suitability, economic viability, availability of infrastructure, general plan consistency and other factors,

The following discussion considers an alternative to the various wastewater project components analyzed in this MEIR and their anticipated environmental effects. The City of Modesto decision makers must consider approval of a feasible alternative if the alternative would substantially lessen or avoid significant environmental effects considered in the MER. The final determination of feasibility will be made by Modesto decision makers.

For purposes of this analysis, the project alternative is analyzed to determine the extent to which it achieves the basic project objectives while significantly lessening any adverse impacts of the proposed project. The Modesto City Council will consider project objectives as discussed in the Project Objectives as outlined in the Project Description section of this MEIR.

5.1 Alternatives Identified in this MEIR

Alternatives are described and evaluated below.

5.1.1 Alternative 1-No Project

CEQA requires an analysis of a "No Project" alternative. Under this alternative, it is assumed that the City's existing wastewater collection, treatment and disposal system would remain as each component currently exists. No new or upgraded facilities would be constructed.

The analysis of Alternative 1 is as follows.

- *Land Use Plans and Policies*. There would be no impact with potential division of local communities, conflicts with land use regulations or habitat conservation plans, since there would be no changes to existing land use.

- *Agricultural Resources*. No impacts to agricultural resources would occur under Alternative 1 since no land would be converted from agricultural land to a public facility use to accommodate wastewater improvements.

- *Parks and Recreation*. No impacts would occur to local parks and recreational facilities near existing City wastewater facilities, since none of the proposed wastewater system improvements would occur.

- *Water Quality and Hydrology*. No changes to current drainage patterns, flooding potential or rates of erosion would occur from current conditions, since no new wastewater facilities would occur.

- *Biological Resources*. Since no new wastewater facilities would be constructed under Alternative 1, there would be no project or cumulative impacts with respect to special-status species, wetlands and riparian habitats or fish or wildlife migratory corridors.

- *Air Quality and Greenhouse Gas Emissions*. No project-related or cumulative impacts would occur with respect to air quality or greenhouse gas emissions, since no new facilities would be constructed and no new trips would occur associated with wastewater facilities.

- *Noise*. No increase in local or cumulative noise impacts would occur since no new wastewater facilities would occur under this Alternative.

- *Visual Resources*. No impacts to visual resources within the project area would occur since no construction would occur. This would include impacts to scenic vistas, damage to scenic resources, degradation of the visual quality of a site or creation of new sources of light and glare.

- *Public Health: Hazardous Materials*. No new sources of contamination would be introduced into any of the project site, since no new wastewater facilities would be constructed. There would also be no impacts related to release of potentially hazardous materials into the environment, since no grading, trenching or other ground disturbance would occur that could uncover hazardous materials.

5.1.2 Alternative 2-Alternative Project Components

Under this alternative, differing project components would be constructed in place of the project components included in the proposed project. These are described below. In terms of an alternative location for the propose expansion of the parking lot at the Sutter Road facility, no suitable vacant land exists near the Facility that could accommodate the number of vehicles required by the City, so no alternative location has been identified for this project component. Other features of Alternative 2 include:

- Collection system improvements. Instead of replacing the River Trunk pipeline as set forth in the Project Description, repairs would be made to this facility and it would continue in service. No River Trunk replacement would be built.

  The Oakdale Sewer facility would be constructed as described in the Project description section of the MEIR.

- Lift Station improvements. Alternative lift station site(s) would be selected and lift station(s) constructed on these site(s). Since there are no alternative sites owned by the City in the vicinity of where new or replacement left stations would be needed, the City would be required to purchase easements and/or sites. If necessary necessary, existing improvements would need to be removed in order to construct lift station(s)

- Jennings Facility improvements. There are no suitable alternatives for rehabilitating or replacing the existing fixed film reactors, so no alternative has been identified for this project component. The available land at the Jennings Facility is used for wastewater disposal. Rather than displacing land for wastewater disposal, the alternative to relocating the primary treatment equipment from the Sutter Facility to the Jennings Facility would be to select land adjacent to the Jennings Facility to construct the relocated equipment. An alternative to modifying site access (driveway) location(s) and internal vehicular circulation routes would also be selecting land adjacent to the Jennings Facility to construct the modified access. Since there are no alternative sites owned by the City, the City would be required to purchase adjacent sites.

An analysis of Alternative 2 is as follows.

- *Land Use Plans and Policies*. There could be different land use impacts under this Alternative than could occur under the proposed project. No disruption of local roads would be required to upgrade wastewater collection lines as would occur under the proposed project. Construction of the parking lot for the Sutter Avenue Facility would require purchase of privately held properties that could be developed for the parking lot. Similarly, alternative lift station sites would occur on private property purchased for this purpose. Impacts to land uses and policies would therefore potentially disrupt one or more neighborhoods to accommodate a parking lot and one or more lift stations

  Therefore, there would likely be greater impacts related to Alternative 2 than Alternative 1 or the proposed project.

- *Agricultural Resources*. If replacement facilities from the Sutter Facility were to be relocated to a site near the Jennings Facility on current agricultural land, this impact would be greater under Alternative 2 than Alternative 1 or the proposed project.

- *Parks and Recreation*. No new or more severe impacts to park and recreation facilities are anticipated to occur under Alternative than either the proposed project or Alternative 1. No new River Trunk and Sutter Avenue Trunk replacement facilities would be constructed so as not to impact local parks or recreation facilities. The proposed Sutter Facility parking lot would likely be located on existing commercial or industrial properties and not on parkland.

- *Water Quality and Hydrology*. It is anticipated that different water quality and hydrology impacts would result under Alternative 2 than would occur under the proposed project. Under Alternative 2, no replacement wastewater lines would be constructed so there would be no runoff of erosion from construction sites. However, there could be leakage from the older River Trunk line and Oakdale lines that would not occur under the proposed project since replacement lines would be built. Leaking pipes could contaminate surrounding properties.

No other new or more severe impacts are anticipated to occur under Alternative than the proposed project with respect to alteration of drainage patterns, exposure of life and property to flood hazard or substantial degradation of water quality.

- *Biological Resources*. Impacts to special-species plant and wildlife, riparian habitat, wetlands and fish and migratory corridors would be approximately the same under Alternative 2 that has been identified for the proposed project. Mitigation measures set forth in the Biological Resources section would apply to facilities constructed under Alternative 2 to reduce these projects to a less-than-significant level.

- *Air Quality and Greenhouse Gas Emissions*. Similar to the proposed project, no significant impacts would result with respect to emissions of criteria pollutants, violation of regional air quality standards or exposure of sensitive receptors to substantial air pollutants. Odor impacts from upgrades at the Jennings Road facility could be significant to surrounding receptors, so that the Mitigation Measure AIR-1 would apply to Alternative to reduce this impact to a less-than-significant level.

- *Noise*. Short-term noise from construction of wastewater facilities anticipated under Alternative 2 would be less than under the proposed project since no trenching would be required to remove and replace the River Trunk Line or the Oakdale Line. Adherence to Mitigation Measure NOISE 1 would reduce this impact to a less-than-significant level. Similar to the proposed project, no other significant noise impacts are anticipated to result with implementation of Alternative 2.

- *Visual Resources*. Impacts to visual resources would be approximately the same under Alternative 2 than would occur under the proposed project since several of the project components would be undergrounded under both scenarios. Lift stations would be constructed under both Alternative 2 and the proposed project, so that visual resource impacts would be approximately the same.

- *Pubic Health*: Hazardous Materials. Impacts to hazardous materials would be approximately the same under Alternative 2 as the proposed project, since trenching and excavation for underground wastewater lines could release contaminants into the atmosphere. Adherence to Mitigation Measure HAZ-1 will reduce this impact to a less-than-significant level, the same as the proposed project.

5.2 Environmentally Superior Alternative

Section 15126 (d) (4) of the State of California CEQA Guidelines states that if the environmentally superior alternative is the "No Project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Alternative 1, the No Project alternative, would result in fewer and less intensive environmental impacts than the proposed project and Alternative 2, since no wastewater improvements would occur. Therefore, Alternative 1 would be the Environmentally Superior Alternative.

Regarding the proposed project and Alternative 2, Alternative 2 would result in greater impacts in terms of Land Use Plans and Policies in that implementation of this Alternative could result in greater disruption of existing communities to construct

wastewater lift stations and the Sutter Facility parking lot on private properties than the proposed project. Placement of relocated Sutter Facility treatment equipment on agricultural land near the Jennings Facility would also impact agricultural land that would not occur under the proposed project.

Therefore, the proposed project would be the next most Environmentally Superior Alternative.

-

6.0 OTHER CEQA CONSIDERATIONS

This section of the MEIR addresses the potential cumulative impacts of implementing the proposed Project, as required by CEQA.

6.1 Growth Inducement

Based on the Description of the proposed project (See Chapter 3 of this MEIR), the type, scale and location of each of the project elements analyzed in this document, proposed improvements are not anticipated to result in either directly or indirectly inducing additional growth in the Modesto Planning Area beyond that anticipated in the Modesto Urban Area General Plan.

Project elements included in this MEIR generally represent replacement of existing wastewater collection facilities (the River Trunk Replacement line), one new 10-inch wastewater collection line within Oakdale Road, adding one or more lift stations to the existing wastewater collection system, upgrading facilities at the Jennings Road facility without expanding treatment or disposal capacity, relocating existing treatment facilities from the Sutter Facility to the Jennings Road facility without increasing treatment of disposal capacity and construction of a new employee parking lot at the Sutter facility.

None of the above project components would increase the capacity of the City's wastewater collection, treatment or disposal system that could accommodate additional population or non-residential development not currently anticipated in the Urban Area General Plan so that no growth inducement would occur.

6.2 Cumulative Impacts

Cumulative impacts are defined by CEQA Guidelines (Section 15126.2) as those which taken individually may be minor but, when combined with similar impacts associated with existing development, proposed development projects and planned but not built projects, have the potential to generate more substantial impacts. CEQA requires that cumulative impacts be evaluated when they are significant and that the discussion describe the severity of the impacts and the estimated likelihood of their occurrence. CEQA also states that the discussion of cumulative impacts contained in an EIR need not be as detailed as that provided for the project alone.

Proposed project improvements could result in cumulatively considerably greenhouse gas emissions (see Impact AIR 2); however, adherence to Mitigation Measure AIR-2 will reduce this impact to a less-than-significant impact, so that no cumulative impacts would result with project approval.

6.3 Significant and Unavoidable Environmental Impacts

Unavoidable significant adverse impacts are those impacts that cannot be mitigated to a less-than-significant level. CEQA requires decision-makers to balance the benefits of a proposed Project against its unavoidable impacts in considering whether to approve the Project. If the benefits of the proposed Project outweigh the anticipated unavoidable impacts, the adverse environmental impacts may be considered acceptable by the Lead Agency. To approve the Project without significantly reducing or eliminating an adverse impact, the Lead Agency must make a Statement of Overriding Consideration supported by the information in the record.

No such impacts have been identified in this MEIR.

7.0 ORGANIZATIONS AND PERSONS CONSULTED

7.1 Persons and Organizations

MEIR Preparers

The following individuals participated in the preparation of this document.

Jerry Haag, Urban Planner (project manager)
Sean Avent, WRA (biological resources)
Michael Thill, Illingworth & Rodkin (acoustics)
James Reyeff, Illingworth & Rodkin (air quality/greenhouse gas emissions)
Joshua Carmen, Illingworth & Rodkin (air quality/greenhouse gas emissions)
Jane Maxwell, Blue Ox Associates (graphics)

City of Modesto Staff
Brad Wall, AICP, Principal Planner
William Wong, P.E., Acting Director
Jennifer Pratt, P. E., Senior Engineer

7.2 References

The following documents, in addition to those included in the Appendix, were used in the preparation of this DSEIR.

City of Modesto, Wastewater Master Plan Update, Turnstone Consulting, 2007

City of Modesto, Final Urban Area General Plan, October 2008

City of Modesto, Final Master Environmental Impact Report for the Urban Area General Plan Amendment, October 2008

Stanislaus County, General Plan, undated

State of California, Cal EPA, Cortese List

8.0 Appendices

Appendix 8.1
Notice of Preparation

Notice of Preparation & Notice of Scoping Meeting

To:

CITY OF MODESTO
UTILITY PLANNING & PROJECTS
ATTN: RICH ULM
1010 TENTH ST., SUITE 4600
MODESTO CA 95354

Subject: **Notice of Preparation of Wastewater Master Plan Master Environmental Impact Report (MEIR) and Notice of Scoping Meeting**

Lead Agency:
City of Modesto
Utility Planning & Projects Department
1010 Tenth Street, Suite 4600
Modesto CA 95354

Contact:
William Wong, P.E.
Senior Civil Engineer
(209) 571 5801
wwong@modestogov.com

The City of Modesto will be the Lead Agency and hereby invites comments on the proposed scope and content of the Master Environmental Impact Report (MEIR) for the project identified below. Your agency may need to use the MEIR prepared by the Lead Agency when considering your permits or other approvals for this project.

Project Title: City of Modesto Wastewater Master Plan MEIR Update.

Project Location: The project includes upgrades to existing wastewater facilities, and construction of new facilities, located within the City of Modesto and at the Jennings Road Tertiary Treatment Plant (Jennings Road Plant), located approximately 6.5 southwest of the City at 7007 Jennings Road.

Project Description: The proposed project includes an update to the City's 2007 Wastewater Master Plan that would include upgrades and improvements at the Jennings Road Plant and new or upgraded underground pipelines and related improvements, including possible lift stations, located within Modesto and wastewater improvements between the City's main wastewater treatment plant and the Jennings Road Plant.

Anticipated topics to be discussed in the MEIR include: land use, plans and policies, agricultural resources, parks and recreation, water quality and hydrology, biological resources, transportation, air quality, greenhouse gas emissions, visual resources and public health.

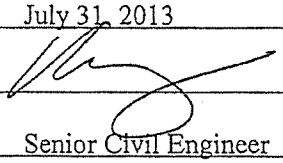
Due to time limits mandated by State law, your response must be returned at the earliest possible time **but not later than 30 days following receipt of this notice.** Please send your response to the contact person identified above.

Scoping Meeting
Pursuant to State Law, the City of Modesto has scheduled a Scoping Meeting for the proposed MEIR as follows:

Date / Time: **August 29, 2013, at 4:30 p.m.**

Location: **City Hall, 1010 Tenth Street, Modesto CA, Room 2001**

Date: July 31, 2013

Signature: 

Title: Senior Civil Engineer

Telephone: (209) 571 5801

Appendix 8.2
Responses to Notice of Preparation

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

August 2, 2013

To: Reviewing Agencies

Re: Wastewater Master Plan Update
SCH# 2013082006

Attached for your review and comment is the Notice of Preparation (NOP) for the Wastewater Master Plan Update 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:

William Wong
City of Modesto
Utility Planning & Projects Dept.
1010 Tenth Street, Suite 4600
Modesto, CA 95354

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
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH#	2013082006
Project Title	Wastewater Master Plan Update
Lead Agency	Modesto, City of

Type	NOP Notice of Preparation
Description	The proposed project includes an update to the City's 2007 Wastewater Master Plan that would include upgrades and improvements at the Jennings Road Plant and new or upgraded underground pipelines and related improvements, including possible lift stations, located within Modesto and wastewater improvements between the City's main wastewater treatment plant and the Jennings Road Plant.

Lead Agency Contact

Name	William Wong		
Agency	City of Modesto		
Phone	209 571 5801	*Fax*	
email			
Address	Utility Planning & Projects Dept. 1010 Tenth Street, Suite 4600		
City	Modesto	*State* CA	*Zip* 95354

Project Location

County	Stanislaus			
City	Modesto			
Region				
Cross Streets				
Lat / Long				
Parcel No.				
Township		*Range*	*Section*	*Base*

Proximity to:

Highways	
Airports	
Railways	
Waterways	
Schools	
Land Use	

Project Issues

Reviewing Agencies	Resources Agency; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 4; CA Department of Public Health; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, District 10; State Water Resources Control Board, Divison of Financial Assistance; Regional Water Quality Control Bd., Region 5 (Sacramento)

Date Received 08/02/2013 *Start of Review* 08/02/2013 *End of Review* 09/03/2013

NOP Distribution List

County: Stanislaus

SCH# 2013082006

Resources Agency

- [■] Resources Agency
  Nadell Gayou
- [ ] Dept. of Boating & Waterways
  Nicole Wong
- [ ] California Coastal Commission
  Elizabeth A. Fuchs
- [ ] Colorado River Board
  Gerald R. Zimmerman
- [■] Dept. of Conservation
  Elizabeth Carpenter
- [ ] California Energy Commission
  Eric Knight
- [ ] Cal Fire
  Dan Foster
- [ ] Central Valley Flood Protection Board
  James Herota
- [■] Office of Historic Preservation
  Ron Parsons
- [■] Dept of Parks & Recreation
  Environmental Stewardship Section
- [ ] California Department of Resources, Recycling & Recovery
  Sue O'Leary
- [ ] S.F. Bay Conservation & Dev't. Comm.
  Steve McAdam
- [■] Dept. of Water Resources Resources Agency
  Nadell Gayou

Fish and Game

- [ ] Dept. of Fish & Wildlife
  Scott Flint
  Environmental Services Division
- [ ] Fish & Wildlife Region 1
  Donald Koch
- [ ] Fish & Wildlife Region 1E
  Laurie Harnsberger
- [ ] Fish & Wildlife Region 2
  Jeff Drongesen
- [ ] Fish & Wildlife Region 3
  Charles Armor
- [■] Fish & Wildlife Region 4
  Julie Vance
- [ ] Fish & Wildlife Region 5
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] Fish & Wildlife Region 6
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] Fish & Wildlife Region 6 I/M
  Brad Henderson
  Inyo/Mono, Habitat Conservation Program
- [ ] Dept. of Fish & Wildlife M
  George Isaac
  Marine Region

Other Departments

- [ ] Food & Agriculture
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] Depart. of General Services
  Public School Construction
- [ ] Dept. of General Services
  Anna Garbeff
  Environmental Services Section
- [■] Dept. of Public Health
  Jeffery Worth
  Dept. of Health/Drinking Water
- [ ] Delta Stewardship Council
  Kevan Samsam

Independent Commissions,Boards

- [ ] Delta Protection Commission
  Michael Machado
- [ ] Cal EMA (Emergency Management Agency)
  Dennis Castrillo
- [■] Native American Heritage Comm.
  Debbie Treadway
- [■] Public Utilities Commission
  Leo Wong
- [ ] Santa Monica Bay Restoration
  Guangyu Wang
- [ ] State Lands Commission
  Jennifer Deleong
- [ ] Tahoe Regional Planning Agency (TRPA)
  Cherry Jacques

Business, Trans & Housing

- [ ] Caltrans - Division of Aeronautics
  Philip Crimmins
- [ ] Caltrans - Planning
  Terri Pencovic
- [■] California Highway Patrol
  Suzann Ikeuchi
  Office of Special Projects
- [ ] Housing & Community Development
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [ ] Caltrans, District 1
  Rex Jackman
- [ ] Caltrans, District 2
  Marcelino Gonzalez
- [ ] Caltrans, District 3
  Gary Arnold
- [ ] Caltrans, District 4
  Erik Alm
- [ ] Caltrans, District 5
  David Murray
- [ ] Caltrans, District 6
  Michael Navarro
- [ ] Caltrans, District 7
  Dianna Watson
- [ ] Caltrans, District 8
  Dan Kopulsky
- [ ] Caltrans, District 9
  Gayle Rosander
- [■] Caltrans, District 10
  Tom Dumas
- [ ] Caltrans, District 11
  Jacob Armstrong
- [ ] Caltrans, District 12
  Marlon Regisford

Cal EPA

Air Resources Board

- [ ] Airport/Energy Projects
  Jim Lerner
- [ ] Transportation Projects
  Douglas Ito
- [ ] Industrial Projects
  Mike Tollstrup
- [■] State Water Resources Control Board
  Regional Programs Unit
  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
  Phil Crader
  Division of Water Rights
- [ ] Dept. of Toxic Substances Control
  CEQA Tracking Center
- [ ] Department of Pesticide Regulation
  CEQA Coordinator

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
  Teresa Rodgers
  Los Angeles Region (4)
- [■] RWQCB 5S
  Central Valley Region (5)
- [ ] 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 _____
- [ ] _____ Conservancy

Last Updated 01/08/2013

STATE OF CALIFORNIA Edmund G. Brown, Jr.,, *Govemor*

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard
West Sacramento, CA 95691
(916) 373-3715
(916) 373-5471 – FAX
e-mail: ds_nahc@pacbell.net

August 7, 2013

Mr. William Wong, P.E.
City of Modesto
Utility, Planning & Projects Department
1010 Tenth Street, Suite 4600
Modesto, CA 95354

RE: SCH#2013082006 CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the "**Wastewater Master Plan Update Project;**" located in the City of Modesto; Stanislaus County, California

Dear Mr. Wong:

The Native American Heritage Commission (NAHC) has reviewed the CEQA Notice regarding the above referenced project. In the 1985 Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites.

The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064.5(b). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

Contact the appropriate Information Center for a record search to determine :If a part or all of the area of project effect (APE) has been previously surveyed for cultural places(s), The NAHC recommends that known traditional cultural resources recorded on or adjacent to the APE be listed in the draft Environmental Impact Report (DEIR).

If an additional archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. We suggest that this be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to

the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant to California Government Code Section 6254.10.

A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources. Lack of surface evidence of archeological resources does not preclude their subsurface existence.

