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ENVIRONMENTAL ASSESSMENT FOR THE CITY OF SAN JOAQUIN WASTEWATER TREATMENT FACILITY

PROJECT DESCRIPTION

This Environmental Assessment (EA) was prepared to examine the impacts arising from the expansion and operation of the City of San Joaquin's Wastewater Treatment Facility (WWTF). The EPA used an Environmental Information Document (EID), which was submitted by City of San Joaquin to EPA on October 29th 2010, as the basis for preparing this EA. The City of San Joaquin (City) is a small, incorporated city, providing water and waste water treatment to its population of approximately 4,060 people. The City's current WWTF is capable of treating .252 mgd, while the City sometimes produces wastewater in excess of that limit. The City of San Joaquin is seeking funding from the EPA in order to complete an expansion project for the City's WWTF that will bring the City into compliance with California Regional Water Quality Control Board (RWQCB) requirements for both capacity and quality of treated effluent.

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This Environmental Assessment (EA) was prepared to examine the impacts arising from the expansion and operation of the City of San Joaquin's Wastewater Treatment Facility (WWTF). The EPA used an Environmental Information Document (EID), which was submitted by City of San Joaquin to EPA on October 29th 2010, as the basis for preparing this EA. The City of San Joaquin (City) is a small, incorporated city, providing water and waste water treatment to its population of approximately 4,060 people. The City's current WWTF is capable of treating .252 mgd, while the City sometimes produces wastewater in excess of that limit. The City of San Joaquin is seeking funding from the EPA in order to complete an expansion project for the City's WWTF that will bring the City into compliance with California Regional Water Quality Control Board (RWQCB) requirements for both capacity and quality of treated effluent.

Purpose and Need

The City is required to expand its Wastewater Treatment Plant to meet the Waste Discharge Requirements of the RWQCB for both capacity and quality of treated effluent. The waste discharge requirements of an Order issued by RWQCB and adopted on June 7, 2002 permitted the City of San Joaquin's WWTF to treat a monthly average discharge flow of 0.252 mgd. A Cease and Desist Order issued by RWQCB on June 7, 2002 required the City to "perform a series of tasks according to a time schedule to complete the expansion of the WWTF, which have not been completed to date," so that the City would increase the capacity of its WWTF above .252 mgd. The City of San Joaquin submitted a Report of Waste Discharge (RWD) to the RWQCB on January 23, 2007 for a modification and expansion of its WWTF. A new Order, issued August 2007, rescinded the restriction issued on June 7, 2002, and prescribed requirements for the expansion project. The expansion includes increasing the capacity to .50 mgd to meet the Order and provide for needs of the future population in compliance with the City's General Plan.

The City received an Order from RWQCB in June of 2002, stating that the WWTF exceeded capacity several times each year. The City has been unable to expand the facility in order to comply with that order. In November of 2008, the City hired a consultant to produce a Technical Design Report, outlining the design for components needed to expand the WWTF to 0.50 mgd capacity. The expansion of the facility would enable the City to meet RWQCB requirements that would meet not only the current needs of the City's residents, but would also meet the needs of an increased population in the City. The current system cannot treat more than .252 mgd of influent. Future plans will increase the capacity to allow the City to comply with RWQCB Orders. A Facilities Design Plan completed by an engineering firm evaluated options for upgrades and expansion of the WWTF that would achieve removal of biochemical oxygen demand (BOD5) and total suspended solids (TSS) needed to comply with the City Waste Discharge Requirement Order of 2007. That Order stipulates that the WWTF must provide removal of 80 percent or reduction to 40 milligrams per liter (mg/L), whichever is more restrictive, of both BOD5 and TSS. Also, groundwater beneath the plant must not exceed 10 mg/L nitrate as nitrogen.

Project Location

The current WWTF is located approximately 1.5 miles west of the City of San Joaquin. The City is approximately 25 miles southwest of the City of Fresno, about seven miles west of State Highway 145, and nine miles south of State Highway 180 in Fresno County. Proposed improvements will be located in Section 27, Township 15 south, Range 16 east of MDB&M. The project consists of two parcels of land: the current WWTF on a 52-acre parcel, and the proposed expansion to be on a 23.5-acre parcel to be purchased. That parcel is currently farmed for cotton and/or alfalfa. Maps showing the relative location of the City and the proposed project area are included as Figure One and Two at the end of this document. A third map, Figure Three, depicts the location of current facilities and placement of facilities to be constructed during Phase I.