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, pursuant to California Health & Safety Code Section 7050.5 and California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Also, California Public Resources Code Section 21083.2 require documentation and analysis of archaeological items that meet the standard in Section 15064.5 (a)(b)(f). Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans. Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Dave Singleton
Program Analyst

CC: State Clearinghouse

Attachment: Native American Contacts list

Native American Contacts
Stanislaus County
August 7, 2013

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville , CA 93258
chairman@tulerivertribe-nsn.
(559) 781-4271
(559) 781-4610 FAX
Yokuts

Southern Sierra Miwuk Nation
Anthony Brochini, Chairperson
P.O. Box 1200
Mariposa , CA 95338
209-379-1008
Miwok
Pauite
Northern Valley Yokut

Buena Vista Rancheria
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200
Sacramento , CA 95811
rhonda@buenavistatribe.
916 491-0011
916 491-0012 - fax
Me-Wuk / Miwok

Tuolumne Band of Me-Wuk
Kevin Day, Chairperson
P.O. Box 699
Tuolumne , CA 95379
receptionist@mlode.com
(209) 928-3475 - Tribal Office
(209) 928-1677 - Fax
Me-Wuk - Miwok

California Valley Miwok Tribe
Chairperson
10601 N Escondido PL
Stockton , CA 95212
office@cvmt.net
209-931-4567
209-931-4333
Miwok

Tuolumne Band of Me-Wuk
Mary Camp, Tribal Administrator
P.O. Box 699
Tuolumne , CA 95379
receptionist@mlode.com
(209) 928-3475 - Tribal Office
(209) 928-1677 - Fax
Me-Wuk - Miwok

North Valley Yokuts Tribe
Katherine Erolinda Perez
PO Box 717
Linden , CA 95236
(209) 887-3415
canutes@verizon.net
Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Calaveras Band of Mi-Wuk Indians
Gloria Grimes, Chairperson
PO Box 899
West Point , CA 95255
CBmiwukindians@aol.com
(209-470-8688
Mi-Wuk

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed **SCH#2013082006; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Wastewater Master Plan Update Project; located in the City of Modesto; Stanislaus County, California.**

Native American Contacts
Stanislaus County
August 7, 2013

Southern Sierra Miwuk Nation
Les James, Spiritual Leader
PO Box 1200
Mariposa , CA 95338
209-966-3690

Miwok
Pauite
Northern Valley Yokut

Calaveras Band of Mi-Wuk Indians
Adam Lewis, Tribal Preservation Assistant
PO Box 899
West Point , CA 95255

Mi-Wuk

Tuolumne Band of Me-Wuk
Stanley Cox, Cultural Resources Dr
P.O. Box 699
Tuolumne , CA 95379
receptionist@mlode.com
(209) 928-3475 - Tribal Office
(209) 928-1677 - Fax

Me-Wuk - Miwok

Tuolumne Band of Me-Wuk
Reba Fuller
P.O. Box 699
Tuolumne , CA 95379
rfuller@mlode.com
(209) 928-3475 - Tribal Office
(209) 928-1677 - Fax

Me-Wuk - Miwok

Calaveras Band of Mi-Wuk Indians
Debra Grimes, Cultural Res. Specialist
PO Box 1015
West Point , CA 95255
Dmiwuk@aol.com
209-770-4137
209-470-8688

Mi-Wuk

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed **SCH#2013082006; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Wastewater Master Plan Update Project; located in the City of Modesto; Stanislaus County, California.**

BASIC CRITERIA FOR CULTURAL RESOURCES REPORTS

FOR SECTION 106 CONSULTATION WITH THE STATE HISTORIC PRESERVATION OFFICER (SHPO) UNDER THE NATIONAL HISTORIC PRESERVATION ACT (NHPA)

CULTURAL RESOURCES REPORTS

The Section 106 compliance efforts and reports must be prepared by a qualified researcher that meets the Secretary of the Interior's Professional Qualifications Standards (www.cr.nps.gov/local-law/arch_stnds_9.htm).

REPORT TERMINOLOGY

A cultural resources report used for Section 106 consultation should use terminology consistent with 36 CFR, Section 800.16 of the NHPA. This doesn't mean that the report needs to "filled" with passages and interpretations of the regulations, the SHPO reviewer already knows the law.

- If "findings" are made they must be one of the four "findings" listed in Section 106. These include:

  "No historic properties affected" (no properties are within the APE, including the below ground APE).

  "No effect to historic properties" (properties may be near the APE but the project will not impact them).

  "No adverse effect to historic properties" (the project may affect historic properties but the impacts will not be adverse)

  "Adverse effect to historic properties". *Note: the SHPO must be consulted at this point. If your consultant proceeds on his own, his efforts may be wasted.*

CURRENT RECORDS SEARCH INFORMATION

- A current (less than a year old) records search from the appropriate Information Center is necessary. The records search should include maps that show all recorded sites and surveys in relation to the area of potential effects (APE) for the project.

- The APE is three-dimensional and includes all areas that may be affected by the project. It includes the surface area and extends below ground to the depth of any project excavations.

- The records search request should be made for an area larger than the APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

NATIVE AMERICAN AND INTERESTED PARTY CONSULTATION

- Native American and interested party consultation should be initiated at the beginning of any cultural resource investigations. The purpose is to gather information from people with local knowledge that may be used to guide research.

- A project description and map should be sent to the Native American Heritage Commission (NAHC) requesting a check of their Sacred Lands Files. The Sacred Lands Files include religious and cultural places that are not recorded at the information centers.

- The NAHC will include a list of Native American groups and individuals with their response. A project description and maps should be sent to everyone on the list asking for information on the project area.

- Similar letters should be sent to local historical organizations.

- Follow-up contact should be made by phone if possible and a phone log should be included in the report.

WARNING PHRASES IN ALREADY PREPARED CEQA REPORTS

- A finding of **"no known resources"**, this doesn't mean anything. The consultant's job is to find out if there are resources within the APE or to explain why they are not present.

- **"The area is sensitive for buried archaeological resources"**, followed by a statement that **"monitoring is recommended as mitigation"**. Monitoring is not an acceptable mitigation. A reasonable effort should be made to find out if buried resources are present in the APE.

- **"The area is already disturbed by previous construction"**, this may be true, but documentation is still needed to show that the new project will not affect cultural resources. As an example, an existing road can be protecting a buried archaeological site. Or, previous construction may have impacted an archaeological site that was never documented.

- No mention of **"Section 106"**, a report that gives adequate information for CEQA may not be sufficient to comply with Section 106.

SHPO CONSULTATION LETTER

- A Section 106 consultation letter should be prepared by a qualified researcher, and submitted along with the Section 106 Report to the State Water Board to use to consultant with the State Historic Preservation Officer.

STATE WATER BOARD CONTACT INFORAMTION

Please contact Mr. Ahmad Kashkoli 916-341-5855 or akashkoli@waterboards.ca.gov if you have any questions related to CWSRF Program cultural resources compliance.

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

21 August 2013

William Wong
City of Modesto
Utility Planning and Projects Department
1010 Tenth Street, Suite 4600
Modesto, CA 95354

CERTIFIED MAIL
7012 2210 0002 1419 4468

COMMENTS TO NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, WASTEWATER MASTER PLAN UPDATE PROJECT, SCH NO. 2013082006, STANISLAUS COUNTY

Pursuant to the State Clearinghouse's 9 August 2013 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Notice of Preparation for the Draft Environmental Impact Report* for the Wastewater Master Plan Update Project, located in Stanislaus County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit, or any other federal permit, is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

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[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Waste Discharge Requirements

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.

Elizabeth M. Jan

for Trevor Cleak
Environmental Scientist

cc: State Clearinghouse Unit, Governor's Office of Planning and Research, Sacramento

Stanislaus County
Striving to be the Best

CHIEF EXECUTIVE OFFICE

Stan Risen
Interim Chief Executive Officer

Patricia Hill Thomas
Chief Operations Officer/
Assistant Executive Officer

Keith D. Boggs
Assistant Executive Officer

1010 10th Street, Suite 6800, Modesto, CA 95354
Post Office Box 3404, Modesto, CA 95353-3404

Phone: 209.525.6333 Fax 209.544.6226

STANISLAUS COUNTY ENVIRONMENTAL REVIEW COMMITTEE

August 21, 2013

William Wong, P.E., Senior Civil Engineer
City of Modesto Utility Planning & Projects Department
1010 Tenth Street, Suite 4600
Modesto, CA 95354

SUBJECT: ENVIRONMENTAL REFERRAL – CITY OF MODESTO WASTEWATER MASTER PLAN MASTER ENVIRONMENTAL IMPACT REPORT (MEIR)

Mr. Wong:

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has determined that it will not have a significant effect on the environment.

The following comments/conditions are submitted by the Department of Public Works:

> The City of Modesto shall obtain an Encroachment Permit from Stanislaus County for work on the County road right-of-way.

In addition, the ERC attaches hereto and incorporates herein by reference comments/conditions from the Department of Environmental Resources, Hazardous Material Division.

The ERC appreciates the opportunity to comment on this project.

Sincerely,

Tera Chumley
Senior Management Consultant
Environmental Review Committee

TC:ss

cc: ERC Members

Attachment

Stanislaus County
Striving to be the Best

DEPARTMENT OF ENVIRONMENTAL RESOURCES
3800 Cornucopia Way, Suite C, Modesto, CA 95358-9494
Phone: 209.525.6700 Fax: 209.525.6774

TO: STANISLAUS COUNTY PLANNING & COMMUNITY DEVELOPMENT

FROM: DEPARTMENT OF ENVIRONMENTAL RESOURCES

RE: ENVIRONMENTAL REVIEW COMMENTS

PROJECT TITLE: **CITY OF MODESTO – WASTEWATER MASTER PLAN MEIR UPDATE**

Based on this agency's particular field(s) of expertise, it is our position the project described above:

____ Will not have a significant effect on the environment.
____ May have a significant effect on the environment.
____ No comments.
__X__ See comments below.

The applicant should contact the Department of Environmental Resources regarding appropriate permitting requirements for hazardous materials and/or wastes. Applicant and/or occupants handling hazardous materials or generating hazardous wastes must notify the Department of Environmental Resources relative to the following: (Calif. H&S, Division 20)

A. Permits for the underground storage of hazardous substances at new or the modification of an existing tank facilities.
B. Requirements for registering as a handler of hazardous materials in the County.
C. Submittal of hazardous materials Business Plans by handlers of materials in excess of 55 gallons or 500 pounds of a hazardous material or of 200 cubic feet of compressed gas.
D. The handling of acutely hazardous materials may require the preparation of a Risk Management Prevention Program which must be implemented prior to operation of the facility. The list of acutely hazardous materials can be found in SARA, Title III, Section §302.
E. Generators of hazardous waste must notify the Department relative to the: (1) quantities of waste generated; (2) plans for reducing wastes generated; and (3) proposed waste disposal practices.
F. Permits for the treatment of hazardous waste on-site will be required from the hazardous materials division.

Response prepared by:

AMBER MINAMI
HAZARDOUS MATERIALS SPECIALIST
DEPARTMENT OF ENVIRONMENTAL RESOURCES

August 7, 2013
Date

cc: CEO'S OFFICE – Ms. Tera Chumley

Modesto Irrigation District
Water and Power

1231 Eleventh St.
P.O. Box 4060
Modesto, CA 95352
(209) 526-7373

August 29, 2013

City Of Modesto – Utility Planning & Projects Department
Attention: William Wong, PE
1010 10th St Ste 4600
Modesto, CA 95354-0898

RE: Environmental Impact Report and Notice of Scoping Meeting
Location: Jennings Road Tertiary Treatment Plant

Dear Mr. Wong:

Thank you for allowing the District to comment on this referral. Following are the recommendations from our Risk & Property, Electrical, Irrigation, and Domestic Water Divisions:

Irrigation

- Out of Modesto Irrigation District boundary.

Domestic Water/Risk & Property

- No comments at this time.

Electrical

- The District's Electric Division does not have electric facilities in the area of the Modesto wastewater facilities at 7007 Jennings Road and therefore no requirements at this location. The City of Modesto should contact the District's Electric Engineering Design Department, attention Desi Moreno if the possible wastewater lift stations located within Modesto require MID electric service. The City of Modesto should provide detailed construction plans for the complete project. The District will address specific requirements when a full set of construction plans are submitted for review.

The Modesto Irrigation District reserves its future rights to utilize its property, including its canal and electrical easements and rights-of-way, in a manner it deems necessary for the installation and maintenance of electric, irrigation, agricultural and urban drainage, domestic water and telecommunication facilities. These needs, which have not yet been determined, may consist of poles, crossarms, wires, cables, braces, insulators, transformers, service lines, open channels, pipelines, control structures and any necessary appurtenances, as may, in District's opinion, be necessary or desirable.

If you have any questions, please contact me at 526-7433.

Sincerely,

Celia Aceves
Risk & Property Analyst

Copy: File

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, CA 93710
(559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

September 5, 2013

William Wong, P.E.
Utility Planning and Projects Department
City of Modesto
1010 10th Street, Suite 4600
Modesto, California 95354

Subject: Notice of Preparation of Wastewater Master Plan Update
SCH#: 2013082006

Dear Mr. Wong:

The California Department of Fish and Wildlife (Department) has reviewed the above Project submitted by the City of Modesto Utility Planning and Projects Department. The proposed Project includes an update to the City's 2007 Wastewater Master Plan that would include upgrades and improvements at the Jennings Road Plant, and new or upgraded underground pipelines and related improvements, including possible lift stations, located within the City of Modesto and wastewater improvements between the City's main wastewater treatment plant and the Jennings Road Plant. The Project is located within the City of Modesto and at the Jennings Road Tertiary Treatment Plant (Jennings Road Plant), located approximately 6.5 miles southwest of the City at 7007 Jennings Road.

The Notice of Preparation (NOP) indicates that there will be upgrades and improvements that may involve the construction of new facilities. The Project has the potential to impact nesting birds, and State-listed species such as the State threatened Swainson's hawk (*Buteo swainsoni*), the federally and State threatened giant garter snake (*Thamnophis gigas*), and the State Species of Special Concern burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), and western pond turtle (*Actinemys marmorata*). Due to the potential impacts to fish and wildlife resources, mitigation measures may be needed. The Department recommends that focused biological surveys be conducted by qualified wildlife biologists during the appropriate survey period(s) to determine if special status species could be impacted prior to Project-related activities. Survey results can then be used to identify any mitigation, minimization, and avoidance measures necessary to reduce potential impacts to special status biological resources to less than significant. The Department advises these be included as enforceable measures in the Environmental Impact Report (EIR) prepared for this project so as to inform any potential permitting needs. Our comments follow.

Department Jurisdiction

Trustee Agency Authority: The Department is a Trustee Agency with responsibility under the California Environmental Quality Act (CEQA) for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 [commencing with Section 21000] of the Public Resources Code).

Responsible Agency Authority: The Department has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered, pursuant to Fish and Game Code Section 2081. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), the Department may need to issue an Incidental Take Permit (ITP) for the Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Sections 21001{c}, 21083, Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080.

The Department also has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource, pursuant to Fish and Game Code sections 1600 *et seq.* If any the Wastewater improvements will involve work along the banks of the San Joaquin River or any of the water conveyance Laterals, the Department recommends the Project proponents pursue a Streambed Alteration Agreement (SAA). The Department is required to comply with CEQA in the issuance or the renewal of an SAA. For additional information on notification requirements, please contact our staff in the Stream Alteration Program at (559) 243-4593.

Bird Protection: The Department has jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized "take" of birds. Fish and Game Code sections that protect birds, their eggs and nests include, sections 3503 (regarding unlawful "take," possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the "take," possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful "take" of any migratory non-game bird). In the event vegetation removal is planned, it is recommended that appropriate avoidance and minimization measures for raptors and other nesting birds potentially present in the Project site vicinity be addressed in the EIR.

Water Pollution: Pursuant to Fish and Game Code Section 5650, it is unlawful to deposit in, permit to pass into, or place where it can pass into "Waters of the State" any substance

or material deleterious to fish, plant life, or bird life, including non-native species. It is possible that without mitigation measures this Project could result in pollution of a "Waters of the State" from increased sediment, nutrients, or other constituents of concern carried in storm water runoff or from Project-related activities and could impact the fish and wildlife resources. The Regional Water Quality Control Board (RWQCB) and United States Army Corps of Engineers (USACE) also have jurisdiction regarding discharge and pollution to "Waters of the State."

Potential Project Impacts and Recommendations

Riparian Habitat and Wetlands: Riparian habitat is of extreme importance to a wide variety of plant and wildlife species. It is unclear where the specific upgrades and improvements will occur in proximity to the San Joaquin River. The Department recommends the following buffers be applied: a minimum 250-foot no-disturbance buffer delineated from the high water mark of ponds, vernal pools, and swales; a minimum 200-foot no-disturbance buffer delineated from the high water mark of each surface water body, or from the outside edge of the riparian vegetation whichever is greater, is recommended for waterways with riparian vegetation; a minimum 100-foot no-disturbance buffer around the high water mark of each surface water channel that has no riparian vegetation. Depending upon what Project-related activities are proposed in these areas, larger buffers may be warranted to avoid impacts.

A formal wetland delineation is recommended to be conducted by a qualified biologist to determine the location and extent of wetland habitat on site, including riparian habitat. Please note that, while there is overlap, the state and federal definitions of wetlands differ; delineation should identify both state and federal wetlands on the project site. Fish & Game Code Section 2785 (g) defines wetlands; further Section 1600 applies to any area within the bed, channel, or bank of any river, stream, or lake. It is important to note that while accurate delineations by qualified individuals have resulted in a quicker review and response from the USACOE and the Department, substandard or inaccurate delineations have resulted in unnecessary time delays for applicants due to insufficient, incomplete, or conflicting data. Wetlands should also be designated on a site map and included in the final environmental documents and the size of the buffers should be clearly delineated both on the map and in the text of the mitigation measures.

Nesting Birds: The trees, shrubs, and grasses along and adjacent to the San Joaquin River and other waterways (e.g. Westport Drain) likely provide nesting habitat for songbirds and raptors. The Department encourages Project implementation to occur during the non-nesting bird season. However, if ground-disturbing activities must occur during the breeding season (February through mid-September), the Project applicant is responsible for ensuring that implementation of the Project does not result in any violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above. Prior to work commencing; including staging, clearing, and grubbing, the Department recommends surveys for active nests be conducted by a qualified wildlife biologist no more than 10 days prior to the start of the of the Project commencing and that the surveys be conducted in a sufficient area around the work site to identify any nests that are present and to determine

their status. A sufficient area means any nest within an area that could potentially be affected by the Project. In addition to direct impacts, such as nest destruction, nests might be affected by noise, vibration, odors, and movement of workers or equipment. Identified nests should be continuously surveyed for the first 24 hours prior to any construction related activities to establish a behavioral baseline. Once work commences, all nests should be continuously monitored to detect any behavioral changes as a result of the Project. If behavioral changes are observed, the work causing that change should cease and the Department consulted for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, the Department also recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around the nests of unlisted raptors until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Variance from these no disturbance buffers may be implemented when there is compelling biological or ecological reason to do so, such as when the Project area would be concealed from a nest site by topography. Any variance from these buffers is advised to be supported by a qualified wildlife biologist and it is recommended the Department be notified in advance of implementation of a no disturbance buffer variance.

Giant garter snake: Giant garter snake could be present within the San Joaquin River and its associated waterways. The Department recommends, no more than 30 days prior to ground disturbing activities, a qualified biologist with giant garter snake experience and knowledge of its ecology survey the work area and a minimum 50-foot radius of the work area for burrows and crevices in which giant garter snake could be present. It is advised that all potentially suitable burrows and cervices be flagged and avoided by a minimum 50-foot no disturbance buffer.

Swainson's Hawk: This State threatened species are known to nest in trees adjacent to and within the riparian habitat of the San Joaquin River. To evaluate potential Project-related impacts, the Department recommends that a qualified wildlife biologist conduct surveys for nesting raptors following the survey methodology developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC, 2000) prior to any ground disturbance.

If ground-disturbing Project activities are to take place during the normal bird breeding season (February 1 through September 15), the Department recommends that additional pre-construction surveys for active nests be conducted by a qualified biologist no more than 10 days prior to the start of construction. A minimum no-disturbance buffer of 0.5 miles is advised and be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. If such a buffer cannot feasibly be implemented, and work will occur during the avian nesting season, consultation with the Department is advised to occur well in advance of ground-disturbing activities and the acquisition of a State Incidental Take Permit pursuant to Fish and Game Code Section

2081(b) may be warranted. The Department advises that these recommendations be included as required mitigation measures in the EIR prepared for this Project.

In addition, the removal of mature trees is a potentially significant impact to nesting raptors that is recommended to be mitigated. The Department considers removal of known raptor nest trees, even outside of the nesting season, to be a significant impact under CEQA, and, in the case of Swainson's hawk, it could also result in "take" under CESA. This is especially true with species such as Swainson's hawk that exhibit high site fidelity to their nest and nest trees year after year. Regardless of nesting status, trees that must be removed are advised to be replaced with an appropriate native tree species planting at a ratio of 3:1 in an area that will be protected in perpetuity. This mitigation is needed to offset potential impacts to the loss of potential nesting habitat.

Burrowing Owl: Burrowing owl has the potential to be present on and adjacent to the Project siteand dispersing juveniles, migrants, transients or new colonizers can utilize the Project site year round. It is possible Project activities could impact this species. Therefore, the Department recommends the survey methodology described in the new Staff Report on Burrowing Owl Mitigation dated March 7, 2012 (CDFG 2012) be followed before beginning ground disturbing activities. In the event that burrowing owls are found, the Department's Staff Report on Burrowing Owl Mitigation (CDFG 2012) recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by the Department verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

Failure to implement this buffer zone could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure, in violation of Fish and Game Code and the Migratory Bird Treaty Act.

Federally Listed Species: The Department also recommends consulting with the USFWS on potential impacts to federally listed species including, but not limited to CTS. "Take" under the Federal Endangered Species Act (FESA) is more broadly defined than CESA; "take" under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with FESA is advised well in advance of any ground disturbing activities.

More information on survey and monitoring protocols for sensitive species can be found at the Department website (www.dfg.ca.gov/wildlife/nongame/survey_monitor.html). If you have any questions on these issues, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014, extension 254, or by electronic mail at Jim.Vang@wildlife.ca.gov.

Sincerely,

Jeffrey R. Single, Ph.D.
Regional Manager

cc: Regional Water Quality Control Board
Central Valley Region
1685 "E" Street
Fresno, California 93706-2020

United States Army Corps of Engineers
San Joaquin Valley Office
1325 "J" Street, Suite #1350
Sacramento, California 95814-2928

Thomas Leeman
United States Fish and
Wildlife Service
2800 Cottage Way, Suite W-2605
Sacramento, California 95825

Linda Connolly, Senior Environmental Scientist, CDFW

Literature Cited

CDFG, 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California. California Department of Fish and Game.

CDFG, 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game.

SWHA TAC, 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Swainson's Hawk Technical Advisory Committee, May 31, 2000.

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

AUG 1 4 2013

William Wong
City of Modesto
Utility Planning & Projects Dept.
1010 Tenth Street, Suite 4600
Modesto, CA 95354

Dear Mr. Wong:

NOTICE OF PREPARATION (NOP) FOR CITY OF MODESTO (CITY); WASTEWATER MASTER PLAN MASTER ENVIRONMENTAL IMPACT REPORT UPDATE (PROJECT); STANISLAUS COUNTY; STATE CLEARINGHOUSE NO. 2013082006

Thank you for the opportunity to review the above document. We understand that the City is not currently pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the preparation of the California Environmental Quality Act (CEQA) for the Project.

The City may want to consider the CWSRF Program to provide funding for future construction. The State Water Board, Division of Financial Assistance, is responsible for administering the CWSRF Program. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, provide for estuary enhancement, and thereby protect and promote health, safety and welfare of the inhabitants of the state. The CWSRF Program provides low-interest funding equal to one-half of the most recent State General Obligation Bond Rates with a 20-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at:
www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml.

The CWSRF Program is partially funded by the United States Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Four enclosures are included that further explain the CWSRF Program environmental review process and the additional federal requirements. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment for the proposed Project. For further information on the CWSRF Program, please contact Mr. Ahmad Kashkoli, at (916) 341-5855.

It is important to note that prior to a CWSRF financing commitment, projects are subject to provisions of the Federal Endangered Species Act (ESA), and must obtain Section 7 clearance from the United States Department of the Interior, Fish and Wildlife Service (USFWS), and/or the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) for any potential effects to special-status species.

Please be advised that the State Water Board will consult with USFWS and/or NMFS regarding all federal special-status species that the Project has the potential to impact if the Project is to be funded under the CWSRF Program. The City will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur on-site, in the surrounding areas, or in the service area, and to identify applicable conservation measures to reduce such effects.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act (Section 106). The State Water Board has responsibility for ensuring compliance with Section 106, and must consult directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant. If the City decides to pursue CWSRF financing, please retain a consultant that meets the Secretary of the Interior's Professional Qualifications Standards (www.cr.nps.gov/local-law/arch_stnds_9.htm) to prepare a Section 106 compliance report.

Note that the City will need to identify the Area of Potential Effects (APE), including construction and staging areas, and the depth of any excavation. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The records search request should be made for an area larger than the APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

Other federal requirements pertinent to the Project under the CWSRF Program include the following:

A. Compliance with the Federal Clean Air Act: (a) Provide air quality studies that may have been done for the Project; and (b) if the Project is in a nonattainment area or attainment area subject to a maintenance plan; (i) provide a summary of the estimated emissions (in tons per year) that are expected from both the construction and operation of the Project for each federal criteria pollutant in a nonattainment or maintenance area, and indicate if the nonattainment designation is moderate, serious, or severe (if applicable); (ii) if emissions are above the federal de minimis levels, but the Project is sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality, quantitatively indicate how the proposed capacity increase was calculated using population projections.

B. Compliance with the Coastal Zone Management Act: Identify whether the Project is within a coastal zone and the status of any coordination with the California Coastal Commission.

C. Protection of Wetlands: Identify any portion of the proposed Project area that should be evaluated for wetlands or United States waters delineation by the United States Army Corps of Engineers (USACE), or requires a permit from the USACE, and identify the status of coordination with the USACE.

D. Compliance with the Farmland Protection Policy Act: Identify whether the Project will result in the conversion of farmland. State the status of farmland (Prime, Unique, or Local and Statewide Importance) in the Project area and determine if this area is under a Williamson Act Contract.

E. Compliance with the Migratory Bird Treaty Act: List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.

F. Compliance with the Flood Plain Management Act: Identify whether or not the Project is in a Flood Management Zone and include a copy of the Federal Emergency Management Agency flood zone maps for the area.

G. Compliance with the Wild and Scenic Rivers Act: Identify whether or not any Wild and Scenic Rivers would be potentially impacted by the Project and include conservation measures to minimize such impacts.

Following the preparation of the Master Environmental Impact Report (MEIR) Update, please provide us a copy of the document to review if the City is considering CWSRF financing. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review for the Project.

Thank you once again for the providing us a copy of your NOP, and for the consideration of the CWSRF for the financing of the City's future projects. We have no further comments at this time. If you have any questions or concerns, please feel free to contact me at (916) 341-5855, or by email at AKashkoli@waterboards.ca.gov, or contact Christopher Bruni at CBruni@waterboards.ca.gov.

Sincerely,

Ahmad Kashkoli
Senior Environmental Scientist

Enclosures (4)

1. SRF & CEQA-Plus
2. Quick Reference Guide to CEQA Requirements for State Revolving Fund Loans
3. Instructions and Guidance for "Environmental Compliance Information"
4. Basic Criteria for Cultural Resources Reports

cc: State Clearinghouse
(Re: SCH#2013082006)
P.O. Box 3044
Sacramento, CA 95812-3044

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

September 9, 2013

William Wong
City of Modesto
Utility Planning & Projects Department
1010 Tenth Street, Suite 4600
Modesto, CA 95354

Project: Wastewater Master Plan Master Environmental Impact Report (MEIR) Update - SCH # 2013082006

District CEQA Reference No: 20130679

Dear Mr. Wong:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) for the Wastewater Master Plan MEIR Update. The proposed project includes an update to the City's 2007 Wastewater Master Plan that would include upgrades and improvements at the Jennings Road Tertiary Treatment Plant (Jennings Road Plant) and new or upgraded underground pipelines and related improvements including possible lift stations located within Modesto and wastewater improvements between the City's main wastewater treatment plant and the Jennings Road Plant. The District offers the following comments:

Emissions Analysis

1) The District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and nonattainment for PM2.5 for the federal air quality standards. At the state level, the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 air quality standards. The District recommends that the Air Quality section of the Environmental Impact Report (EIR) include a discussion of the following impacts:

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

www.valleyair.org www.healthyairliving.com

a) **Criteria Pollutants:** Project related criteria pollutant emissions should be identified and quantified. The discussion should include existing and post-project emissions.

   i) Construction Emissions: Construction emissions are short-term emissions and should be evaluated separate from operational emissions. The District recommends preparation of an Environmental Impact Report (EIR) if annual construction emissions cannot be reduced or mitigated to below the following levels of significance: 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), or 15 tons per year particulate matter of 10 microns or less in size (PM10).

      - *Recommended Mitigation:* To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier II and above engine standards.

   ii) Operational Emissions: Permitted (stationary sources) and non-permitted (mobile sources) sources should be analyzed separately. The District recommends preparation of an Environmental Impact Report (EIR) if the sum of annual permitted and non-permitted emissions cannot be reduced or mitigated to below the following levels of significance: 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), or 15 tons per year particulate matter of 10 microns or less in size (PM10).

   iii) Recommended Model: Project related criteria pollutant emissions should be identified and quantified. Emissions analysis should be performed using CalEEMod (**Cal**ifornia **E**mission **E**stimator **Mod**el), which uses the most recent approved version of relevant Air Resources Board (ARB) emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

b) **Nuisance Odors:** The project should be evaluated to determine the likelihood that the project would result in nuisance odors. Nuisance orders are subjective, thus the District has not established thresholds of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration of project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.

c) **Health Impacts:** Project related health impacts should be evaluated to determine if emissions of toxic air contaminants (TAC) will pose a significant health risk to nearby sensitive receptors. TACs are defined as air pollutants that which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. The most common source of TACs can be attributed to diesel exhaust fumes that are emitted from both stationary and mobile sources. Health impacts may require a detailed health risk assessment (HRA).

Prior to conducting an HRA, an applicant may perform a prioritization on all sources of emissions to determine if it is necessary to conduct an HRA. A prioritization is a screening tool used to identify projects that may have significant health impacts. If the project has a prioritization score of 1.0 or more, the project has the potential to exceed the District's significance threshold for health impacts of 10 in a million and an HRA should be performed.

If an HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. The project would be considered to have a significant health risk if the HRA demonstrates that project related health impacts would exceed the District's significance threshold of 10 in a million.

More information on TACs, prioritizations and HRAs can be obtained by:

- E-mailing inquiries to: hramodeler@valleyair.org; or
- Visiting the District's website at:

  http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

2) In addition to the discussions on potential impacts identified above, the District recommends the EIR also include the following discussions:

a) A discussion of the methodology, model assumptions, inputs and results used in characterizing the project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the EIR. The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.

b) A discussion of the components and phases of the project and the associated emission projections, including ongoing emissions from each previous phase.

c) A discussion of project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the project.

d) A discussion of whether the project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. More information on the District's attainment status can be found online by visiting the District's website at:

http://valleyair.org/aqinfo/attainment.htm.

District Rules and Regulations

3) The proposed project may be subject to District rules and regulations, including: Regulation VIII (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

4) Wastewater treatment plants (WWTP) are subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review). To obtain information about District permit requirements and whether an Authority to Construct (ATC) and Permit to Operate (PTO) are required, and to identify other District rules or regulations that apply to this project, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (209) 557-6446. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm.

5) The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (209) 557-6446. Current District rules can be found online at the District's website at:

www.valleyair.org/rules/1ruleslist.htm.

The District recommends that a copy of the District's comments be provided to the project proponent. If you have any questions or require further information, please call Georgia Stewart at (559) 230-5937.

Sincerely,

David Warner
Director of Permit Services

Georgia Stewart

For: Arnaud Marjollet
Permit Services Manager

DW: gs

Responses to City of Modesto Wastewater System Master EIR

February 2014

Comment 1—Office of Planning and Research

Response—No response required.

Comment 2-Native American Heritage Commission

Response-Limited subsurface grading or trenching is anticipated for project elements.

Brad—are their standard City requirements, or requirements in the General Plan to address this?

Comment 3-Central Valley Regional Water Quality Control Board

Response—Information provided by the Central Valley Regional Water Quality Control Board regarding various required permit is noted. The City of Modesto will apply for necessary permits for various project components identified in this MEIR as appropriate.

Comment 4-Stanislaus County Environmental Review Committee.

Response—the Environmental Review Committee's comment that an encroachment permit for work within County rights-of-way and is noted and necessary permits will be required by the City of Modesto for wastewater components identified in this MEIR.

Comment 5-Stanislaus County Planning & Community Development

Response-the Department's comments regarding future permits for underground storage tanks, handing of hazardous materials, permits for treatment of hazardous materials are noted. The City of Modesto will apply for required permits as various wastewater components identified in this MEIR are implemented.

Comment 6-Modesto Irrigation District (MID)

Response—MID comment raises no significant environmental issues

Comment 7-California Department of Fish & Wildlife

Response-Department of Fish & Wildlife concerns are addressed in Chapter 4.4 of the MEIR.

Comment 8-State Water Resources Control Board

Response—State Water Resources Control Board comments regarding the Clean Water State Revolving Loan Fund are noted, but are not related to environmental issues addressed in the MEIR.

Appendix 8.3
Biological Species Table

Appendix X. Potential for Special Status Plant and Wildlife Species to Occur in the project area. List compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDB), U.S. Fish and Wildlife Service (USFWS) Species Lists, and California Native Plant Society (CNPS) Electronic Inventory search of the Hatch, Crow's Landing, Patterson, Riverbank, Ceres, Denair, Salida, Ripon, Westley, and Brush Lake 7.5' quadrangles and a review of other CDFW lists and publications (Jennings and Hayes 1994, Zeiner et al. 1990).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
MAMMALS				
pallid bat *Antrozous pallidus*	SSC	Roosts in outcrops, caverns, hollow trees, buildings, and bridges.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC	Roosts in caverns and buildings.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
Fresno kangaroo rat *Dipodomys nitratoides exilis*	FE	Habitat is on elevated grassy patches on alkali plains or in grassy terrain with scattered alkali patches. Both habitat types are characterized by easily dug friable soils in which the Fresno kangaroo rat digs burrow complexes.	**No Potential**. The project area is over 70 miles from the only known current population; although no individuals have been captured since 1992. No documented occurrences have been found in the project area vicinity.	No further action recommended.
western mastiff bat *Eumops perotis*	SSC	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff and building crevices and cracks in boulders.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement measure E.10 from the Modesto Wastewater Master Plan Update DEIR.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western red bat *Lasiurus blossevillii*	SSC, WBWG	This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement Mitigation Measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
hoary bat *Lasiurus cinereus*	WBWG	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Moderate Potential.** May occur in areas with suitable roosting habitat.Species probably forages in the area.	Implement Mitigation Measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
western small-footed myotis *Myotis ciliolabrum*	WBWG	Occurs in deserts, chaparral, riparian zones, and western coniferous forest; it is most common above piñon-juniper forest. Individuals are known to roost singly or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines.Feeds on a wide variety of small insects.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement Mitigation Measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
long-eared myotis *Myotis evotis*	WBWG	Found in brush, woodland and forest habitats from sea level to 9000 feet. Prefers coniferous woodlands and forests. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, sinkholes, and rocky outcrops on the ground. They also sometimes roost in buildings and under bridges.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement Mitigation Measure E.10 from the Modesto Wastewater Master Plan Update DEIR.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
fringed myotis *Myotis thysanodes*	WBWG	Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines, rocks, cliff faces, bridges and large snags are important day and night roosts; hibernacula may include caves, mines and buildings.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement Mitigation Measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
long-legged myotis *Myotis volans*	WBWG	Generally associated with coniferous forests but occurs seasonally in riparian and desert habitats. Uses abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts; hibernacula include caves and mine tunnels.	**Moderate Potential.** May occur in areas with suitable roosting habitat.	Implement Mitigation Measure E.10 from the Modesto Wastewater Master Plan Update DEIR.
riparian (=San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	FE, SSC	Riparian areas along the San Joaquin, Stanislaus, and Tuolumne Rivers. Need areas with mix of brush and trees. Need suitable nesting sites in trees, snags or logs.	**Low Potential**. Although individual woodrats have been found along the San Joaquin and Tuolumne, the project area is over 10 miles from the sole known surviving population. No documented occurrences have been found in the project area vicinity.	No further action recommended.
riparian brush rabbit *Sylvilagus bachmani riparius*	FE, SE	Riparian areas on the San Joaquin River in northern Stanislaus County. Dense thickets of wild rose, willows, and blackberries.	**No Potential**. The project area is over 10 miles from the only known surviving populations. No documented occurrences have been found in the project area vicinity.	No further action recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Moderate Potential**. Likely occurs in spray field south of Jennings facility.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
San Joaquin kit fox *Vulpes macrotis mutica*	FE, ST	Found in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub.	**Low Potential**. May rarely disperse through project area. Surrounding intensive agriculture dominated by orchards and other irrigated land probably limits habitat suitability.	No further action recommended.
BIRDS				
tricolored blackbird *Agelaius tricolor*	BCC, SSC	Breeds near freshwater marsh with dense emergent vegetation near trees and shrubs. Nests in stands of cattails or bulrushes, occasionally uses willows, thistles, mustard, and blackberry shrubs.	**Moderate Potential**. Documented to occur within 2 miles of the Jennings facility to the north and south (CDFW 2013).	See Mitigation Measures E.12.1 – E.12.3 and Impact E.9 for discussion.
short-eared owl *Asio flammeus*	SSC	Found in open, treeless areas with elevated sites for perches, and dense vegetation for roosting and nesting.	**Moderate Potential**. Potentially occurs. Suitable foraging is present in pasture habitats of the project area for wintering birds.	See Mitigation Measures E.12.1 – E.12.3 and Impact E.9 for discussion.

Western burrowing owl *Athene cunicularia hypugea*	SSC	Nests and forages in low-growing grasslands that support burrowing mammals. May also use artificial structures for roosting and nesting.	**Moderate Potential.** Potentially occurs. Suitable nesting and foraging habitat is present within the project area. Observed in agricultural habitats around the Jennings facility.	Implement measures E.2.1 and E.2.2 from the Modesto Wastewater Master Plan Update DEIR.
golden eagle *Aquila chrysaetos*	BCC, CFP	Rolling foothills mountain areas, sage-juniper flats, desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Moderate Potential.** May occur as a winter visitor and migrant..	Implement measures E.3.1 and E.3.2 from the Modesto Wastewater Master Plan Update DEIR.
ferruginous hawk *Buteo regalis*	BCC	Winter visitor. Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats.	**Moderate Potential.** May forage in spray field south of Jennings facility.	Implement measures E.3.1 and E.3.2 from the Modesto Wastewater Master Plan Update DEIR.
Swainson's hawk *Buteo swainsoni*	ST	Summer resident. Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves.	**High Potential.** Presumed present. There are records of Swainson's Hawks nesting in the vicinity of the Secondary Plant as well as along the Tuolumne River near the Modesto Airport. Foraging habitat exists throughout the project area.	Implement measures E.5, E.6a, and E.6b from the Modesto Wastewater Master Plan Update DEIR. See Mitigation Measures E.12.1 – E.12.3.
mountain plover *Charadrius montanus*	BCC, FPT, SSC	Winter visitor. Frequents plowed fields, and open plains with low, herbaceous or scattered shrub vegetation.	**Low Potential.** May rarely occur in Jennings spray field during migration.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
black tern *Chlidonias niger*	SSC	Uses fresh emergent wetlands, lakes, ponds, moist grasslands, and agricultural fields.	**Low Potential.** May rarely forage in spray field south of Jennings facility.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.

Northern harrier *Circus cyaneus*	SSC	Forages in open to herbaceous stages of many habitats. Nests on ground in shrubby vegetation, usually near wet areas.	**High Potential**. Likely forages in spray field south of Jennings facility; potential for nesting is reduced due to spraying activity and grazing.	Implement measures E.3.1 and E.3.2 from the Modesto Wastewater Master Plan Update DEIR.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FC, SE, BCC	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**Unlikely**. Limited suitable habitat exists along the San Joaquin River, Believed to be extirpated as a breeding species from the project area.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
yellow warbler *Dendroica petechia*	SSC	Associated with riparian forest and willow thickets.	**Low Potential.** Suitable nesting and foraging habitat is not present within the project area along the San Joaquin River. Breeding populations considered extirpated in the Central Valley.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
white-tailed kite *Elanus leucurus*	CFP	Forages in open to herbaceous stages of many habitats. Nests in shrubs and trees adjacent to grasslands.	**High Potential.** Likely forages in fields adjacent to both Jennings and Sutter Plants. Remote trees associated with the site may provide suitable nest sites.	Implement measures E.3.1 and E.3.2 from the Modesto Wastewater Master Plan Update DEIR. See Mitigation Measures E.12.1 – E.12.3.
prairie falcon *Falco mexicanus*	BCC, SSC	Associated primarily with perennial grasslands, savannahs, and rangeland.	**Moderate Potential.** Probably occurs as a winter visitor and migrant.	Implement measures E.3.1 and E.3.2 from the Modesto Wastewater Master Plan Update DEIR. See Mitigation Measures E.12.1 – E.12.3.

bald eagle *Haliaeetus leucocephalus*	SE, CFP	Frequents ocean shores, lake margins, and rivers for both nesting and wintering. Requires large bodies of water, or free-flowing rivers with abundant fish and adjacent snags or other perches. Most nests are located within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branchwork. Roosts communally in winter.	**Low Potential.** May occasionally visit project area in winter; no nesting habitat.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
yellow-breasted chat *Icteria virens*	SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forage and nest within 10 feet of ground.	**Low Potential.** The project area is outside the known range of populations in the San Joaquin Valley.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
loggerhead shrike *Lanius ludovicianus*	SSC	Prefers open habitats with scattered shrubs, posts, or other perches.	**Present**. Forages in spray field south of Jennings facility. Trees associated with unoccupied ranch house may provide suitable nest sites. Observed in area of updated project activities.	See Impact E.9 for discussion. See Mitigation Measures E.12.1 – E.12.3.
Modesto song sparrow *Melospiza melodia mailliardi*	SSC	Associated with emergent freshwater marshes dominated by tules and cattails, and riparian willow thickets and will also nest along vegetated irrigation canals and levees.. (	**Moderate Potential**. Typical emergent wetland habitat is present along the Tuolumne and San Joaquin Rivers and the various other water bodies at the Sutter and Jennings Plants	See Mitigation Measures E.12.1 – E.12.3.
long-billed curlew *Numenius americanus*	BCC	Forages in annual grassland, shallow wetlands and flood-irrigated alfalfa fields.	**Moderate**. Likely forages in fields adjacent to Jennings facility.	See Mitigation Measures E.12.1 – E.12.3.

white-faced ibis *Plegadis chihi*	WL	Forages in shallow wetlands and flood-irrigated alfalfa fields	**Moderate.** Likely forages in fields adjacent to Jennings facility. However, species was delisted from SSC to WL in 2011.	See Mitigation Measures E.12.1 – E.12.3.
least bell's vireo *Vireo bellii pusillus*	FE, SE	Obligate riparian species preferring early successional riparian habitat including cottonwood-willow forests, oak woodlands and mulefat scrub.	**Unlikely.** Typical nesting habitat is not present in the areas of proposed improvements. One documented occurrence within 10 miles of the Project area to the north in the San Joaquin River NWR (CDFW 2013).	See Mitigation Measures E.12.1 – E.12.3.
AMPHIBIANS				
California tiger salamander *Ambystoma californiense*	FT, SSC	Generally found in grasslands with ground squirrel burrows for summer estivation, and seasonal pools for breeding.	**Low Potential.** Conversion to agriculture and other ground disturbance have resulted in poor habitat conditions.	No further action recommended.
Foothill yellow-legged frog *Rana boylii*	SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	**Low Potential.** Potential to occur in San Joaquin River tributaries, however conversion to agriculture and other ground disturbance have resulted in poor habitat conditions. Unlikely to occur in area of updated project activities.	Implement pre-construction surveys and agency coordination (Mitigation Measure E.8).
California red-legged frog *Rana draytonii*	FT, SSC	Associated with perennial to intermittent ponds, slow, low-gradient streams, and wetlands.	**No Potential.** Probably extirpated from valley floor.	No further action recommended.
western spadefoot *Scaphiopus hammondii*	SSC	Temporary rainpools in grasslands containing small mammal burrows and/or friable soils for subterranean estivation.	**Low Potential.** Conversion to agriculture and other ground disturbance have resulted in poor habitat conditions.	Implement pre-construction surveys and agency coordination (Mitigation Measure E.8).
REPTILES				

California legless lizard *Anniella pulchra*	SSC	Found primarily in areas with moist, sandy or loose organic soils or where there is plenty of leaf litter.	**Low Potential.** Few records in northern Stanislaus County (Jennings and Hayes 1994). Arid conditions, agricultural activities and other ground disturbance likely preclude presence.	No further action recommended.
western pond turtle *Clemmys marmorata*	SSC	Occurs in perennial ponds, lakes, rivers, and streams with suitable basking habitat and submerged shelter.	**Moderate Potential**. Typical habitat occurs within MEIR Project area. Documented to occur more than 10 miles south of the project area (CDFW 2013). Likely to occur in areas of updated project activities.	
blunt-nosed leopard lizard *Gambelia sila*	FE, SE	Resident of sparsely-vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows under shrubs or structures.	**Low Potential**. No records in northern Stanislaus County (USFWS 1998).	No further action recommended.
San Joaquin whipsnake *Masticophis flagellum ruddocki*	SSC	Occurs in open, dry, vegetative associations with little or no tree cover.	**Low Potential**. No records in northern Stanislaus County (Jennings and Hayes 1994).	No further action recommended.
coast horned lizard *Phrynosoma coronatum frontale*	SSC	Inhabits open country, especially sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats.	**Low potential.** Few records in northern Stanislaus County (Jennings and Hayes 1994). Agricultural and other ground disturbance impacts have reduced habitat suitability.	No further action recommended.
giant garter snake *Thamnophis gigas*	FT, ST	Marshes, sloughs, ponds, canals, ditches, and rice fields. Requires emergent vegetation, basking areas, and flood refugia.	**Low Potential.** Typical aquatic habitat is present in Project area. However, the project area is acknowledged to be in a gap between the Merced County and Delta populations.	No further action recommended.