Project Description

The project will eventually require two phases of construction to reach 1.0 mgd treatment capacity: this document is intended to address Phase I only (up to 0.5 mgd treatment). Phase I will include an increase in design flow to 0.50 mgd with a Peak Hour Flow of 1.2 mgd. This will require adequately sized pipelines, meters, and other critical hydraulic appurtenances. Phase I will also include new oxidation ditch facilities, construction of "Pond D" and deepening of Oxidation Pond #2 and #3. The new oxidation pond will be located in the northern half of the area that is currently Oxidation Pond #1. In order to increase the WWTF's capacity, the proposed Project will include "extended aeration-type" of activated sludge process that involves longer hydraulic and solids retention times to produce high quality effluent and a stable sludge. Construction of a new oxidation ditch facility will meet the need for extended aeration. This system includes a mechanical aeration system, so that wastewater is aerated as it circulates around a basin. This system can be used "to produce a lower TKN concentration, in compliance with RWQCB requirements." Phase II will be designed to double the capacity of the plant from an average daily maximum month flow of .5 mgd to 1.0 mgd. To treat raw wastewater during construction of these facilities, the two surface aerators will be temporarily relocated from Oxidation Pond #1 to Oxidation Pond #2, and sewage will be diverted to Oxidation Pond #2.

Analysis of Alternatives

Alternatives include:

- Alternative 1 – Proposed Action;
- Alternative 2 – No Action Alternative;
- Alternative 3 – Aerated Lagoon Treatment Alternative; and
- Alternative 4 – No Extended Aeration Process.

Three major criteria were use to analyze each alternative.

Criterion 1 included the ability of the Alternative to meet the requirements of the RWQCB Order of August 2007.

Criterion 2 was the ability of the alternative to meet all other legal requirements. These included local policies and ordinances, as well as state and federal agencies including the San Joaquin

Valley Air Pollution Control District, the State Department of Water Resources and Department of Natural Resources, and the U.S. Environmental Protection Agency.

These two criteria carry the same weight; that is, neither is more important than the other. If an alternative met these criteria, the City would then consider Criteria 3 - the cost of the alternative and schedule for completion. Costs considered were for estimated costs only for equipment and labor associated with expansion of the WWTF, and not costs of acquiring land, or for indirect costs such as transportation of treated effluent or utility costs for operation. Scheduling assumed that the project design phase was complete, funds were available, and necessary permits had been acquired, so that the alternative that could be constructed with the earliest completion time would be selected as the Proposed Action.

ALTERNATIVE 1 – PROPOSED ACTION

The Proposed Action is an extended aeration process that would provide additional areas (ponds) for evaporation as well as an oxidation ditch facility, which will produce effluent with a low total nitrogen concentration.

A Facilities Design Plan evaluated options for upgrades and expansion of the WWTF that would achieve removal of biochemical oxygen demand (BOD5) and total suspended solids (TSS) needed to comply with the City Waste Discharge Requirement Order of 2007. That Order stipulates that the WWTF must provide removal of 80 percent or reduction to 40 milligrams per liter (mg/L), whichever is more restrictive, of both BOD5 and (TSS). Also, groundwater beneath the plant must not exceed 10 mg/L nitrate as nitrogen.

An insignificant amount of additional water would be used for any of the alternatives. However, the preferred alternative includes pumping liquids (water) back to the oxidation ditch, which essentially recycles that water.

The Proposed Action includes purchase of lands that include "Farmland of importance" and could reduce the amount of land in agricultural production. The construction phase would create temporary impacts to air quality that could be controlled through compliance with SJVAPCD requirements. The project could create objectionable odors to County residents. The facility is located in an area that would not direct odors to the City when prevailing winds occurred; however, three County residences do lie in the direction of prevailing winds. This alternative will require conversion of some farmland of importance to nonfarmland use.

Potential impacts to City residents would be reduced by Alternatives Two, Three, or the Proposed Action, as each has the potential to increase the WWTF's capacity, and thereby allow future development of housing. However, only the Proposed Action meets the requirements of the RWQCB Order, which will assure that the City is not fined for noncompliance.

ALTERNATIVE 2 – NO ACTION ALTERNATIVE

This is the least complex alternative, as it would include no changes to the current facility. This alternative would continue to have overflow influent, and would contribute to nitrification of

groundwater. It would continue to contribute to human health hazards. Not increasing the disposal capacity from .252 mgd will result in potential overflow and hydraulic backups at both the WWTF and the terminal pump station. Without the proposed upgrades, untreated and partially treated wastewater could overflow at various points within the treatment plant and the sanitary sewer system, at least on some days. Public health and the environment will be adversely affected if no project occurs. Also, the City will not be in compliance with RWQCB regulations and fines of up to \$10,000 per day (on days the wastewater exceeds capacity) could result. Implementation of an aggressive Water Conservation Program may slightly decrease the amount of wastewater produced, however, it is speculative at this point to estimate the actual potential.

The facility has been in violation of RWQCB requirements since 2002. The City has made efforts to maximize capacity of the current facility. However, without expanding ponds for treatment and drying, and installation of associated pipes, pumps, and associated equipment, the WWTP will continue to receive more wastewater than can be treated. The facility is operating at maximum capacity and cannot be more fully utilized.