FISHES				
Green sturgeon *Acipenser medirostris*	FT, SSC, NMFS	Spawn in deep pools or "holes" in large, turbulent, freshwater river mainstems. Adults live in oceanic waters, bays, and estuaries when not spawning. Species is known to forage in estuaries and bays.	**High Potential.** Although most green sturgeon are generally found in marine waters and migrate through San Francisco Bay to spawn in the Sacramento River, there are occurrences of this species in the San Joaquin River and larger tributaries.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to green sturgeon and critical habitat downstream of the project area. No further actions are recommended.
Delta smelt *Hypomesus transpacificus*	FT, SE	Endemic to the Sacramento Delta, where it is distributed from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties. The delta smelt is a pelagic and euryhaline species	**No Potential.** Critical habitat for delta smelt occurs in the nine quadrangle search, approximately 12 miles north of the Project area but does not extend south of the Stanislaus River. The aquatic habitat within the project area is not suitable for this species.	No further actions are recommended.
San Joaquin roach [Sacramento-San Joaquin roach] *Lavinia symmetricus ssp.*	SSC	Usually associated with small, warm intermittent streams. Widely distributed in Sacramento and San Joaquin river drainages.	**High Potential.** Potential to occur in San Joaquin River and tributaries.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to San Joaquin roach. No further actions are recommended.

Hardhead *Mylopharodon conocephalus*	SSC	Widely distributed in low-to midelevation streams in the main Sacramento- San Joaquin drainage.	**High Potential.** Potential to occur in the San Joaquin River in area of Jennings Plant outfall.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to hardhead. No further actions are recommended.
Steelhead - Central Valley ESU *Oncorhynchus mykiss irideus*	FT	Populations in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**High Potential**. The project area is outside the current range for this ESU. However, steelhead is anticipated to return to the San Joaquin River following the implementation of the San Joaquin River Restoration Program.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to steelhead and habitat downstream of the Project area. No further actions are recommended.

Chinook salmon, Central Valley spring-run ESU *Oncorhynchus tshawytscha*	FT, ST	Anadromous, spending most of life cycle in the ocean. Federal listing includes populations spawning in the Sacramento River and its tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	**High Potential**. Suitable aquatic habitat is present in the Project area. Chinook salmon is anticipated to return to the San Joaquin River following the implementation of the San Joaquin River Restoration Program.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to Chinook salmon and habitat downstream of the Project area. No further actions are recommended.
Chinook salmon - Central Valley fall/late fall-run ESU *Oncorhynchus tshawytscha*	FC, SSC	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**High Potential**. Suitable aquatic habitat is present in the project area. Chinook salmon is anticipated to return to the San Joaquin River following the implementation of the San Joaquin River Restoration Program.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to Chinook salmon and habitat downstream of the Project area. No further actions are recommended.

Chinook salmon, Sacramento River winter-run ESU *Oncorhynchus tshawytscha*	FE, SE, NMFS	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	**No Potential.** The project area is outside the range, including the migratory route, for this ESU.	No further actions are recommended.
Sacramento splittail *Pogonichthys macrolepidotus*	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Splittail are primarily freshwater fish, but are tolerant of moderate salinity and can live in water where salinity levels reach 10-18 parts per thousand.	**High Potential.** Potentially occurs. Has been observed in Tuolumne River within the Modesto reach in recent past.	Avoidance and minimization measures outlined in the MEIR for water quality and the approved NPDES permit for the MEIR will subsequently reduce potential impacts to splittail and habitat downstream of the Project area. No further actions are recommended.
INVERTEBRATES				
Conservancy fairy shrimp *Branchinecta conservatio*	FE	Vernal pools. Usually requires at least 49 days of inundation to reach maturation; as little as 19 days if conditions are optimal.	**No Potential**. Suitable vernal pool and seasonal wetland habitat are not present in the project area.	No further action recommended.
longhorn fairy shrimp *Branchinecta longiantenna*	FE	Vernal pools. Usually requires at least 43 days of inundation to reach maturation; as little as 23 days if conditions are optimal.	**No Potential**. Suitable vernal pool and seasonal wetland habitat are not present in the project area.	No further action recommended.

vernal pool fairy shrimp *Branchinecta lynchi*	FT	Vernal pools. Usually requires at least 41 days of inundation to reach maturation; as little as 18 days if conditions are optimal.	**No Potential**. Suitable vernal pool and seasonal wetland habitat are not present in the project area.	No further action recommended.
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Vernal pools. Typically requires 7 weeks to reach maturity.	**No Potential**. Suitable vernal pool and seasonal wetland habitat are not present in the project area.	No further action recommended.
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Elderberry shrubs required for reproduction and foraging.	**High Potential**. Elderberry shrubs are present in the project area.	Implement pre-construction surveys, agency coordination and mitigation where appropriate (Mitigation Measures E.1.1, E1.2a, 1.2b, and 1.2c).
PLANTS				
alkali milk-vetch *Astragalus tener* var *tener*	1B	Found on playas and valley foothill grassland on clay; blooms March-June.	**Low Potential**. Playa-like habitats, seasonal wetlands and valley foothill grassland are not present in the project area.	No further action recommended.
heartscale *Atriplex cordulata*	1B	Generally found in saline or alkaline soils associated with chenopod scrub and valley foothill grasslands. Blooms May-October.	**Low Potential**. Chenopod scrub or valley and foothill grasslands are not present in the project area.	No further action recommended.
brittlescale *Atriplex depressa*	1B	Chenopod scrub, playas, and valley foothill grassland on alkaline or clay soils.	**Low Potential**. Chenopod scrub or valley and foothill grasslands are not present in the project area.	No further action recommended.
San Joaquin spearscale *Atriplex joaquiniana*	1B	Generally found in alkaline soils associated with chenopod scrub and valley foothill grasslands. Blooms April-September.	**Low Potential**. Chenopod scrub or valley and foothill grasslands are not present in the project area.	No further action recommended.

lesser saltscale *Atriplex minuscula*	1B	Chenopod scrub, playas, valley and foothill grasslands. Sandy, alkaline soils. 15-200m elevation. Blooms April-October.	**Low Potential**. Chenopod scrub or valley and foothill grasslands are not present in the project area.	No further action recommended.
vernal pool smallscale *Atriplex persistens*	1B	Alkaline vernal pools.	**No Potential**. Vernal pools are not present in the project area.	No further action recommended.
subtle orache *Atriplex subtilis*	1B	Valley and foothill grassland. 40-100m elevation. Blooms June-October.	**Low Potential**. Valley and foothill grasslands are not present in the project area.	No further action recommended.
big tarplant *Blepharizonia plumosa*	1B	Clay substrates in valley and foothill grassland. 30-505m elevation. Blooms July-October.	**Low Potential**. Valley and foothill grasslands are not present in the project area.	No further action recommended.
round-leaved filaree *California macrophylla*	1B	Clay substrates in cismontane woodland and valley and foothill grassland. 15-1,200m elevation. Blooms March-May.	**Low Potential**. Cismontane woodland and valley and foothill grasslands are not present in the project area.	No further action recommended.
Lemmon's jewelflower *Caulanthus lemmonii*	1B	Pinyon and juniper woodland, valley and foothill grassland. 80-1,220m elevation. Blooms March-May.	**No Potential**. Pinyon-juniper woodlands and Valley and foothill grasslands are not present in the project area.	No further action recommended.
hispid bird's-beak *Cordylanthus molle* ssp *hispidum*	1B	Occurs in alkaline playas and meadows. Blooms June-September.	**Low Potential**. Alkaline playas and meadows are not present in the project area.	No further action recommended.
Hospital Canyon larkspur *Delphinium californicum* ssp *interius*	1B	Found in cismontane woodland. Blooms April-June.	**No Potential**. Cismontane woodland is not present in the project area.	No further action recommended.
four-angled spikerush *Eleocharis quadrangulata*	CBR	Freshwater marshes; blooms July-September.	**Low Potential.** Slough near pipeline route may provide marginal habitat. Although previously a CNPS Rank 2, this species has been de-ranked.	No further action recommended.

delta button-celery *Eryngium racemosum*	SE, 1B	Occurs in vernally mesic clay depressions; blooms June-August.	**Low Potential.** Limited areas of suitable habitat may be present in the greater project area.	No further action recommended.
diamond-petaled California poppy *Eschscholzia rhombipetala*	1B	Clay soils in valley foothill grassland. 0-975m elevation. Blooms March-April.	**Low Potential.** Valley foothill project area. Believed to be extinct.	No further action recommended.
prostrate navarretia *Navarretia prostrata*	1B	Alkaline soils in grassland or vernal pools.	**Low Potential.** Vernal pools and grassland habitats are not present.	No further action recommended.
San Joaquin Valley orcutt grass *Orcuttia inaequalis*	SE, FT, 1B	Vernal pools. 10-755m elevation. Blooms April-September.	**Low Potential.** Suitable vernal pool habitat is not present in the project area.	No further action recommended.
Sanford's arrowhead *Sagittaria sanfordii*	1B	Standing or slow-moving freshwater ponds, marshes, and ditches.	**Low Potential.** Slough near pipeline route may provide marginal habitat.	No further action recommended.
prairie wedge grass *Sphenopholis obtusata*	2B	Mesic areas in cismontane woodland, meadows and seeps. 300-2,000m. Blooms April-July.	**Low Potential.** Cismontane woodlands, meadows and seeps are not present in the project area.	No further action recommended.
slender-leaved pondweed *Stuckenia filiformis*	2	Shallow freshwater wetlands. Blooms May-July.	**Low Potential.** Slough near pipeline route may provide marginal habitat but habitat is not present in the project area.	No further action recommended.

*** Key to status codes:**

FC	Federal Candidate
FD	Federal Delisted
FE	Federal Endangered
FPT	Federal Proposed Threatened
FT	Federal Threatened
BCC	USFWS Birds of Conservation Concern
CFP	CDFW Fully Protected Animal
MMPA	Species protected under the Marine Mammal Protection Act

NMFS Species under the Jurisdiction of the National Marine Fisheries Service
SE State Endangered
SR State Rare
ST State Threatened
SSC CDFW Species of Special Concern
WBWG 1Western Bat Working Group (High or Medium) Priority species
CNPS Rare Plant Ranks
CBR – Considered but rejected
Rank 1A – Plants presumed extinct in California
Rank 1B – Plants rare, threatened, or endangered in California and elsewhere
Rank 2A – Presumed extirpated in California, but more common elsewhere
Rank 2B – Rare, threatened, or endangered in California, but more common elsewhere
Rank 3 – Plants about which CNPS needs more information (a review list)
Rank 4 – Plants of limited distribution (a watch list)
CNPS Threat Ranks
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Appendix 8.4
Air Quality Analysis

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
AIR QUALITY EMISSIONS ASSESSMENT
MODESTO, CALIFORNIA

December 19, 2013

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Introduction

This report addresses air quality impacts associated with the City of Modesto Wastewater Master Plan Update Project in Modesto, California. Projects facilitated by the Master Plan will include collection system improvements (upgrades to pipes and pump stations), treatment plant improvements at the Primary and Secondary Plants, and operation and maintenance activities at existing and proposed facilities. Because the Plan Update would not change travel patterns in the area, mobile emissions of criteria air pollutants would not increase. However, construction of the projects would emit air pollutants. This analysis was conducted following guidance provided by the San Joaquin Valley Air Pollution Control District (SJVAPCD).[1]

Setting

The project is located in the San Joaquin Valley Air Basin. Ambient air quality standards have been established at both the State and Federal level. The San Joaquin Valley meets all ambient air quality standards with the exception of ground level ozone and fine particulate matter ($PM_{2.5}$). The Valley is classified as attainment under the federal standards for respirable particulate matter (PM_{10}); however, it is classified as nonattainment under the more stringent State standard.

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_X). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the San Joaquin Valley's attempts to reduce ozone levels. High ozone levels were recorded in the San Joaquin Valley. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant in the San Joaquin Valley. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Modesto is located in the San Joaquin Valley, where winds are predominantly up-valley (flowing from the north) in all seasons, but more so in the summer and spring months. Winter and fall are characterized by mostly light and variable wind flow. Air temperatures are cooler and in the winter and hotter in the summer. Daytime temperatures in the summer often approach or exceed 100 degrees, with

[1] SJVAPCD, 2012. *Draft Guidance for Assessing and Mitigating Air Quality Impacts.* May.

lows in the 60s. In the winter, daytime temperatures are usually in the 50s, with lows around 35 degrees. Radiation fog is common in the winter, and may persist for days. Partly to mostly cloudy days are common in winter, as most precipitation received in the Valley falls from November through April.

The pollution potential of the San Joaquin Valley is very high. The San Joaquin Valley has one of the most severe air pollution problems in the State and the Country. Surrounding elevated terrain in conjunction with temperature inversions frequently restrict lateral and vertical dilution of pollutants. Abundant sunshine and warm temperatures in late spring, summer, and early fall are ideal conditions for the formation of ozone, where the Valley frequently experiences unhealthy air pollution days. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high PM_{10} concentrations and elevated carbon monoxide levels.

National and State Ambient Air Quality Standards

The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

As required by the Federal Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter, including respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$), sulfur oxides, and lead. Pursuant to the California Clean Air Act, the State of California has established the California Ambient Air Quality Standards (CAAQS). Relevant State and Federal standards are summarized in Table 1. CAAQS are generally the same or more stringent than NAAQS.

Air Quality Monitoring Data

The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population. The California Air Resources Board (CARB), in cooperation with SJVAPCD, monitors air quality throughout the San Joaquin Valley Air Basin. The closest monitoring station to the project site is in Modesto, located at 814 14^{th} Street. NO_2 concentrations were not available at Modesto, so reporting values from the S. Minaret Street monitoring station in Turlock were used. Summarized air pollutant data for this station is provided in Table 2. This table shows the highest air pollutant concentrations measured at the station over the three year period from 2010 through 2012.

Table 1. Relevant California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone	8-hour	0.070 ppm (137 $\mu g/m^3$)	0.075 ppm (147$\mu g/m^3$)
	1-hour	0.09 ppm (180 $\mu g/m^3$)	—
Carbon monoxide	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen dioxide	1-hour	0.18 ppm (339 $\mu g/m^3$)	0.100 ppm (188 $\mu g/m^3$)
	Annual	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)
Sulfur Dioxide	1-hour	0.25 ppm (655 $\mu g/m^3$)	0.075 ppm (196 $\mu g/m^3$)
	24-hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)
	Annual	—	0.03 ppm (56 $\mu g/m^3$)
Particulate Matter (PM_{10})	Annual	20 $\mu g/m^3$	—
	24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$
Particulate Matter ($PM_{2.5}$)	Annual	12 $\mu g/m^3$	12 $\mu g/m^3$
	24-hour	—	35 $\mu g/m^3$

Notes: ppm = parts per million mg/m^3 = milligrams per cubic meter $\mu g/m^3$ = micrograms per cubic meter

Table 2. Highest Measured Air Pollutant Concentrations in Modesto and Turlock

Pollutant	Average Time	Measured Air Pollutant Levels		
		2010	2011	2012
Ozone (O_3)	1-Hour	**0.105 ppm**	**0.091 ppm**	**0.104 ppm**
	8-Hour	**0.081 ppm**	**0.078 ppm**	**0.091 ppm**
Carbon Monoxide (CO)	8-Hour	1.78 ppm	2.71 ppm	2.10 ppm
Nitrogen Dioxide (NO_2)[1]	1-Hour	50 ppm	54 ppm	61 ppm
	Annual	10 ppm	ND	ND
Respirable Particulate Matter (PM_{10})	24-Hour	**58.9 ug/m^3**	**73.5 ug/m^3**	**74.6 ug/m^3**
	Annual	**22.1 ug/m^3**	**25.5 ug/m^3**	**25.6 ug/m^3**
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	**53.2 ug/m^3**	**71.7 ug/m^3**	**62.3 ug/m^3**
	Annual	**12.2 ug/m^3**	**14.6 ug/m^3**	11.9 ug/m^3

Source: CARB, 2012.
Notes: ppm = parts per million and ug/m^3 = micrograms per cubic meter.
Values reported in bold exceed ambient air quality standard.
ND = No data.
[1]Data reported from Turlock Monitoring Station.

Ambient Air Quality Status

Areas with air pollutant levels that exceed adopted air quality standards are designated as "nonattainment" areas for the relevant air pollutants. Nonattainment areas are sometimes further classified by degree (marginal, moderate, serious, severe, and extreme for ozone, and moderate and serious for carbon monoxide and PM_{10}) or status ("nonattainment-transitional"). Areas that comply with air quality standards are designated as "attainment" areas for the relevant air pollutants. "Unclassified" areas are those with insufficient air quality monitoring data to support a designation of attainment or nonattainment, but are generally presumed to meet the ambient air quality standard. State Implementation Plans must be prepared by states for areas designated as federal nonattainment areas to demonstrate how the area will come into attainment of the exceeded federal ambient air quality standard. The San Joaquin Valley is considered an extreme nonattainment area for ozone under the NAAQS and severe nonattainment for ozone under the CAAQS. The Valley is also designated as nonattainment for $PM_{2.5}$ under both the NAAQS and CAAQS. For PM10, the Valley is designated nonattainment under the CAAQS, but is designated an attainment-maintenance area under the NAAQS. The region is designated attainment or unclassified for all other ambient air quality standards. The attainment status for the Valley with respect to various pollutants of concern is displayed in Table 3.

Table 3. Plan Area Attainment Status

Pollutant	Federal Status	State Status
Ozone (O_3) – 1-Hour Standard	No Federal Standard	Severe Nonattainment
Ozone (O_3) – 8-Hour Standard	Extreme Nonattainment	Nonattainment
Respirable Particulate Matter (PM_{10})	Attainment-Maintenance	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)[1]	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment-Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Sulfates and Lead	No Designation	Attainment
Hydrogen Sulfide	No Designation	Unclassified
Visibility Reducing Particles	No Designation	Unclassified

Notes: [1] The Valley is designated nonattainment for the 1997 federal $PM_{2.5}$ standards. EPA released final designations for the 2006 $PM_{2.5}$ standards (effective in 2009), designating the Valley as nonattainment.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. The closest sensitive receptors are residences located to the north of the Sutter Facility on Garden Avenue, residences adjacent to the proposed 10-inch sewer main route along Oakdale Road and Sylvan Avenue, and residences adjacent to the proposed River Trunk realignment along Tuolumne Boulevard and Colorado Avenue. For the River Trunk Lift Station, the closest sensitive receptor is the Tuolumne Christian Daycare located approximately 475 feet north of the proposed site. The closest sensitive receptor to the Jennings facility is a farm house located approximately 0.25 miles east of the site.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of diesel particulate matter (DPM). Several of these regulatory programs affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[2] The regulation requires affected vehicles to meet specific performance requirements between 2012 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

[2] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: December 19, 2013.

The SJVAPCD is the regional agency tasked with managing air quality in the region. At the State level, CARB (a part of the California Environmental Protection Agency) oversees regional air district activities and regulates air quality at the State level. The SJVAPCD published CEQA Air Quality Guidelines are used in this assessment to evaluate air quality impacts of projects.[3]

Significance Thresholds

The SJVAPCD has developed the *Guide for Assessing and Mitigating Air Quality Impacts*, also known as the GAMAQI. The current GAMAQI was adopted by the SJVAPCD Board in 1998 and last revised in 2002. However, SJVAPCD has recently published the Draft GAMAQI in 2012.[4] While the Draft 2012 GAMAQI has not yet been adopted by the SJVAPCD board, they represent the latest guidance for addressing air quality impacts in the SJVAB. Changes to the GAMAQI are primarily administrative in nature to update air basin information, attainment status, and general guidance to reflect updated conditions. The following thresholds of significance, from the SJVAPCD's GAMAQI, are used to determine whether a proposed project would result in a significant air quality impact:

- Regional significance thresholds. SJVACD has identified regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SJVAB. Table 4 lists SJVAPCD's regional significance thresholds.
- Localized Air Pollutant Concentrations. Emissions of any criteria air pollutant that would exceed the applicable threshold of significance identified in Table 4 or that would generate emissions that equal or exceed 100 lbs per day is considered to result in elevated concentrations of air pollutants that have the potential to exceed the AAQS.
- Localized CO Concentrations. Traffic emissions associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the ambient air quality standards (i.e., CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Toxic Air Contaminants and Health Risk. Exposure to toxic air contaminants (TACs) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual would exceed 10 in 1 million or would result in a Hazard Index greater than 1 for non-cancer health effects.
- Odors. Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors through development of a new odor source or placement of receptors near an existing odor source. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine the presence of a significant odor impact. Rather, SJVAPCD recommends that odor analyses strive to fully disclose all pertinent information.

[3] SJVAPCD, 2012, op. cit.
[4] SJVAPCD, 2012, op. cit.

With respect to cumulative air quality impacts, the GAMAQI provides that any proposed project that would individually have a significant air quality impact (i.e. exceed significance thresholds for ROG, NO_X, or PM_{10}) would also be considered to have a significant cumulative impact.

Table 4. SJVAPCD Regional Significance Thresholds

Criteria Air Pollutant	Construction and Operational Significance Thresholds (Tons/Year)
ROG	10
NO_x	10
PM_{10}	15
$PM_{2.5}$	15

Source: San Joaquin Valley Air Pollution Control District (SJVAPCD), 2012. Draft Guide for Assessing and Mitigating Air Quality Impacts

Impact 1: 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)? ***Less than Significant***

The San Joaquin Valley is considered a non-attainment area for ground-level ozone and fine particulate matter ($PM_{2.5}$) under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM_{10}) under the California Clean Air Act, but not the Federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict emissions from construction of the site assuming full build out of the Plan Update. However, at this time, project-specific information is not available to accurately calculate operational emissions due to a potential increase in energy use from new wastewater treatment equipment. Because no changes in traffic volumes from employees or maintenance activity are expected, mobile operational emissions would not increase.

Construction activities would temporarily affect local air quality, causing a temporary increase in particulate dust and other criteria pollutants. Dust emissions during periods of demolition and construction would increase particulate concentrations at neighboring properties, and emissions from construction equipment exhaust, and worker and vendor vehicle trips would increase pollutant concentrations locally and regionally. This impact is potentially significant, but normally mitigable.

Construction Period Emissions

Five main construction projects are envisioned as part of the Plan Update: (1) the 10 inch sewer main on Oakdale Road, (2) Relocation of the existing primary treatment equipment from the Sutter facility to the Jennings facility, (3) the River Trunk Lift Station, (4) Realignment of the River Trunk collection system, and (5) Parking lot paving and installation of a septic waste receiving station at the Sutter facility. Construction would occur over the course of an approximate 6-year period from Spring 2014 to Fall 2020. CalEEMod provided annual emissions for the assumed construction. CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker and vendor traffic. A construction build-out scenario, including anticipated schedule and equipment to be used and soil hauling volumes was provided by the project applicant. *Attachment 1* includes the provided information and the CalEEMod output for construction emissions.

Land Use Descriptions

A separate CalEEMod model was run for each of the five Plan Update components. Land uses were input into CalEEMod as "User Defined Industrial." For (2) Relocation, an approximate square footage (s.f.) provided by the project applicant of 20,875 s.f. was entered for all building improvements. For (3) River Trunk Lift Station, 700 s.f. was entered. The other Plan Update components would not include new buildings construction.

Table 5 shows annual construction emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ exhaust during construction of the five Plan Update components. As indicated in Table 5, predicted project emissions would not exceed the BAAQMD recommended significance thresholds under either option.

Table 5. Construction Period Emissions (tons per year) [1]

Year	ROG	NOx	PM_{10} Exhaust[2,3]	$PM_{2.5}$ Exhaust[2,3]
2014 – Plan Update components (1) and (5)	0.07	0.59	0.04 (exhaust) 0.01 (dust) 0.05 (total)	0.04 (exhaust) < 0.01 (dust) 0.04 (total)
2016 – Plan Update component (4)	0.09	1.08	0.04 (exhaust) 0.07 (dust) 0.11 (total)	0.04 (exhaust) 0.02 (dust) 0.05 (total)
2017– Plan Update component (4)	0.11	1.25	0.05 (exhaust) 0.07 (dust) 0.13 (total)	0.05(exhaust) 0.02 (dust) 0.07 (total)
2018 – Plan Update components (2) and (3)	0.34	3.52	0.18 (exhaust) 0.94 (dust) 1.11 (total)	0.17 (exhaust) 0.48 (dust) 0.65 (total)
2019 – Plan Update components (2) and (3)	0.15	1.43	0.08 (exhaust) 0.32 (dust) 0.40 (total)	0.08 (exhaust) 0.16 (dust) 0.24 (total)

2020 – Plan Update components (2) and (3)	0.22	0.70	0.04 (exhaust) 0.02 (dust) 0.06 (total)	0.04 (exhaust) <0.01 (dust) 0.04 (total)
Highest Annual Emissions	0.34	3.52	1.11	0.65
SJVAPCD Thresholds (pounds per day)	*10*	*10*	*15*	*15*
Exceed Threshold?	*No*	*No*	*No*	*No*

Notes: No construction activities are anticipated for 2015.

[1] Emissions do not include the effects of implementing Rule 9510 (Indirect Source Review) or Rule 9410 (Employer Based Trip Reduction).

[2] While fugitive dust emissions are excluded from ISR emissions estimates in the AIA, these emissions are considered in the CEQA impact assessments. Consequently, total emissions are compared to SJVAPCD's significance thresholds.

[3] Total may not add to exactly 100 percent due to the effects of rounding.

Consistency with SJVAPCD Regulation VIII – Fugitive Dust Control

As part of the development process for individual, site-specific projects under the Plan Update, applicants would be required to develop and obtain approval of a Fugitive Dust Control Plan (from the City or SJVAPCD, as appropriate) to mitigate, as feasible, fugitive dust emissions to satisfy the requirements set forth under then-applicable SJVAPCD Rules and Regulations, including, without limitation, Regulation VIII. The effect of this rule would, at a minimum, reduce PM_{10} fugitive dust emissions by approximately 55 percent.

Consistency with SJVAPCD Rule 9510

The SJVAPCD Indirect Source Review Rule (Rule 9510) applies to construction of the proposed Plan Update. As part of the development process for individual, site-specific projects under the Plan, each applicant would be required, to the extent specific development at issue is subject to Rule 9510, to prepare a detailed air impact assessment (AIA). To the extent applicable under Rule 9510 for each such individual development, SJVAPCD would require calculation of the construction and operational emissions from the development at issue. The purpose of the AIA is to confirm a development's construction exhaust emissions, and therefore be able to identify appropriate mitigation, either through implementation of specific mitigation measures or payment of applicable off-site fees. Under Rule 9510, each project that is subject to this Rule would be required to reduce construction exhaust emissions by 20 percent for NO_X and 45 percent for PM_{10}[5] or pay offset mitigation fees for emissions that do not achieve the mitigation requirements. Using less-polluting construction equipment, such as newer equipment or retrofitting older equipment reduces construction emissions on-site. A combination of on-site and off-site measures can be implemented to meet the overall emission reduction requirements. Offset fees would be calculated in accordance with the procedures identified in the Rule 9510 and approved by the SJVAPCD.

Operational Period Emissions

SJVAPCD adopted Rule 2201, *New and Modified Stationary Source Review*, to control emissions from new stationary sources and all modifications to existing stationary sources which

[5] While this rule would not directly affect ROG emissions, it would likely indirectly reduce ROG.

are subject to SJVAPCD's permit requirements (i.e. "permit projects" for which the SJVAPCD is the lead agency). Permit projects that exceed the Source Performance Standards are required to install Best Available Control Technology (BACT) to control emissions to the maximum extent practicable. Rule 9510 also applies to operational emissions, requiring reductions of 33.3 percent for NO_X and 50 percent for PM_{10}.

Long-term operational emissions would be generated from the day-to-day operations associated with projects that are part of the Plan Update. Operational emissions for land use development projects are typically distinguished as mobile, energy, and area sources of emissions. Mobile-source emissions are those associated with vehicles coming to and leaving a project site, such as employees and delivery vehicles. Energy sources of emissions are associated with natural gas combustion for space and water heating. Area-source emissions are those associated with landscape maintenance activities, use of consumer products, and periodic architectural coatings. Because no changes in traffic volumes from employees or maintenance activity are expected, mobile operational emissions would not increase. The impacts from future operational (permitted sources) are not considered because (1) source information is not known at this time and (2) permitted sources are required to adhere to additional permitting mandates through the SJVAPCD. Specifically, for stationary sources, the SJVAPCD would evaluate them under their New and Modified Source Review program to ensure that emissions from permitted sources do not exceed the federal standards (which also ensure they do not generate a significant health risk). Specifically, Regulation II (Permits) requires stationary sources to obtain permits, and includes Rule 2010 that specifies requirements for individual sources, Rule 2201 for review of new or modified stationary sources and implements emissions reduction and banking requirements specified in Rule 2301. According to SJVAPCD GAMAQI, Regulation II ensures that stationary source emissions (permitted sources) will be reduced or mitigated below SJVAPCD significance thresholds. While these sources may incrementally contribute to the Plan Update's inventory, individually these emissions sources are considered less than significant because they would be required by SJVAPCD permitting requirements to meet the standards identified above.

Impact 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ***Less than Significant***

As discussed under Impact 1, the project would not exceed SJVAPCD standards for construction-period emissions. Operational period emissions would be computed once project-specific information is available for project components that include stationary equipment. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels are at healthy levels in the San Joaquin Valley. As a result, the region has been designated as attainment for the standard. As discussed above, the Plan Update would not change travel patterns in the area and, as a result, would not have a significant impact with respect to localized CO hotspots.

Impact 3: Expose sensitive receptors to substantial pollutant concentrations? ***Less-than-significant***

Project impacts related to increased health risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. The proposed project would not introduce new sensitive receptors (residences) to the project site.

Project Operation

As discussed above, the Plan Update would not change travel patterns in the area, including from maintenance and delivery trucks and, as a result, would not have a significant impact with respect to community health risk.

Stationary sources, besides the clarifiers, digesters, sludge handling equipment, gas handling equipment, and the septic waste receiving station have not been identified. It is possible that the project could include diesel-powered emergency generators. Specific plans or equipment selection of these generators are not known at this time. If installed, diesel generators would be a source of air pollutant emissions during routine testing. These generators are typically tested for 15 minutes to one hour each month, resulting in emissions of air pollutants. The primary emissions are NO_X and diesel particulate matter. Since these types of generators would likely exceed 50 horsepower, they would be subject to SJVAPCD permitting requirements. Sources of air pollutant emissions complying with all applicable SJVACPD regulations generally will not be considered to have a significant air quality impact.

Construction Period

Emissions from construction of the proposed project would temporarily expose nearby sensitive receptors (i.e., residences) to elevated levels of TACs. Construction equipment and trucks fueled by diesel emit diesel particulate matter or DPM, which is a TAC. The closest sensitive receptors are residences located to the north of the Sutter Facility on Garden Avenue, residences adjacent to the proposed 10-inch sewer main route along Oakdale Road and Sylvan Avenue, and residences adjacent to the proposed River Trunk realignment along Tuolumne Boulevard and Colorado Avenue. For the River Trunk Lift Station, the closest sensitive receptor is the Tuolumne Christian Daycare located approximately 475 feet north of the proposed site. The closest sensitive receptor to the Jennings facility is a farm house located approximately 0.25 miles east of the site.

All Plan Update components would be individually constructed over durations ranging from about five to eight months, except for the relocation of the primary treatment equipment from the Sutter facility to the Jennings facility. Relocation-related construction activity would occur over an approximate 27-month construction period. Construction work along sewer main routes and pipeline replacement would progress steadily and would not be expected to remain in any one spot for a

substantial amount of time. Construction work at the Sutter and Jennings facilities would be temporary and would not be expected to result in a significant community health risk impact.

Impact 4: Create objectionable odors affecting a substantial number of people? ***Less-than-Significant***

Construction activities may cause localized odors that would be temporary and are not anticipated to result in frequent odor complaints.

The Sutter and Jennings facilities are the two Plan Update components with the potential to result in operational odor impacts. To determine the existing odor environment surrounding these two facilities, odor complaint records were obtained from SJVAPCD for the most recent three-year period.[6] A review of the complaint records indicated two confirmed odor complaints in the vicinity of Sutter facility and one confirmed odor complaint in the vicinity of the Jennings facility over three years. These are not considered to be frequent complaints.

The Plan Update proposes to relocate primary sewage treatment equipment from the Sutter facility to the Jennings facility and to install a septic receiving station at the Sutter facility. Because the Jennings facility is further from residences then the Sutter facility (0.25 miles compared with 500 feet from the closest Sutter facility building or structure to residences) and because residences are much more sparse in the vicinity of the Jennings facility, it is concluded that odor impacts would be relatively less under the Plan Update. In addition, one to two confirmed odor complaints in the vicinity of a wastewater treatment plant over the course of a three-year period would not be considered substantial. However, upset or new conditions could lead to odors, including the proposed septic receiving station. Therefore, the project applicant should ensure that proper measures are taken to prevent adverse odor impacts. The impact is considered potentially significant.

Mitigation Measure AQ-1: Develop an Odor Control Plan and Install Odor Control Systems

Wastewater treatment facilities are a source of odors that can result in odor complaints. Modern facilities typically can manage odors to prevent complaints. An odor control plan should be instated that would identify measures and procedures for dealing with and responding to odor complaints. Wastewater treatment design specifications would contain requirements for odor control systems. The requirements may include: enclosed head works with enclosed sludge removal and storage, ultra-violet disinfection, and constantly aerated ponds. Air from the enclosed headworks could be exhausted through an odor control unit. If necessary, solid material should only be removed from the stream in this enclosed area. The solids should be stored within an enclosed area until they are transported off site. When sewage leaves the headworks, it typically moves into a membrane bioreactor that adds a large amount of oxygen to grow the necessary biomass and oxidize organic material that can result in odors. Provisions should be made that if odors occur, more oxygen can be added to the process to eliminate odors. Processing

[6] Personal correspondence between Joshua Carman, Illingworth & Rodkin, Inc., and Theresa Haywood, San Joaquin Valley Air Pollution Control District, December 4, 2013.

of waste sludge could be done inside a building with a ventilation system that would exhaust air through an odor control unit. If necessary, the dewatered sludge could be stored in this building.

In addition, the proposed septic receiving station should be located as far practical and feasible from residences to the north on Garden Avenue, and at a distance of at least 200 feet. A spill clean-up program shall be in place to immediately deal with and clean up any sewage spill to reduce the potential for odor impacts to neighboring residences. As necessary, the septic receiving station could be enclosed to prevent or minimize potential odor impacts.

Impact 5: Conflict with or obstruct implementation of the applicable air quality plan? ***Less-than-significant***

The GAMAQI does not include methodologies for assessing the effect of a plan on consistency with clean air plans developed by the SJVAPCD. Regional clean air plans developed by SJVAPCD rely on local land use designations to develop population and travel projections that are the basis of future emissions inventories. Air pollution control plans are aimed at reducing these projected future emissions. As discussed above, vehicle trips are not expected to increase due to implementation of the Plan Update and the Plan Update is not anticipated to result in a substantial and unplanned level of growth. Therefore, the project would not conflict with or obstruct implementation of efforts outlined in the region's air pollution control plans to attain or maintain ambient air quality standards.

Impact 6: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment *or* conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***Less-than-significant with mitigation***

Gases that trap heat in the atmosphere, greenhouse gases (GHGs), regulate the earth's temperature. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide and water vapor but there are also several others, most importantly: methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities.

- Carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion.
- Nitrous oxide is associated with agricultural operations such as fertilization of crops.
- Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock) and landfill operation.
- Chlorofluorocarbons were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with carbon dioxide being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of carbon dioxide equivalents (CO_2e).

In August 2008, SJVAPCD's Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies and project proponents in assessing and reducing the impacts of project-specific GHG emissions on global climate change. On December 17, 2009, SJVAPCD adopted its Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.[7] The guidance and policy rely on the use of performance based standards, or Best Performance Standards (BPS), to mitigate and assess the significance of project-specific greenhouse gas emissions on global climate change.

Thresholds of Significance

The SJVAPCD has published recommended methodology for determining the significance of a project's contribution to global climate change. According to the Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,[8] projects requiring preparation of an EIR would require quantification of project-specific GHG emissions. Projects implementing Best Performance Standards (BPS) or achieving at least a 29 percent GHG emission reduction compared to Business As Usual (BAU) would be determined to have a less than significant individual and cumulative impacts for GHG. There are no thresholds applicable to GHG emissions associated with Plans.

Construction Period Emissions

The same CalEEMod model run that was used to calculate construction period criteria pollutants was also used to estimate GHG emissions from construction associated with the Plan Update. Under the construction scenario described under Impact 1, construction of the project would emit up to 381 metric tons (MT) of CO_2e during 2018. Neither the City of Modesto nor the SJVAPCD have an adopted threshold for temporary construction activity.

Operational Period Emissions

Long-term operational emissions would be generated from the day-to-day operations of the Plan Update. As discussed above, project-specific information is not available at this time to accurately calculate operational GHG emissions due to a potential increase in energy or water use from new wastewater treatment equipment. Because no changes in traffic volumes from employees or maintenance activity are expected, mobile operational emissions would not

[7] SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.
[8] SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.

increase. Because details, such as wastewater stationary equipment type and horespower of individual Plan Update operations are not known, operational emissions cannot be calculated at this time. This represents a potentially significant impact.

Mitigation Measure GHG-1:

Each individual project component of the Plan Update that proposes new stationary equipment, such as the relocation of the primary treatment equipment from the Sutter facility to the Jennings facility and the proposed River Trunk Lift Station shall be analyzed for significant GHG impacts. For each project-level analysis, appropriate BPS will be implemented or a 29 percent GHG emission reduction compared to BAU will be demonstrated. Means of mitigating GHG impacts to a less-than-significant level include, but are not limited to, technological controls for stationary sources (such as for boilers, generators, and process heaters) and the GHG emission reduction measures (such as energy efficiency, transportation, and site design measures) for development projects listed in the SJVAPCD CCAP.[9]

[9] SJVAPCD, 2009. *Final Staff Report – Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act*. December 17.

Attachment 1: Construction Schedule and CalEEMod Worksheets

Project Name: 10 in Sewer in Oakdale: Sylvan to Mable

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	CalEEMod Hours	Annual Hours	Comments
	Demolition	Start Date:	4/2/2014					
		End Date:	5/9/2014					
1	Concrete/Industrial Saws	81	0.73	2	25	1.785714286	50	Demolition Volume
1	Excavators	162	0.38	3	25	2.678571429	75	Square footage of buildings to be demolished
								(*or* total tons to be hauled)
								0 square feet *or*
								0 Hauling volume (tons)
								Any pavement demolished and hauled? 750 tons
	Trenching	Start Date:	5/9/2014					
		End Date:	6/15/2014					
1	Tractor/Loader/Backhoe	97	0.37	5	25	4.807692308	125	
	Building Construction	Start Date:	6/15/2014					
		End Date:	7/22/2014					
1	Forklifts	89	0.2	5	25	4.62962963	125	
3	Tractors/Loaders/Backhoes	97	0.37	2	25	1.851851852	150	
Architectural Coating		Start Date:	6/15/2014					
		End Date:	6/22/2014					
3	Air Compressors	78	0.48	3	1	0.6	9	
	Paving	Start Date:	6/22/2014					
		Start Date:	7/29/2014					
2	Paving Equipment	130	0.36	2	25	1.851851852	100	
1	Rollers	80	0.38	2	25	1.851851852	50	

Project Name: Relocation of Primary Treatment (Sutter to Jennings)

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	CalEEMod Hours	Annual Hours	Comments
	Demolition	Start Date:	7/15/2018					
		End Date:	9/13/2018					
1	Concrete/Industrial Saws	81	0.73	6	40	5.45454545	240	Demolition Volume
3	Excavators	162	0.38	6	40	5.45454545	720	Square footage of buildings to be demolished
2	Rubber-Tired Dozers	255	0.4	6	40	5.45454545	480	(*or* total tons to be hauled)
								50,000 square feet *or*
								0 Hauling volume (tons)
	Site Preperation	Start Date:	7/15/2018					Any pavement demolished and hauled? ___ tons
		End Date:	10/13/2018					
3	Rubber Tired Dozers	255	0.4	6	60	5.53846154	1080	
4	Tractors/Loaders/Backhoes	97	0.37	6	60	5.53846154	1440	
	Grading / Excavation	Start Date:	10/13/2018					
		End Date:	1/11/2019					Net Soil Hauling Volume
2	Excavators	162	0.38	6	60	5.53846154	720	Export volume = 20,600 cubic yards?
1	Graders	174	0.41	6	60	5.53846154	360	Import volume = 0 cubic yards?
2	Rubber Tired Dozers	255	0.4	6	60	5.53846154	720	
2	Tractors/Loaders/Backhoes	97	0.37	6	60	5.53846154	720	
	Trenching	Start Date:	10/13/2018					
		End Date:	12/12/2018					
2	Tractor/Loader/Backhoe	97	0.37	8	43	8	688	
	Building Construction	Start Date:	1/11/2019					Cement Trucks? 608 Total Round-Trips
		End Date:	5/5/2020					
1	Cranes	226	0.29	6	60	1.04956268	360	Electric? (Y/N) _N_ Otherwise assumed diesel
1	Forklifts	89	0.2	6	240	4.19825073	1440	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.74	6	60	1.04956268	360	
3	Tractors/Loaders/Backhoes	97	0.37	6	360	6.29737609	6480	
1	Welders	46	0.45	6	60	1.04956268	360	
Architectural Coating		Start Date:	5/5/2020					
		End Date:	7/4/2020					
1	Air Compressors	78	0.48	6	40	5.45454545	240	
	Paving	Start Date:	7/4/2020					
		Start Date:	10/2/2020					
2	Pavers	125	0.42	6	60	5.53846154	720	
2	Paving Equipment	130	0.36	6	60	5.53846154	720	
2	Rollers	80	0.38	6	60	5.53846154	720	

Project Name: River Trunk Lift Station

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	CalEEMod Hours	Annual Hours	Comments
	Site Preperation	Start Date:	7/15/2018					
		End Date:	8/14/2018					
3	Rubber Tired Dozers	255	0.4	6	20	5.45454545	360	
4	Tractors/Loaders/Backhoes	97	0.37	6	20	5.45454545	480	
	Grading / Excavation	Start Date:	8/14/2018					
		End Date:	9/13/2018					Net Soil Hauling Volume
1	Excavators	162	0.38	6	20	5.2173913	120	Export volume = 60 cubic yards?
1	Rubber Tired Dozers	255	0.4	6	20	5.2173913	120	Import volume = 0 cubic yards?
1	Tractors/Loaders/Backhoes	97	0.37	6	20	5.2173913	120	
	Trenching	Start Date:	8/14/2018					
		End Date:	9/13/2018					
2	Tractor/Loader/Backhoe	97	0.37	6	10	2.60869565	120	
	Building Construction	Start Date:	9/13/2018					Cement Trucks? 5 Total Round-Trips
		End Date:	3/12/2019					
1	Cranes	226	0.29	6	2	0.09302326	12	Electric? (Y/N) _N_ Otherwise assumed diesel
1	Forklifts	89	0.2	6	5	0.23255814	30	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.74	6	20	0.93023256	120	
3	Tractors/Loaders/Backhoes	97	0.37	6	120	5.58139535	2160	
Architectural Coating		Start Date:	3/12/2019					
		End Date:	3/19/2019					
1	Air Compressors	78	0.48	6	5	5	30	
	Paving	Start Date:	3/19/2019					
		Start Date:	3/26/2019					
2	Pavers	125	0.42	6	5	5	60	
2	Paving Equipment	130	0.36	6	5	5	60	
2	Rollers	80	0.38	6	5	5	60	

Project Name: River Trunk Realignment

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	CalEEMod Hours	Annual Hours	Comments
	Grading / Excavation	Start Date:	10/1/2016					
		End Date:	3/30/2017					Net Soil Hauling Volume
2	Excavators	162	0.38	6	120	5.58139535	1440	Export volume = 60,000 cubic yards?
								Import volume = 0 cubic yards?
	Trenching	Start Date:	10/1/2016					
		End Date:	3/30/2017					
2	Tractor/Loader/Backhoe	97	0.37	6	120	5.58139535	1440	
2	Excavators	162	0.38	6	120	5.58139535	1440	
1	Concrete/Industrial Saws	81	0.73	6	24	1.11627907	144	
	Paving	Start Date:	3/30/2017					
		Start Date:	5/29/2017					
2	Pavers	125	0.42	6	40	5.58139535	480	
2	Paving Equipment	130	0.36	6	40	5.58139535	480	
2	Rollers	80	0.38	6	40	5.58139535	480	

Project Name: Paving at Sutter Facility

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	CalEEMod Hours	Annual Hours	Comments
	Demolition	Start Date:	6/1/2014					
		End Date:	6/15/2014					
3	Concrete/Industrial Saws	81	0.73	4	10	4	120	Demolition Volume
								Square footage of buildings to be demolished
								(*or* total tons to be hauled)
	Site Preperation	Start Date:	6/15/2014					0 square feet *or*
		End Date:	6/22/2014					50 Hauling volume (tons)
1	Tractors/Loaders/Backhoes	97	0.37	8	1	1.6	8	Any pavement demolished and hauled? ___ tons
	Grading / Excavation	Start Date:	6/22/2014					
		End Date:	7/6/2014					Net Soil Hauling Volume
2	Excavators	162	0.38	8	1	0.8	16	Export volume = 0 cubic yards?
1	Graders	174	0.41	8	3	2.4	24	Import volume = 0 cubic yards?
2	Tractors/Loaders/Backhoes	97	0.37	8	3	2.4	48	
	Trenching	Start Date:	7/6/2014					
		End Date:	7/13/2014					
1	Tractor/Loader/Backhoe	97	0.37	8	1	1.6	8	
	Building Construction	Start Date:	7/13/2014					Cement Trucks? 0 Total Round-Trips
		End Date:	10/11/2014					
1	Cranes	226	0.29	3	60	2.76923077	180	Electric? (Y/N) ___ Otherwise assumed diesel
3	Forklifts	89	0.2	6	60	5.53846154	1080	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
2	Welders	46	0.45	8	20	2.46153846	320	
Architectural Coating		Start Date:	10/11/2014					
		End Date:	11/10/2014					
3	Air Compressors	78	0.48	6	15	4.28571429	270	
	Paving	Start Date:	11/10/2014					
		Start Date:	11/17/2014					
1	Pavers	125	0.42	8	3	4	24	
1	Rollers	80	0.38	6	3	3	18	

10" Sewer on Oakdale: Sylvan to Mable Construction

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	4.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage estimated from aerial photography (Google Earth).

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Demolition - 750 tons of pavement removal.

Grading -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	230.00	27.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	18.00	27.00
tblConstructionPhase	PhaseEndDate	7/29/2014	6/22/2014
tblConstructionPhase	PhaseEndDate	6/16/2014	6/15/2014
tblConstructionPhase	PhaseStartDate	7/23/2014	6/15/2014
tblConstructionPhase	PhaseStartDate	6/16/2014	6/15/2014
tblConstructionPhase	PhaseStartDate	6/23/2014	6/22/2014
tblConstructionPhase	PhaseStartDate	5/10/2014	5/9/2014
tblLandUse	LotAcreage	0.00	4.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.60
tblOffRoadEquipment	UsageHours	8.00	1.79
tblOffRoadEquipment	UsageHours	8.00	2.68
tblOffRoadEquipment	UsageHours	8.00	4.63
tblOffRoadEquipment	UsageHours	6.00	1.85
tblOffRoadEquipment	UsageHours	6.00	1.85
tblOffRoadEquipment	UsageHours	7.00	1.85

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.0185	0.1728	0.1267	1.9000e-004	0.0104	0.0112	0.0216	1.8500e-003	0.0105	0.0123	0.0000	18.0473	18.0473	3.8700e-003	0.0000	18.1285
Total	**0.0185**	**0.1728**	**0.1267**	**1.9000e-004**	**0.0104**	**0.0112**	**0.0216**	**1.8500e-003**	**0.0105**	**0.0123**	**0.0000**	**18.0473**	**18.0473**	**3.8700e-003**	**0.0000**	**18.1285**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/2/2014	5/9/2014	5	28	
2	Trenching	Trenching	5/9/2014	6/15/2014	5	26	
3	Building Construction	Building Construction	6/15/2014	7/22/2014	5	27	
4	Architectural Coating	Architectural Coating	6/15/2014	6/22/2014	5	5	
5	Paving	Paving	6/22/2014	7/29/2014	5	27	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.79	81	0.73
Demolition	Excavators	1	2.68	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	4.81	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	1	4.63	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	1.85	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	3	0.60	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	0	8.00	125	0.42
Paving	Paving Equipment	2	1.85	130	0.36
Paving	Rollers	1	1.85	80	0.38

Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	2	5.00	0.00	74.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0200e-003	0.0000	8.0200e-003	1.2200e-003	0.0000	1.2200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4300e-003	0.0406	0.0281	4.0000e-005		2.5100e-003	2.5100e-003		2.4200e-003	2.4200e-003	0.0000	4.0720	4.0720	9.0000e-004	0.0000	4.0910
Total	**4.4300e-003**	**0.0406**	**0.0281**	**4.0000e-005**	**8.0200e-003**	**2.5100e-003**	**0.0105**	**1.2200e-003**	**2.4200e-003**	**3.6400e-003**	**0.0000**	**4.0720**	**4.0720**	**9.0000e-004**	**0.0000**	**4.0910**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	1.0600e-003	0.0138	0.0106	3.0000e-005	6.3000e-004	2.6000e-004	8.9000e-004	1.7000e-004	2.3000e-004	4.1000e-004	0.0000	2.5914	2.5914	2.0000e-005	0.0000	2.5919
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	4.0000e-004	4.0800e-003	1.0000e-005	5.6000e-004	1.0000e-005	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5445	0.5445	3.0000e-005	0.0000	0.5452
Total	**1.4100e-003**	**0.0142**	**0.0146**	**4.0000e-005**	**1.1900e-003**	**2.7000e-004**	**1.4500e-003**	**3.2000e-004**	**2.3000e-004**	**5.6000e-004**	**0.0000**	**3.1359**	**3.1359**	**5.0000e-005**	**0.0000**	**3.1371**

3.3 Trenching - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8800e-003	0.0276	0.0189	2.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	2.3475	2.3475	6.9000e-004	0.0000	2.3621
Total	**2.8800e-003**	**0.0276**	**0.0189**	**2.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**2.3475**	**2.3475**	**6.9000e-004**	**0.0000**	**2.3621**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	2.2000e-004	2.2700e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.3034	0.3034	2.0000e-005	0.0000	0.3038

Total	1.9000e-004	2.2000e-004	2.2700e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.3034	0.3034	2.0000e-005	0.0000	0.3038

3.4 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4000e-003	0.0499	0.0327	4.0000e-005		4.0100e-003	4.0100e-003		3.6900e-003	3.6900e-003	0.0000	3.9612	3.9612	1.1700e-003	0.0000	3.9858
Total	**5.4000e-003**	**0.0499**	**0.0327**	**4.0000e-005**		**4.0100e-003**	**4.0100e-003**		**3.6900e-003**	**3.6900e-003**	**0.0000**	**3.9612**	**3.9612**	**1.1700e-003**	**0.0000**	**3.9858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3000e-004	2.0800e-003	1.4400e-003	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1915	0.1915	3.0000e-005	0.0000	0.1921
Total	**3.3000e-004**	**2.0800e-003**	**1.4400e-003**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.1915**	**0.1915**	**3.0000e-005**	**0.0000**	**0.1921**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.3000e-003	0.0376	0.0223	3.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	3.1957	3.1957	9.4000e-004	0.0000	3.2156
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3000e-003**	**0.0376**	**0.0223**	**3.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**	**0.0000**	**3.1957**	**3.1957**	**9.4000e-004**	**0.0000**	**3.2156**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	6.2000e-004	6.3000e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8401	0.8401	5.0000e-005	0.0000	0.8412
Total	**5.4000e-004**	**6.2000e-004**	**6.3000e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.7000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.8401**	**0.8401**	**5.0000e-005**	**0.0000**	**0.8412**

Relocation of Primary Treatment (Sutter to Jennings)

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	18.00	20,875.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage estimated from aerial photography (Google Earth). 20,875 total building s.f. estimated by project applicant.

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

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Off-road Equipment - Proposed construction equipment list provided by project applicant.

Trips and VMT - 1,216 one-way cement truck trips estimated by project applicant.

Demolition - 50,000 s.f. building demo.

Grading - 20,600 CY grading export.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	44.00

tblConstructionPhase	NumDays	300.00	343.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	30.00	65.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	10.00	65.00
tblConstructionPhase	PhaseEndDate	7/6/2020	7/4/2020
tblConstructionPhase	PhaseEndDate	4/6/2020	5/5/2020
tblConstructionPhase	PhaseEndDate	12/13/2018	10/13/2018
tblConstructionPhase	PhaseEndDate	3/13/2019	12/12/2018
tblConstructionPhase	PhaseStartDate	5/6/2020	5/5/2020
tblConstructionPhase	PhaseStartDate	12/13/2018	1/11/2019
tblConstructionPhase	PhaseStartDate	10/14/2018	10/13/2018
tblConstructionPhase	PhaseStartDate	7/5/2020	7/4/2020
tblConstructionPhase	PhaseStartDate	9/14/2018	7/15/2018
tblConstructionPhase	PhaseStartDate	1/12/2019	10/13/2018
tblGrading	MaterialExported	0.00	20,600.00
tblLandUse	LandUseSquareFeet	0.00	20,875.00
tblLandUse	LotAcreage	0.00	18.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	6.00	5.50
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	7.00	1.10
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	1.10
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	5.50

tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	5.50
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tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	1.10
tblTripsAndVMT	HaulingTripNumber	0.00	1,216.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2659	2.7829	2.3522	3.4600e-003	0.7462	0.1355	0.8817	0.3847	0.1250	0.5096	0.0000	309.5617	309.5617	0.0672	0.0000	310.9731
2019	0.1320	1.2627	1.2134	2.0900e-003	0.3214	0.0729	0.3943	0.1596	0.0675	0.2272	0.0000	182.0333	182.0333	0.0375	0.0000	182.8218
2020	0.2188	0.6973	0.7485	1.2600e-003	0.0168	0.0390	0.0559	4.4000e-003	0.0362	0.0406	0.0000	107.4684	107.4684	0.0267	0.0000	108.0290
Total	**0.6167**	**4.7428**	**4.3141**	**6.8100e-003**	**1.0844**	**0.2474**	**1.3318**	**0.5487**	**0.2287**	**0.7774**	**0.0000**	**599.0634**	**599.0634**	**0.1314**	**0.0000**	**601.8238**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/15/2018	9/13/2018	5	44	
2	Site Preparation	Site Preparation	7/15/2018	10/13/2018	5	65	
3	Grading/Excavation	Grading	10/13/2018	1/11/2019	5	65	
4	Trenching	Trenching	10/13/2018	12/12/2018	5	43	
5	Building Construction	Building Construction	1/11/2019	5/5/2020	5	343	
6	Architectural Coating	Architectural Coating	5/5/2020	7/4/2020	5	44	
7	Paving	Paving	7/4/2020	10/2/2020	5	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 31,313; Non-Residential Outdoor: 10,438 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	5.50	81	0.73
Demolition	Excavators	3	5.50	162	0.38
Demolition	Rubber Tired Dozers	2	5.50	255	0.40
Site Preparation	Rubber Tired Dozers	3	5.50	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	5.50	97	0.37
Grading/Excavation	Excavators	2	5.50	162	0.38
Grading/Excavation	Graders	1	5.50	174	0.41
Grading/Excavation	Rubber Tired Dozers	2	5.50	255	0.40
Grading/Excavation	Scrapers	0	8.00	361	0.48
Grading/Excavation	Tractors/Loaders/Backhoes	2	5.50	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	1.10	226	0.29
Building Construction	Forklifts	1	4.20	89	0.20
Building Construction	Generator Sets	1	1.10	84	0.74

Building Construction	Tractors/Loaders/Backhoes	3	6.30	97	0.37
Building Construction	Welders	1	1.10	46	0.45
Architectural Coating	Air Compressors	1	5.50	78	0.48
Paving	Pavers	2	5.50	125	0.42
Paving	Paving Equipment	2	5.50	130	0.36
Paving	Rollers	2	5.50	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	227.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading/Excavation	7	20.00	0.00	2,575.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	9.00	3.00	1,216.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0246	0.0000	0.0246	3.7300e-003	0.0000	3.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0539	0.5571	0.4798	6.0000e-004		0.0274	0.0274		0.0255	0.0255	0.0000	54.6559	54.6559	0.0151	0.0000	54.9733
Total	**0.0539**	**0.5571**	**0.4798**	**6.0000e-004**	**0.0246**	**0.0274**	**0.0520**	**3.7300e-003**	**0.0255**	**0.0292**	**0.0000**	**54.6559**	**54.6559**	**0.0151**	**0.0000**	**54.9733**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0236	0.0235	8.0000e-005	1.9400e-003	4.0000e-004	2.3400e-003	5.3000e-004	3.6000e-004	9.0000e-004	0.0000	7.4696	7.4696	5.0000e-005	0.0000	7.4707
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e-004	1.1400e-003	0.0115	3.0000e-005	2.6400e-003	2.0000e-005	2.6600e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.2134	2.2134	1.1000e-004	0.0000	2.2157
Total	**2.9200e-003**	**0.0248**	**0.0350**	**1.1000e-004**	**4.5800e-003**	**4.2000e-004**	**5.0000e-003**	**1.2300e-003**	**3.8000e-004**	**1.6200e-003**	**0.0000**	**9.6830**	**9.6830**	**1.6000e-004**	**0.0000**	**9.6864**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4037	0.0000	0.4037	0.2219	0.0000	0.2219	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0959	1.0191	0.8096	8.7000e-004		0.0529	0.0529		0.0486	0.0486	0.0000	79.8588	79.8588	0.0249	0.0000	80.3809
Total	**0.0959**	**1.0191**	**0.8096**	**8.7000e-004**	**0.4037**	**0.0529**	**0.4565**	**0.2219**	**0.0486**	**0.2705**	**0.0000**	**79.8588**	**79.8588**	**0.0249**	**0.0000**	**80.3809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7600e-003	2.0300e-003	0.0205	6.0000e-005	4.6700e-003	4.0000e-005	4.7100e-003	1.2400e-003	3.0000e-005	1.2800e-003	0.0000	3.9238	3.9238	1.9000e-004	0.0000	3.9278
Total	**1.7600e-003**	**2.0300e-003**	**0.0205**	**6.0000e-005**	**4.6700e-003**	**4.0000e-005**	**4.7100e-003**	**1.2400e-003**	**3.0000e-005**	**1.2800e-003**	**0.0000**	**3.9238**	**3.9238**	**1.9000e-004**	**0.0000**	**3.9278**

3.4 Grading/Excavation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2821	0.0000	0.2821	0.1494	0.0000	0.1494	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0791	0.8337	0.6542	7.9000e-004		0.0429	0.0429		0.0395	0.0395	0.0000	71.7617	71.7617	0.0223	0.0000	72.2309
Total	**0.0791**	**0.8337**	**0.6542**	**7.9000e-004**	**0.2821**	**0.0429**	**0.3250**	**0.1494**	**0.0395**	**0.1888**	**0.0000**	**71.7617**	**71.7617**	**0.0223**	**0.0000**	**72.2309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0189	0.2308	0.2293	8.2000e-004	0.0212	3.8600e-003	0.0251	5.7700e-003	3.5500e-003	9.3300e-003	0.0000	73.0001	73.0001	5.3000e-004	0.0000	73.0113
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6800e-003	1.9400e-003	0.0196	5.0000e-005	4.4700e-003	3.0000e-005	4.5100e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	3.7561	3.7561	1.8000e-004	0.0000	3.7599
Total	**0.0206**	**0.2327**	**0.2489**	**8.7000e-004**	**0.0257**	**3.8900e-003**	**0.0296**	**6.9600e-003**	**3.5800e-003**	**0.0106**	**0.0000**	**76.7562**	**76.7562**	**7.1000e-004**	**0.0000**	**76.7712**

3.4 Grading/Excavation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2821	0.0000	0.2821	0.1494	0.0000	0.1494	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.1233	0.1020	1.3000e-004		6.2400e-003	6.2400e-003		5.7400e-003	5.7400e-003	0.0000	11.3468	11.3468	3.5900e-003	0.0000	11.4222
Total	**0.0118**	**0.1233**	**0.1020**	**1.3000e-004**	**0.2821**	**6.2400e-003**	**0.2884**	**0.1494**	**5.7400e-003**	**0.1551**	**0.0000**	**11.3468**	**11.3468**	**3.5900e-003**	**0.0000**	**11.4222**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.9600e-003	0.0338	0.0362	1.3000e-004	0.0173	6.1000e-004	0.0179	4.3200e-003	5.6000e-004	4.8800e-003	0.0000	11.5315	11.5315	8.0000e-005	0.0000	11.5333
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.8000e-004	2.8600e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.5823	0.5823	3.0000e-005	0.0000	0.5829

Total	3.2100e-003	0.0341	0.0391	1.4000e-004	0.0180	6.2000e-004	0.0186	4.5100e-003	5.7000e-004	5.0800e-003	0.0000	12.1138	12.1138	1.1000e-004	0.0000	12.1162

3.5 Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0114	0.1131	0.1005	1.3000e-004		8.0100e-003	8.0100e-003		7.3700e-003	7.3700e-003	0.0000	12.2011	12.2011	3.8000e-003	0.0000	12.2808
Total	**0.0114**	**0.1131**	**0.1005**	**1.3000e-004**		**8.0100e-003**	**8.0100e-003**		**7.3700e-003**	**7.3700e-003**	**0.0000**	**12.2011**	**12.2011**	**3.8000e-003**	**0.0000**	**12.2808**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	3.7000e-004	3.7600e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.3000e-004	0.0000	0.7211	0.7211	3.0000e-005	0.0000	0.7218
Total	**3.2000e-004**	**3.7000e-004**	**3.7600e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.7000e-004**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7211**	**0.7211**	**3.0000e-005**	**0.0000**	**0.7218**

3.6 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1032	0.9896	0.9027	1.2900e-003		0.0640	0.0640		0.0593	0.0593	0.0000	114.4201	114.4201	0.0332	0.0000	115.1178
Total	**0.1032**	**0.9896**	**0.9027**	**1.2900e-003**		**0.0640**	**0.0640**		**0.0593**	**0.0593**	**0.0000**	**114.4201**	**114.4201**	**0.0332**	**0.0000**	**115.1178**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.4500e-003	0.0851	0.0911	3.3000e-004	9.7100e-003	1.5300e-003	0.0112	2.6100e-003	1.4100e-003	4.0200e-003	0.0000	29.0095	29.0095	2.1000e-004	0.0000	29.0140
Vendor	3.2100e-003	0.0271	0.0423	9.0000e-005	2.4700e-003	4.7000e-004	2.9400e-003	7.1000e-004	4.3000e-004	1.1400e-003	0.0000	7.7769	7.7769	6.0000e-005	0.0000	7.7782
Worker	3.1200e-003	3.5900e-003	0.0362	1.1000e-004	9.1000e-003	7.0000e-005	9.1700e-003	2.4200e-003	6.0000e-005	2.4800e-003	0.0000	7.3662	7.3662	3.4000e-004	0.0000	7.3734
Total	**0.0138**	**0.1157**	**0.1697**	**5.3000e-004**	**0.0213**	**2.0700e-003**	**0.0234**	**5.7400e-003**	**1.9000e-003**	**7.6400e-003**	**0.0000**	**44.1526**	**44.1526**	**6.1000e-004**	**0.0000**	**44.1655**

3.6 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0330	0.3183	0.3169	4.6000e-004		0.0195	0.0195		0.0181	0.0181	0.0000	39.9108	39.9108	0.0118	0.0000	40.1580
Total	**0.0330**	**0.3183**	**0.3169**	**4.6000e-004**		**0.0195**	**0.0195**		**0.0181**	**0.0181**	**0.0000**	**39.9108**	**39.9108**	**0.0118**	**0.0000**	**40.1580**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-003	0.0262	0.0319	1.2000e-004	8.4700e-003	5.4000e-004	9.0100e-003	2.1600e-003	4.9000e-004	2.6500e-003	0.0000	10.0845	10.0845	8.0000e-005	0.0000	10.0861
Vendor	1.0600e-003	8.1200e-003	0.0145	3.0000e-005	8.8000e-004	1.5000e-004	1.0200e-003	2.5000e-004	1.3000e-004	3.9000e-004	0.0000	2.7034	2.7034	2.0000e-005	0.0000	2.7038
Worker	1.0300e-003	1.1800e-003	0.0119	4.0000e-005	3.2400e-003	2.0000e-005	3.2600e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.5179	2.5179	1.1000e-004	0.0000	2.5203
Total	**4.6900e-003**	**0.0355**	**0.0583**	**1.9000e-004**	**0.0126**	**7.1000e-004**	**0.0133**	**3.2700e-003**	**6.4000e-004**	**3.9200e-003**	**0.0000**	**15.3058**	**15.3058**	**2.1000e-004**	**0.0000**	**15.3102**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Archit. Coating	0.1451					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8800e-003	0.0340	0.0369	6.0000e-005		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	5.1491	5.1491	4.0000e-004	0.0000	5.1574
Total	**0.1500**	**0.0340**	**0.0369**	**6.0000e-005**		**2.2400e-003**	**2.2400e-003**		**2.2400e-003**	**2.2400e-003**	**0.0000**	**5.1491**	**5.1491**	**4.0000e-004**	**0.0000**	**5.1574**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.3000e-004	1.2900e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2736	0.2736	1.0000e-005	0.0000	0.2738
Total	**1.1000e-004**	**1.3000e-004**	**1.2900e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2736**	**0.2736**	**1.0000e-005**	**0.0000**	**0.2738**

3.8 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.3080	0.3207	5.0000e-004		0.0165	0.0165		0.0152	0.0152	0.0000	43.7984	43.7984	0.0142	0.0000	44.0958
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	0.0297	0.3080	0.3207	5.0000e-004		0.0165	0.0165		0.0152	0.0152	0.0000	43.7984	43.7984	0.0142	0.0000	44.0958

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	1.4200e-003	0.0143	5.0000e-005	3.9000e-003	3.0000e-005	3.9200e-003	1.0400e-003	3.0000e-005	1.0600e-003	0.0000	3.0308	3.0308	1.4000e-004	0.0000	3.0337
Total	**1.2400e-003**	**1.4200e-003**	**0.0143**	**5.0000e-005**	**3.9000e-003**	**3.0000e-005**	**3.9200e-003**	**1.0400e-003**	**3.0000e-005**	**1.0600e-003**	**0.0000**	**3.0308**	**3.0308**	**1.4000e-004**	**0.0000**	**3.0337**

River Trunk Lift Station

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	700.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage estimated from aerial photography (Google Earth). 700 total building s.f. estimated by project applicant.

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

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Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Trips and VMT - 10 one-way cement truck trips estimated by project applicant.

Demolition -

Grading - 60 CY grading export.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	6.00
tblConstructionPhase	NumDays	100.00	129.00
tblConstructionPhase	NumDays	2.00	23.00
tblConstructionPhase	NumDays	5.00	6.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	PhaseEndDate	3/20/2019	3/19/2019
tblConstructionPhase	PhaseEndDate	3/13/2019	3/12/2019
tblConstructionPhase	PhaseEndDate	9/14/2018	9/13/2018
tblConstructionPhase	PhaseEndDate	3/27/2019	3/26/2019
tblConstructionPhase	PhaseEndDate	10/16/2018	9/13/2018
tblConstructionPhase	PhaseStartDate	3/13/2019	3/12/2019
tblConstructionPhase	PhaseStartDate	9/14/2018	9/13/2018
tblConstructionPhase	PhaseStartDate	8/15/2018	8/14/2018
tblConstructionPhase	PhaseStartDate	3/20/2019	3/19/2019
tblConstructionPhase	PhaseStartDate	9/14/2018	8/14/2018
tblGrading	MaterialExported	0.00	60.00
tblLandUse	LandUseSquareFeet	0.00	700.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	5.00
tblOffRoadEquipment	UsageHours	6.00	0.10
tblOffRoadEquipment	UsageHours	6.00	0.20
tblOffRoadEquipment	UsageHours	8.00	0.90
tblOffRoadEquipment	UsageHours	6.00	5.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	6.00	5.20
tblOffRoadEquipment	UsageHours	7.00	5.50
tblOffRoadEquipment	UsageHours	6.00	5.60
tblOffRoadEquipment	UsageHours	7.00	5.20
tblOffRoadEquipment	UsageHours	8.00	5.50
tblTripsAndVMT	HaulingTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0723	0.7363	0.6249	7.8000e-004	0.1866	0.0426	0.2291	0.1011	0.0393	0.1404	0.0000	69.8601	69.8601	0.0204	0.0000	70.2885
2019	0.0224	0.1719	0.1688	2.4000e-004	4.3000e-004	0.0110	0.0114	1.1000e-004	0.0102	0.0103	0.0000	21.6256	21.6256	6.1700e-003	0.0000	21.7551
Total	**0.0947**	**0.9082**	**0.7937**	**1.0200e-003**	**0.1870**	**0.0536**	**0.2406**	**0.1012**	**0.0495**	**0.1507**	**0.0000**	**91.4857**	**91.4857**	**0.0266**	**0.0000**	**92.0436**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/15/2018	8/14/2018	5	22	
2	Grading/Excavation	Grading	8/14/2018	9/13/2018	5	23	
3	Trenching	Trenching	8/14/2018	9/13/2018	5	23	
4	Building Construction	Building Construction	9/13/2018	3/12/2019	5	129	
5	Architectural Coating	Architectural Coating	3/12/2019	3/19/2019	5	6	
6	Paving	Paving	3/19/2019	3/26/2019	5	6	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,050; Non-Residential Outdoor: 350 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	3	5.50	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	5.50	97	0.37
Grading/Excavation	Excavators	1	5.20	162	0.38
Grading/Excavation	Graders	0	6.00	174	0.41
Grading/Excavation	Rubber Tired Dozers	1	5.20	255	0.40
Grading/Excavation	Tractors/Loaders/Backhoes	1	5.20	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	2.60	97	0.37
Building Construction	Cranes	1	0.10	226	0.29
Building Construction	Forklifts	1	0.20	89	0.20
Building Construction	Generator Sets	1	0.90	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	5.60	97	0.37

Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	1	5.00	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	2	5.00	125	0.42
Paving	Paving Equipment	2	5.00	130	0.36
Paving	Rollers	2	5.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading/Excavation	3	8.00	0.00	8.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	0.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1366	0.0000	0.1366	0.0751	0.0000	0.0751	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0325	0.3449	0.2740	3.0000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	27.0292	27.0292	8.4100e-003	0.0000	27.2059
Total	**0.0325**	**0.3449**	**0.2740**	**3.0000e-004**	**0.1366**	**0.0179**	**0.1545**	**0.0751**	**0.0165**	**0.0916**	**0.0000**	**27.0292**	**27.0292**	**8.4100e-003**	**0.0000**	**27.2059**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	6.9000e-004	6.9300e-003	2.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3281	1.3281	6.0000e-005	0.0000	1.3294
Total	**5.9000e-004**	**6.9000e-004**	**6.9300e-003**	**2.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3281**	**1.3281**	**6.0000e-005**	**0.0000**	**1.3294**

3.3 Grading/Excavation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0450	0.0000	0.0450	0.0247	0.0000	0.0247	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.1308	0.1096	1.3000e-004		6.5800e-003	6.5800e-003		6.0500e-003	6.0500e-003	0.0000	11.8111	11.8111	3.6800e-003	0.0000	11.8883
Total	**0.0123**	**0.1308**	**0.1096**	**1.3000e-004**	**0.0450**	**6.5800e-003**	**0.0516**	**0.0247**	**6.0500e-003**	**0.0308**	**0.0000**	**11.8111**	**11.8111**	**3.6800e-003**	**0.0000**	**11.8883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	8.3000e-004	8.3000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2633	0.2633	0.0000	0.0000	0.2633
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	3.2000e-004	3.2200e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6171	0.6171	3.0000e-005	0.0000	0.6177
Total	**3.5000e-004**	**1.1500e-003**	**4.0500e-003**	**1.0000e-005**	**8.1000e-004**	**2.0000e-005**	**8.2000e-004**	**2.2000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**0.8803**	**0.8803**	**3.0000e-005**	**0.0000**	**0.8810**

3.4 Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9900e-003	0.0197	0.0175	2.0000e-005		1.3900e-003	1.3900e-003		1.2800e-003	1.2800e-003	0.0000	2.1210	2.1210	6.6000e-004	0.0000	2.1349
Total	**1.9900e-003**	**0.0197**	**0.0175**	**2.0000e-005**		**1.3900e-003**	**1.3900e-003**		**1.2800e-003**	**1.2800e-003**	**0.0000**	**2.1210**	**2.1210**	**6.6000e-004**	**0.0000**	**2.1349**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.0000e-004	2.0100e-003	1.0000e-005	2.4500e-003	0.0000	2.4500e-003	6.1000e-004	0.0000	6.1000e-004	0.0000	0.3857	0.3857	2.0000e-005	0.0000	0.3861
Total	**1.7000e-004**	**2.0000e-004**	**2.0100e-003**	**1.0000e-005**	**2.4500e-003**	**0.0000**	**2.4500e-003**	**6.1000e-004**	**0.0000**	**6.1000e-004**	**0.0000**	**0.3857**	**0.3857**	**2.0000e-005**	**0.0000**	**0.3861**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0245	0.2382	0.2102	2.9000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	26.1059	26.1059	7.5300e-003	0.0000	26.2641
Total	**0.0245**	**0.2382**	**0.2102**	**2.9000e-004**		**0.0167**	**0.0167**		**0.0154**	**0.0154**	**0.0000**	**26.1059**	**26.1059**	**7.5300e-003**	**0.0000**	**26.2641**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	6.3000e-004	6.2000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1990	0.1990	0.0000	0.0000	0.1990
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	5.0000e-005	6.3000e-004	6.2000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1990	0.1990	0.0000	0.0000	0.1990

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0140	0.1388	0.1355	1.9000e-004		9.1500e-003	9.1500e-003		8.4700e-003	8.4700e-003	0.0000	16.8109	16.8109	4.9100e-003	0.0000	16.9139
Total	**0.0140**	**0.1388**	**0.1355**	**1.9000e-004**		**9.1500e-003**	**9.1500e-003**		**8.4700e-003**	**8.4700e-003**	**0.0000**	**16.8109**	**16.8109**	**4.9100e-003**	**0.0000**	**16.9139**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	3.7000e-004	4.0000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1279	0.1279	0.0000	0.0000	0.1279
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0000e-005**	**3.7000e-004**	**4.0000e-004**	**0.0000**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**2.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.1279**	**0.1279**	**0.0000**	**0.0000**	**0.1279**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.8700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6395
Total	**5.5400e-003**	**4.5900e-003**	**4.6000e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.6383**	**0.6383**	**5.0000e-005**	**0.0000**	**0.6395**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.6700e-003	0.0280	0.0269	4.0000e-005		1.5200e-003	1.5200e-003		1.4000e-003	1.4000e-003	0.0000	3.7574	3.7574	1.1900e-003	0.0000	3.7824
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6700e-003**	**0.0280**	**0.0269**	**4.0000e-005**		**1.5200e-003**	**1.5200e-003**		**1.4000e-003**	**1.4000e-003**	**0.0000**	**3.7574**	**3.7574**	**1.1900e-003**	**0.0000**	**3.7824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	1.4000e-004	1.4300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2912	0.2912	1.0000e-005	0.0000	0.2914
Total	**1.2000e-004**	**1.4000e-004**	**1.4300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2912**	**0.2912**	**1.0000e-005**	**0.0000**	**0.2914**

River Trunk Realignment

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	13.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage estimated from aerial photography (Google Earth).

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Demolition -

Grading - 60,000 CY grading export.

Trips and VMT -

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Table Name	Column Name	Default Value	New Value

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	30.00	129.00
tblConstructionPhase	PhaseEndDate	5/30/2017	5/29/2017
tblConstructionPhase	PhaseEndDate	9/27/2017	3/30/2017
tblConstructionPhase	PhaseStartDate	3/31/2017	3/30/2017
tblConstructionPhase	PhaseStartDate	3/31/2017	10/1/2016
tblGrading	AcresOfGrading	0.00	13.00
tblGrading	MaterialExported	0.00	60,000.00
tblLandUse	LotAcreage	0.00	13.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	UsageHours	8.00	5.58
tblOffRoadEquipment	UsageHours	8.00	5.58
tblOffRoadEquipment	UsageHours	8.00	5.58
tblOffRoadEquipment	UsageHours	8.00	5.58

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0940	1.0757	0.8965	2.1200e-003	0.0711	0.0405	0.1116	0.0172	0.0374	0.0546	0.0000	194.0630	194.0630	0.0191	0.0000	194.4642
2017	0.1138	1.2549	1.0822	2.4500e-003	0.0735	0.0530	0.1264	0.0179	0.0488	0.0667	0.0000	221.0049	221.0049	0.0283	0.0000	221.5997
Total	**0.2077**	**2.3306**	**1.9787**	**4.5700e-003**	**0.1445**	**0.0935**	**0.2380**	**0.0351**	**0.0862**	**0.1213**	**0.0000**	**415.0679**	**415.0679**	**0.0474**	**0.0000**	**416.0639**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading/Excavation	Grading	10/1/2016	3/30/2017	5	129	
2	Trenching	Trenching	10/1/2016	3/30/2017	5	129	
3	Paving	Paving	3/30/2017	5/29/2017	5	43	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading/Excavation	Excavators	2	5.58	162	0.38
Grading/Excavation	Graders	0	8.00	174	0.41
Grading/Excavation	Rubber Tired Dozers	0	8.00	255	0.40
Grading/Excavation	Scrapers	0	8.00	361	0.48
Grading/Excavation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	5.58	97	0.37
Trenching	Excavators	2	5.58	162	0.38
Trenching	Concrete/Industrial Saws	1	1.12	81	0.73
Paving	Pavers	2	5.58	125	0.42
Paving	Paving Equipment	2	5.58	130	0.36
Paving	Rollers	2	5.58	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading/Excavation	2	5.00	0.00	7,500.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.2 Grading/Excavation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					0.0103	0.0000	0.0103	1.2600e-003	0.0000	1.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0176	0.2009	0.1554	2.4000e-004		9.8800e-003	9.8800e-003		9.0900e-003	9.0900e-003	0.0000	22.6179	22.6179	6.8200e-003	0.0000	22.7611
Total	**0.0176**	**0.2009**	**0.1554**	**2.4000e-004**	**0.0103**	**9.8800e-003**	**0.0202**	**1.2600e-003**	**9.0900e-003**	**0.0104**	**0.0000**	**22.6179**	**22.6179**	**6.8200e-003**	**0.0000**	**22.7611**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0381	0.5024	0.4326	1.4100e-003	0.0561	7.7600e-003	0.0639	0.0147	7.1400e-003	0.0219	0.0000	128.8119	128.8119	9.7000e-004	0.0000	128.8322
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	7.1000e-004	7.2400e-003	2.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.1659	1.1659	6.0000e-005	0.0000	1.1672
Total	**0.0387**	**0.5031**	**0.4399**	**1.4300e-003**	**0.0574**	**7.7700e-003**	**0.0652**	**0.0151**	**7.1500e-003**	**0.0222**	**0.0000**	**129.9778**	**129.9778**	**1.0300e-003**	**0.0000**	**129.9994**

3.2 Grading/Excavation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0103	0.0000	0.0103	1.2600e-003	0.0000	1.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0162	0.1793	0.1527	2.4000e-004		8.8200e-003	8.8200e-003		8.1200e-003	8.1200e-003	0.0000	21.9193	21.9193	6.7200e-003	0.0000	22.0604

Total	0.0162	0.1793	0.1527	2.4000e-004	0.0103	8.8200e-003	0.0191	1.2600e-003	8.1200e-003	9.3800e-003	0.0000	21.9193	21.9193	6.7200e-003	0.0000	22.0604

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0330	0.4332	0.3969	1.3800e-003	0.0560	6.6000e-003	0.0626	0.0147	6.0700e-003	0.0208	0.0000	124.5975	124.5975	9.0000e-004	0.0000	124.6165
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	6.2000e-004	6.2400e-003	2.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1008	1.1008	5.0000e-005	0.0000	1.1019
Total	**0.0336**	**0.4338**	**0.4032**	**1.4000e-003**	**0.0573**	**6.6100e-003**	**0.0639**	**0.0150**	**6.0800e-003**	**0.0211**	**0.0000**	**125.6983**	**125.6983**	**9.5000e-004**	**0.0000**	**125.7184**

3.3 Trenching - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0360	0.3699	0.2823	4.1000e-004		0.0228	0.0228		0.0211	0.0211	0.0000	38.4360	38.4360	0.0111	0.0000	38.6689
Total	**0.0360**	**0.3699**	**0.2823**	**4.1000e-004**		**0.0228**	**0.0228**		**0.0211**	**0.0211**	**0.0000**	**38.4360**	**38.4360**	**0.0111**	**0.0000**	**38.6689**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6200e-003	1.8500e-003	0.0188	4.0000e-005	3.3800e-003	3.0000e-005	3.4000e-003	9.0000e-004	2.0000e-005	9.2000e-004	0.0000	3.0314	3.0314	1.6000e-004	0.0000	3.0347
Total	**1.6200e-003**	**1.8500e-003**	**0.0188**	**4.0000e-005**	**3.3800e-003**	**3.0000e-005**	**3.4000e-003**	**9.0000e-004**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**3.0314**	**3.0314**	**1.6000e-004**	**0.0000**	**3.0347**

3.3 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0329	0.3346	0.2767	4.0000e-004		0.0204	0.0204		0.0189	0.0189	0.0000	37.2741	37.2741	0.0109	0.0000	37.5029
Total	**0.0329**	**0.3346**	**0.2767**	**4.0000e-004**		**0.0204**	**0.0204**		**0.0189**	**0.0189**	**0.0000**	**37.2741**	**37.2741**	**0.0109**	**0.0000**	**37.5029**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	1.6000e-003	0.0162	4.0000e-005	3.3200e-003	3.0000e-005	3.3500e-003	8.8000e-004	2.0000e-005	9.1000e-004	0.0000	2.8620	2.8620	1.4000e-004	0.0000	2.8650
Total	**1.4000e-003**	**1.6000e-003**	**0.0162**	**4.0000e-005**	**3.3200e-003**	**3.0000e-005**	**3.3500e-003**	**8.8000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**2.8620**	**2.8620**	**1.4000e-004**	**0.0000**	**2.8650**

3.4 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0286	0.3044	0.2209	3.3000e-004		0.0171	0.0171		0.0157	0.0157	0.0000	31.0324	31.0324	9.5100e-003	0.0000	31.2320
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0286**	**0.3044**	**0.2209**	**3.3000e-004**		**0.0171**	**0.0171**		**0.0157**	**0.0157**	**0.0000**	**31.0324**	**31.0324**	**9.5100e-003**	**0.0000**	**31.2320**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	1.2400e-003	0.0126	3.0000e-005	2.5800e-003	2.0000e-005	2.6000e-003	6.8000e-004	2.0000e-005	7.0000e-004	0.0000	2.2188	2.2188	1.1000e-004	0.0000	2.2211
Total	**1.0800e-003**	**1.2400e-003**	**0.0126**	**3.0000e-005**	**2.5800e-003**	**2.0000e-005**	**2.6000e-003**	**6.8000e-004**	**2.0000e-005**	**7.0000e-004**	**0.0000**	**2.2188**	**2.2188**	**1.1000e-004**	**0.0000**	**2.2211**

Paving at Sutter

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	5.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project acreage estimated from aerial photography (Google Earth).

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Off-road Equipment - Proposed construction equipment list provided by project applicant.

Trips and VMT -

Demolition - 50 tons demo hauling.

Grading -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	230.00	65.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	6.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	PhaseEndDate	10/10/2014	10/11/2014
tblConstructionPhase	PhaseEndDate	6/13/2014	6/15/2014
tblConstructionPhase	PhaseEndDate	7/4/2014	7/6/2014
tblConstructionPhase	PhaseEndDate	11/18/2014	11/17/2014
tblConstructionPhase	PhaseEndDate	6/20/2014	6/22/2014
tblConstructionPhase	PhaseEndDate	7/11/2014	7/13/2014
tblConstructionPhase	PhaseStartDate	10/12/2014	10/11/2014
tblConstructionPhase	PhaseStartDate	7/14/2014	7/13/2014
tblConstructionPhase	PhaseStartDate	6/23/2014	6/22/2014
tblConstructionPhase	PhaseStartDate	11/11/2014	11/10/2014
tblConstructionPhase	PhaseStartDate	6/16/2014	6/15/2014

tblConstructionPhase	PhaseStartDate	7/7/2014	7/6/2014
tblLandUse	LotAcreage	0.00	5.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	6.00	4.29
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	2.77
tblOffRoadEquipment	UsageHours	8.00	0.80
tblOffRoadEquipment	UsageHours	8.00	5.54
tblOffRoadEquipment	UsageHours	8.00	2.40
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	2.40
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	2.46

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.0536	0.4188	0.2507	3.6000e-004	2.4500e-003	0.0303	0.0328	4.7000e-004	0.0287	0.0292	0.0000	32.4703	32.4703	7.7100e-003	0.0000	32.6323
Total	**0.0536**	**0.4188**	**0.2507**	**3.6000e-004**	**2.4500e-003**	**0.0303**	**0.0328**	**4.7000e-004**	**0.0287**	**0.0292**	**0.0000**	**32.4703**	**32.4703**	**7.7100e-003**	**0.0000**	**32.6323**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2014	6/15/2014	5	10	
2	Site Preparation	Site Preparation	6/15/2014	6/22/2014	5	5	
3	Grading/Excavation	Grading	6/22/2014	7/6/2014	5	10	
4	Trenching	Trenching	7/6/2014	7/13/2014	5	5	
5	Building Construction	Building Construction	7/13/2014	10/11/2014	5	65	
6	Architectural Coating	Architectural Coating	10/11/2014	11/10/2014	5	21	
7	Paving	Paving	11/10/2014	11/17/2014	5	6	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	3	4.00	81	0.73
Demolition	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	1.60	97	0.37
Grading/Excavation	Excavators	2	0.80	162	0.38
Grading/Excavation	Graders	1	2.40	174	0.41
Grading/Excavation	Rubber Tired Dozers	0	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	1.60	97	0.37
Grading/Excavation	Tractors/Loaders/Backhoes	2	2.40	97	0.37
Building Construction	Cranes	1	2.77	226	0.29
Building Construction	Forklifts	3	5.54	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Welders	1	2.46	46	0.45
Architectural Coating	Air Compressors	3	4.29	78	0.48
Paving	Pavers	1	4.00	125	0.42
Paving	Paving Equipment	0	8.00	130	0.36
Paving	Rollers	1	3.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading/Excavation	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Architectural Coating	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8600e-003	0.0404	0.0287	5.0000e-005		3.2200e-003	3.2200e-003		3.2200e-003	3.2200e-003	0.0000	4.0324	4.0324	4.8000e-004	0.0000	4.0424
Total	**5.8600e-003**	**0.0404**	**0.0287**	**5.0000e-005**	**5.3000e-004**	**3.2200e-003**	**3.7500e-003**	**8.0000e-005**	**3.2200e-003**	**3.3000e-003**	**0.0000**	**4.0324**	**4.0324**	**4.8000e-004**	**0.0000**	**4.0424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	9.3000e-004	7.1000e-004	0.0000	4.0000e-005	2.0000e-005	6.0000e-005	1.0000e-005	2.0000e-005	3.0000e-005	0.0000	0.1751	0.1751	0.0000	0.0000	0.1751
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	2.3000e-004	2.3300e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.3112	0.3112	2.0000e-005	0.0000	0.3116
Total	**2.7000e-004**	**1.1600e-003**	**3.0400e-003**	**0.0000**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**9.0000e-005**	**2.0000e-005**	**1.2000e-004**	**0.0000**	**0.4862**	**0.4862**	**2.0000e-005**	**0.0000**	**0.4867**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-004	1.7700e-003	1.2100e-003	0.0000		1.4000e-004	1.4000e-004		1.3000e-004	1.3000e-004	0.0000	0.1502	0.1502	4.0000e-005	0.0000	0.1511
Total	**1.8000e-004**	**1.7700e-003**	**1.2100e-003**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.1502**	**0.1502**	**4.0000e-005**	**0.0000**	**0.1511**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	4.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0583	0.0583	0.0000	0.0000	0.0584
Total	**4.0000e-005**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0583**	**0.0583**	**0.0000**	**0.0000**	**0.0584**

3.4 Grading/Excavation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1300e-003	0.0321	0.0182	2.0000e-005		2.0000e-003	2.0000e-003		1.8400e-003	1.8400e-003	0.0000	2.3139	2.3139	6.8000e-004	0.0000	2.3282
Total	**3.1300e-003**	**0.0321**	**0.0182**	**2.0000e-005**	**8.0000e-004**	**2.0000e-003**	**2.8000e-003**	**9.0000e-005**	**1.8400e-003**	**1.9300e-003**	**0.0000**	**2.3139**	**2.3139**	**6.8000e-004**	**0.0000**	**2.3282**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	3.7000e-004	3.7900e-003	1.0000e-005	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.5056	0.5056	3.0000e-005	0.0000	0.5063
Total	**3.2000e-004**	**3.7000e-004**	**3.7900e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.5056**	**0.5056**	**3.0000e-005**	**0.0000**	**0.5063**

3.5 Trenching - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-004	1.7600e-003	1.2100e-003	0.0000		1.4000e-004	1.4000e-004		1.3000e-004	1.3000e-004	0.0000	0.1496	0.1496	4.0000e-005	0.0000	0.1505
Total	**1.8000e-004**	**1.7600e-003**	**1.2100e-003**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.1496**	**0.1496**	**4.0000e-005**	**0.0000**	**0.1505**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	4.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0583	0.0583	0.0000	0.0000	0.0584
Total	**4.0000e-005**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0583**	**0.0583**	**0.0000**	**0.0000**	**0.0584**

3.6 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0324	0.2668	0.1429	1.9000e-004		0.0186	0.0186		0.0172	0.0172	0.0000	17.9135	17.9135	5.3000e-003	0.0000	18.0249
Total	**0.0324**	**0.2668**	**0.1429**	**1.9000e-004**		**0.0186**	**0.0186**		**0.0172**	**0.0172**	**0.0000**	**17.9135**	**17.9135**	**5.3000e-003**	**0.0000**	**18.0249**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.0626	0.0433	7.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	5.7506	5.7506	8.2000e-004	0.0000	5.7678
Total	**0.0101**	**0.0626**	**0.0433**	**7.0000e-005**		**5.5200e-003**	**5.5200e-003**		**5.5200e-003**	**5.5200e-003**	**0.0000**	**5.7506**	**5.7506**	**8.2000e-004**	**0.0000**	**5.7678**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1200e-003	0.0118	6.6200e-003	1.0000e-005		6.9000e-004	6.9000e-004		6.3000e-004	6.3000e-004	0.0000	0.9350	0.9350	2.8000e-004	0.0000	0.9408
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1200e-003**	**0.0118**	**6.6200e-003**	**1.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.3000e-004**	**6.3000e-004**	**0.0000**	**0.9350**	**0.9350**	**2.8000e-004**	**0.0000**	**0.9408**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	7.0000e-005	9.0000e-005	8.7000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1167	0.1167	1.0000e-005	0.0000	0.1168
Total	**7.0000e-005**	**9.0000e-005**	**8.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1167**	**0.1167**	**1.0000e-005**	**0.0000**	**0.1168**

Appendix 8.5
Acoustic Analysis

CITY OF MODESTO
WASTEWATER MASTER PLAN UPDATE
NOISE ASSESSMENT
MODESTO, CALIFORNIA

December 4, 2013

♦ ♦ ♦

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INTRODUCTION

This report evaluates potential noise impacts resulting from the City of Modesto Wastewater Master Plan Update Project in Modesto, California. Projects facilitated by the Master Plan will include collection system improvements (upgrades to pipes and pump stations), treatment plant improvements at the Primary and Secondary Plants, and operation and maintenance activities at existing and proposed facilities.

The report includes a Setting Section outlining the fundamentals of environmental noise, a description of the existing baseline noise conditions at receptors nearest the project sites, applicable noise regulations and guidelines, and previous CEQA documentation applicable to this report and analysis. The Impacts and Mitigation Measures Section identifies the potential noise impacts resulting from the construction and operation of the project and includes mitigation measures that would reduce identified noise impacts to less-than-significant levels.

SETTING

Fundamentals of Environmental Noise

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in Table 1.

Most of the sounds that we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-weighted levels measured in the environment and in industry are shown in Table 2 for different types of noise.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{01}, L_{10}, L_{50}, and L_{90}, are commonly used. They are the A-weighted noise levels equaled or exceeded during 1%, 10%, 50%, and 90% of a stated time period. A single number descriptor called the L_{eq} is also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior

background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, DNL (day/night average sound level), was developed. The DNL divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes both an evening and nighttime weighting.

TABLE 1 Definition of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

Regulatory Background

The State of California, Stanislaus County, and the City of Modesto establish guidelines, plans, and policies designed to limit noise exposure at noise sensitive land uses. The State CEQA Guidelines, Appendix G, and the policies contained in the Stanislaus County General Plan and City of Modesto Urban Area General Plan are used as significance criteria in the impact assessment. Applicable criteria are as follows:

State CEQA Guidelines. The significance of environmental noise impacts resulting from a proposed project are evaluated based on the California Environmental Quality Act (CEQA) guidelines. CEQA asks the following applicable questions. 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, exposure of people residing or working in the project area to excessive noise levels?

CEQA does not define what noise level increase would be considered substantial. Typically, project-generated noise level increases of 3 dBA L_{dn} or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard (60 dBA L_{dn} for residential land uses). Where noise levels would remain at or below the normally acceptable noise level standard with the project, noise level increases of 5 dBA L_{dn} or greater would be considered significant.

Stanislaus County General Plan. Goal Two of the Stanislaus County General Plan Noise Element is to, "Protect the citizens of Stanislaus County from the harmful effects of exposure to excessive noise." Policy Two states, "It is the policy of Stanislaus County to develop and implement effective measures to abate and avoid excessive noise exposure in the unincorporated areas of the County by requiring that effective noise mitigation measures be incorporated into the design of new noise generating and new noise sensitive land uses." The following implementation measure would be applicable to the project:

2. New development of industrial, commercial or other noise generating land uses will not be permitted if resulting noise levels will exceed 60 L_{dn} (or CNEL) in noise-sensitive areas. Additionally, the development of new noise-generating land uses which are not preempted from local noise regulation will not be permitted if resulting noise levels will exceed the performance standards contained within Table 3 in areas containing residential or other noise sensitive land uses.

TABLE 3 Maximum Allowable Noise Exposure - Stationary Noise Sources

	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Hourly L_{eq}, dBA	55	45
Maximum level, dBA	75	65

Each of the noise level standards specified in Table 3 shall be reduced by five (5) dBA for pure tone noises, noise consisting primarily of speech or music, or for recurring impulsive noises. The standards in Table 4 should be applied at a residential or other noise-sensitive land use and not on the property of a noise-generating land use. Where measured ambient noise levels exceed the standards, the standards shall be increased to the ambient levels.

Policy Three states, "It is the objective of Stanislaus County to protect areas of the County where noise-sensitive land uses are located." The following implementation measure would be applicable to the project:

1. Require the evaluation of mitigation measures for projects that would cause the Ldn at noise-sensitive uses to increase by 3 dBA or more and exceed the "normally acceptable" level, cause the Ldn at noise-sensitive uses to increase 5 dBA or more and remain "normally acceptable", or cause new noise levels to exceed the noise ordinance limits (after adoption).

Stanislaus County Noise Ordinance. The Stanislaus County Noise Control Ordinance (Chapter 10.46 of the Stanislaus County Code) establishes exterior noise level standards in order to control unnecessary, excessive and annoying noise in the county. Construction or maintenance activities performed by or at the direction of any public entity or public utility are specifically exempted from these standards in Section 10.46.080 of the Stanislaus County Code.

City of Modesto, Urban Area General Plan. The City of Modesto strives to reduce noise pollution from development projects. The General Plan's Noise Mitigation Policy for construction states:

a. The City of Modesto shall require construction activities to comply with the City's noise ordinance (Title 4, Chapter 9), and noise-reducing construction practices to be implemented as conditions of approval for development projects where substantial

construction-related noise impacts would be likely to occur (e.g., where construction would include extended periods of pile driving, where construction would occur over an unusually long period, or where noise-sensitive uses like homes and schools would be in the immediate vicinity, etc.). The City should consider potential mitigation measures, including, but not limited to, the following:

(1) Construction equipment and vehicles should be equipped with properly operating mufflers according to the manufacturers' recommendations. Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.

(2) Equipment that is quieter than standard equipment should be utilized.

(3) Haul routes that affect the fewest number of people should be selected.

City of Modesto Municipal Code. Generally the Modesto Municipal Code prohibits any noise that can be deemed "loud and raucous". Determining what noises are "loud and raucous" depends on a number of factors such as its volume and duration, whether the nature of the noise is usual or unusual, when the noise occurs, and whether it is recurrent, intermittent, or constant. The Municipal Code prohibits "loud and raucous" construction-related noise before 7:00 a.m. or after 9:00 p.m. daily. It also forbids the loud and raucous operation of many specific types of construction equipment. For example, it prohibits loud and raucous noise from exhaust of any stationary internal combustion engine.

Previous CEQA Documents

The City of Modesto Wastewater Master Plan was previously updated in 2006/2007. Information in the EIR prepared for the 2006/2007 Update was reviewed and where relevant incorporated into this analysis.

Existing Noise Environment

Some activities and land uses are more sensitive to noise than others. The City of Modesto's Urban Area General Plan ("General Plan") identifies the various types of land uses that are considered noise-sensitive. These sensitive receptors include residences, hospitals, parks, churches, and schools.

The proposed Wastewater Master Plan Update includes a collection system improvement titled the "River Trunk Realignment" located primarily on City property and along Colorado Ave and Tuolumne Ave between the Sutter Wastewater Treatment Plant and a new lift station called the "River Trunk Lift Station" that may be built on the east side of US Highway 99. The City also plans to install a new 10-inch sewer main on Oakdale Road, from the existing terminus of the Sonoma Trunk on Sylvan Avenue to Mable Avenue.

Improvements are also proposed at the Jennings Facility located on Jennings Road and the Sutter Plant. The existing noise environment at sensitive receptors in the vicinity of project components is discussed in this section.

The noise environment in the site vicinity results primarily from vehicular traffic. Illingworth & Rodkin, Inc. completed a series of noise measurements to quantify existing ambient noise levels. The noise monitoring survey consisted of seven short-term (10-minute) noise measurements during the daytime at representative sensitive receptor locations. Noise monitoring data are shown in Table 4. Measured noise levels were 64 to 65 dBA L_{eq} along Oakdale Road near residences located along the route of the proposed Tivoli Sewer Main, and in a mobile home park on Zeff Road in the vicinity of State Route 99 (Highway 99) near the site for the possible new River Trunk Lift Station. Measured noise levels at the other representative sensitive receptor locations ranged from 49 to 56 dBA L_{eq}, typical of rural and suburban areas not near major roadways.

TABLE 4 Noise Measurement Data

Noise Measurement Location (Date, Time)	Project Component	L_{max}	$L_{(1)}$	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	L_{eq}
ST-1: ~140 feet from the center of Oakdale Road at Bridgewood Way. (10/22/2013, 12:00-12:10 p.m.)	Collection System Improvements – Tivoli 10-in. Sewer Main	73	71	69	63	51	65
ST-2: ~170 feet from the center of Sylvan Avenue at Lydia Lane. (10/22/2013, 12:20-12:30 p.m.)	Collection System Improvements – Tivoli 10-in. Sewer Main	65	62	58	53	47	55
ST-3: ~420 feet east of Highway 99 along Zeff Road, near mobile homes. (10/22/13, 1:00-1:10 p.m.)	Lift Station Improvements – Pump Station	71	69	66	64	62	64
ST-4: ~150 feet from the center of Tuolumne Boulevard at Fresno Avenue. (10/22/2013, 1:30-1:40 p.m.)	Collection System Improvements – River Trunk Realignment	64	59	56	50	44	52
ST-5: ~100 feet from the center of Colorado Avenue at Lema Avenue. (10/22/2013, 1:50-2:00 p.m.)	Collection System Improvements – River Trunk Realignment	71	65	56	47	38	53
ST-6: Front of 1421 Garden Avenue. (10/22/2013, 2:10-2:20 p.m.)	Collection System Improvements – River Trunk Realignment and Sutter Plant Improvements – Parking Lot Rehabilitation and Expansion	75	69	57	46	40	56
ST-7: ~Near entrance of Jennings Facility and nearby residences. (10/22/2013, 3:00-3:10 p.m.)	Jennings Facility Improvements – Relocated Primary Treatment Equipment	60	57	53	46	41	49

Notes:
L_{max} - the maximum A-weighted noise level during the measurement period.
L_1, L_{10}, L_{50}, L_{90} - the A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
L_{eq} - the average A-weighted noise level during the measurement period.

NOISE IMPACTS AND MITIGATION MEASURES

Significance Criteria

The following criteria were used to evaluate the significance of environmental noise impacts resulting from the project:

- **Operational Noise.** The impact would be considered significant for components within the City of Modesto or Stanislaus County if operational noise sources generated by the project would:
    - cause the L_{dn} to increase by 5 dBA or more but remain below the normally acceptable noise threshold (65 dBA L_{dn} for residential uses);
    - cause the L_{dn} to increase by 3 dBA or more and exceed normally acceptable noise threshold.

  Further, the impact would be considered significant for components within San Joaquin County if operational noise generated by the project would exceed the maximum allowable noise exposure limits for stationary noise sources (Table 3).

- **Temporary Construction Noise.** A significant short-term noise impact would occur if noise from construction activities would exceed 65 dBA L_{eq} and the ambient noise environment by 5 dBA L_{eq} or more for a period greater than one year.

Impact 1: **Operational Noise.** Project operations could substantially increase noise levels at nearby noise sensitive receptors. This is a **significant** impact.

This analysis of operational noise is based on the conceptual design information provided by the City of Modesto as presented in the project description. Reanalysis and confirmation of noise impacts and findings may be required if subsequent final design plans locate noise-generating equipment closer to receptors than currently proposed.

Collection System Improvements

The operation of proposed collection system improvements would not result in measurable noise levels above ground or cause a permanent change in the noise environment along the project alignment.

Lift Station Improvements

The proposed River Trunk Lift Station would be located southeast of Tuolumne Boulevard approximately 850 feet[1] from the nearest noise sensitive land uses (mobile homes along Zeff Road). Noise levels at the mobile home park are primarily the result of vehicle traffic on State Route 99, South 7th Street, and Zeff Road. Ambient daytime noise levels were measured to be approximately 64 to 65 dBA L_{eq} at these nearest receptors. At night, ambient noise levels would

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1 Vicinity Map, Proposed River Trunk Realignment & Lift Station.

be approximately 5 to 10 dBA L_{eq} lower due to lower traffic volumes on area roadways (Stanislaus County General Plan Support Documentation, Chapter 4 – Noise). The operation of the proposed River Trunk Lift Station would be expected to result in steady noise levels of about 50 dBA at the pump station boundary (approximately 25 feet from the pump station). Assuming 24-hour/ day operation the Ldn would be 56 dBA Ldn. When accounting for attenuation with distance from the noise source, operational noise levels would not be expected to exceed ambient noise levels during the daytime or at night at the nearest receptors along Zeff Road, and would not contribute measurably to the existing ambient noise environment.

Jennings Facility Improvements

Existing primary treatment equipment is proposed to be relocated from the Sutter Facility to the Jennings Facility. The relocated equipment would include primary clarifiers, anaerobic digesters, sludge handling equipment, and digester gas handling equipment. The immediate area surrounding the plant is agricultural, with a few residences located approximately one-half mile from the facility boundaries. Typical maximum noise levels resulting from the operation of the noise-generating equipment are 85 dBA at a distance of 3 feet. At a distance of one-half mile from the facility, operational noise levels are calculated to be more than 10 dBA below existing background noise levels. Operational noise levels would not exceed 55 dBA L_{eq} during the day or 45 dBA L_{eq} at night, or exceed the maximum instantaneous noise level limits of 75 dBA L_{max} (day) or 65 dBA L_{max} (night). Operational noise levels would not contribute measurably to the existing ambient noise environment.

Sutter Plant Improvements

A new paved parking area and access road are proposed on the west northwest side of the Plant. A modified Plant entrance and new septic receiving station are proposed at the north end of the Plant property near the north the property line. Residences border the Plant property to the north.

The nearest corner of the new paved parking area would be located about 300 feet from the nearest residence located at the intersection of Robertson Road and Sutter Avenue. The noise from intermittent vehicle circulation in the parking area would be at least 15 dBA lower than existing ambient traffic noise, and therefore, would not make a measurable contribution to existing noise levels at the nearest receptor.

Plans for the Modified Plant Entrance and new septic receiving station are conceptual at this time. Noise from these project elements could result from increased truck activity closer to residences and from new mechanical equipment. The increase in noise at the nearest residences located along Garden Avenue would depend upon the level of trucking activity and the circulation plan, and the locations and noise levels of any new mechanical equipment. This is a potentially significant impact.

Mitigation: The following measures apply to the Modified Plant Entrance and new septic receiving station:

1) Noise from the activities and equipment shall be controlled so as to comply with the noise limits shown in Table 3. This will limit the increase in the ambient to approximately 3 dBA L_{dn} and minimize possible disturbance due to nighttime noise resulting from mechanical equipment. A noise study shall be prepared when the design for the facility is completed to determine what control measures, if any, are necessary to meet the noise limits. These measures could include, but would not be limited to, a noise barrier at the property line or around activity areas, limited operating hours, and equipment muffling using sound attenuators or mufflers.

Impact 2: **Temporary Construction Noise:** The construction of the project would temporarily increase ambient noise levels in the project vicinity above levels existing without the project. The relatively short-duration of project construction phases and the implementation of standard construction noise control measures would result in a **less-than-significant** impact.

Collection System Improvements

Noise levels at sensitive receptors adjacent to the pipeline alignments would increase during the construction period when activities are located in close proximity. Pipeline installation would likely occur at a rate of 100 to 200 linear feet per day; therefore, construction noise levels at any individual sensitive receptor would only be substantially increased over a short period of time. Construction activities would only occur during the daytime hours; no evening or nighttime work is proposed.

Noise impacts from project construction activities are a function of the level of noise generated by individual pieces of construction equipment, the amount of equipment operating at any given time, the distance and sensitivities of nearby land uses, the presence of noise barriers or other structures that provide acoustical shielding, and the timing and duration of the noise-generating activities. Where noise from construction activities exceeds 65 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA L_{eq} at noise-sensitive residential uses in the project vicinity for a period of more than one year, the impact would be considered significant.

Construction noise would primarily consist of the operation of vehicles and equipment during pavement removal, excavation, pipeline installation, backfill operations, and the repaving of the portion of the street disturbed by the project. The highest construction noise levels would be generated during trenching operations. Table 5 presents the typical range of hourly average noise levels generated by different phases of construction measured at a distance of 50 feet. Hourly average noise levels generated by public works-type projects at a distance of 50 feet from the center of a busy construction site typically range from 79 dBA to 88 dBA L_{eq}.

TABLE 5 Typical Range of Noise Levels at 50 Feet from Construction Sites (dBA L_{eq})

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.

Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

During construction activities, maximum instantaneous noise levels would vary depending on the specific pieces of equipment operating on-site. Large pieces of earth-moving equipment, such as excavators or front-end loaders, generate maximum noise levels of 85 to 90 dBA at a 50-foot distance. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding provided by barriers or structures can provide an additional 5 to 10 dBA noise reduction at distant receptors.

Representative sound levels for the most common types of construction equipment and usage factors, contained in FHWA's Roadway Construction Noise Model, were used to calculate noise levels related to proposed construction activities. The cumulative noise level would assume all pieces of construction equipment were operating simultaneously at the site and represents a conservative worst-case prediction of site construction noise levels during each construction phase. These data are summarized in Table 6 for representative receptor locations near proposed collections system improvements.

The installation of pipelines (pavement removal, excavation, pipeline installation, compacting backfill, and repaving the roadway) would result in average noise levels of approximately 86 dBA L_{eq} at a distance of 50 feet. Maximum instantaneous noise levels during this phase would reach 89 dBA L_{max} at a distance of 50 feet assuming that a jack hammer would be required to remove the existing pavement. The calculated hourly average noise level of 86 dBA L_{eq} would exceed ambient noise levels (plus 5 dBA) at the receptors by approximately 16 to 29 dBA L_{eq}, which is a substantial increase in noise. Pipeline installation would occur at a rate of approximately 100 to 200 linear feet per day. Therefore, construction noise levels would only exceed the significance criterion of 65 dBA

L_{eq} for a short period of time (less than one month). This would be considered a less than significant noise impact recognizing the relatively short duration of project construction activities.

TABLE 6 Construction Noise Levels During Installation of Pipelines at 50 Feet

Receptor	Maximum Instantaneous Construction Noise Level, L_{max}	Average Construction Noise Level, L_{eq}	Daytime Ambient Noise Level, L_{eq}	Noise Increase above Ambient + 5 dBA
ST-1	89 dBA	86 dBA	65 dBA	16 dBA
ST-2	89 dBA	86 dBA	55 dBA	26 dBA
ST-4	89 dBA	86 dBA	52 dBA	29 dBA
ST-5	89 dBA	86 dBA	53 dBA	28 dBA
ST-6	89 dBA	86 dBA	56 dBA	25 dBA

Lift Station Improvements

Based on the construction noise levels cited above (79 dBA to 88 dBA L_{eq} at 50 feet), and the distance between the proposed lift station and the nearest receptors along Zeff Road (850 feet), construction of the lift station improvements is calculated to result in noise levels ranging from 54 to 63 dBA L_{eq}. Ambient daytime noise levels were measured to be approximately 64 to 65 dBA L_{eq} at these nearest receptors; therefore, construction noise levels would not exceed the significance criterion of 65 dBA L_{eq}. This would be considered a less than significant noise impact.

Jennings Facility Improvements

Similar to the discussion of the lift station improvements, above, construction noise levels are calculated to result in noise levels ranging from 45 to 54 dBA L_{eq} at the nearest receptors one-half mile from the facility. Construction noise levels would not exceed the significance criterion of 65 dBA L_{eq}, and the impact would be less than significant.

Sutter Plant Improvements

Construction activities at the Sutter Plant could occur in areas immediately adjacent to residential receptors in the vicinity of Robertson Road, Sutter Avenue, and Garden Avenue. Construction noise levels would be expected to range from 79 dBA to 88 dBA L_{eq} when activities occur near these existing residences. Hourly average noise levels would substantially exceed ambient noise levels at the adjacent receptors; however, it is anticipated given the scope of the Sutter Plant improvements that the overall duration of construction would be less than one year. This would be considered a less than significant noise impact recognizing the relatively short duration of project construction activities.

The Municipal Code prohibits "loud and raucous" construction-related noise before 7:00 a.m. or after 9:00 p.m. daily. The following available controls are assumed to be included in the project to reduce construction noise levels as low as practical. In Modesto, the inclusion of these controls is assumed to reduce the impact from project construction to less-than-significant levels.

The General Plan's Noise Mitigation Policy for construction states:

a. The City of Modesto shall require construction activities to comply with the City's noise ordinance (Title 4, Chapter 9), and noise-reducing construction practices to be implemented as conditions of approval for development projects where substantial construction-related noise impacts would be likely to occur (e.g., where construction would include extended periods of pile driving, where construction would occur over an unusually long period, or where noise-sensitive uses like homes and schools would be in the immediate vicinity, etc.). The City should consider potential mitigation measures, including, but not limited to, the following:

(1) Construction equipment and vehicles should be equipped with properly operating mufflers according to the manufacturers' recommendations. Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.

(2) Equipment that is quieter than standard equipment should be utilized.

(3) Haul routes that affect the fewest number of people should be selected.

Mitigation: No additional measures are required.

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[clvi] Wetlands are defined as all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U.S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

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