If no action were taken, the WWTF would continue to be out of compliance of the RWQCB Order. The current facility has been proven not to be reliable, as influent exceeds the treatment capacity of the WWTF. Fines of up to \$10,000/day could be levied if the City continues to remain out of compliance.

This alternative is not feasible, as it does not meet RWQCB Order requirements or the needs of the City. This alternative offers no flexibility, as the current WWTF is working at full capacity, and repair/replacement of current pumps and equipment would not meet the criteria. Because this alternative would not meet Criteria #1 and #2, cost was not calculated.

ALTERNATIVE 3 – AERATED LAGOON

Alternative 3 would add four 5-hp surface aerators for the existing aerated lagoon, as well as two non-aerated sedimentation ponds, which would increase the process capacity. This process, known as Aerated Lagoon treatment technology does not effectively provide for de-nitrification.

With the exception of the proposed action, this is the most complex of the all alternatives, as it would require more pumps and pipelines than other alternatives. This alternative is very effective in providing increased capacity, as air is introduced through fine-bubble diffusers. However, it does not include a de-nitrification process, and therefore does not meet Criteria 1.

This alternative would reduce or eliminate current health and environmental factors, except that it would not include de-nitrification so that groundwater would continue to have higher than acceptable nitrogen levels. Because there is no de-nitrification process, this alternative does not meet RWQCB requirements.

ALTERNATIVE 4 – NO EXTENDED AERATION

Alternative 4 is the process originally designed in 2006. This process would have had several of the components as presented in the proposed project; however, the process would not have

included an extended aeration process, and would have instead distributed treated wastewater over 86, 76, or 105 acres of farmland immediately adjacent (depending on the land owner(s) interested in reclaimed water for irrigation).

This is the least complex of the alternatives requiring that some action occur. The system would not include pumping partially processed liquids into ponds or an oxidation ditch. Although this alternative would allow the WWTF to expand treatment capacity, it would contribute higher than acceptable levels of nitrogen to surface water distributed on surrounding agricultural fields.

No land owners were interested in use of treated effluent, which made this alternative infeasible. In addition, it does not meet RWQCB requirements and potentially violates Dept. of Natural Resources laws regarding use of treated effluent on agricultural lands. In addition, it potentially requires use of lands and possible construction on lands along Fresno Slough that may be determined to be wetlands.

ALTERNATIVES SCREENING

Present Worth or Equivalent Annual Cost

Alternative Two: "No Project": If no action were taken, the cost would be \$0.00. However, fines of up to \$10,000/day may be levied if the City continues to remain out of compliance.

Alternative Three: Aerated Lagoon treatment technology. Because this alternative would not meet Criteria #1 and #2, cost was not calculated.

Alternative Four: No Extended Aeration Process. Because this alternative would not meet Criteria One and Two, cost was not calculated.

Reliability

Alternative Two: "No Project": If no action were taken, the WWTF would continue to be out of compliance of the RWQCB Order. The current facility has been proven not to be reliable, as influent exceeds the treatment capacity of the WWTF.

Alternative Three: Aerated Lagoon treatment technology. This alternative is very effective in providing increased capacity, as air is introduced through fine-bubble diffusers. However, it does not include a de-nitrification process, and therefore does not meet Criteria #1.

Alternative Four: No Extended Aeration Process. This process would provide an increased capacity of influent. However, no adjacent property owners were interested in using treated effluent on their crops, and the process would not include a de-nitrification process as required by RWQCB.

Complexity

Alternative Two: "No Project." This is the least complex alternative, as it would include no changes to the current facility.

Alternative Three: Aerated Lagoon treatment technology. This is the most complex of the three alternatives, as it would require more pumps and pipelines. It is less complex than the proposed project, however, as it does not include the de-nitrification process or use of additional oxidation ponds and pumps.

Alternative Four: No Extended Aeration Process. This is the least complex of the alternatives requiring that some action occur. The system would not include pumping partially processed liquids into ponds or an oxidation ditch.

Environmental Factors

Alternative Two: "No Project." This alternative would continue to have overflow influent, and would contribute to nitrification of groundwater. It would also continue to contribute to potential human health hazards.

Alternative Three: Aerated Lagoon treatment technology. This alternative would reduce or eliminate current health and environmental factors, except that it would not include de-nitrification so that groundwater would continue to have higher than acceptable nitrogen levels.

Alternative Four: No Extended Aeration. Although this alternative would allow the WWTF to expand treatment capacity, it would contribute higher than acceptable levels of nitrogen to surface water distributed on surrounding agricultural fields.

Feasibility (constraints)

Alternative Two: "No Project." This alternative is not feasible, as it does not meet RWQCB Order requirements or the needs of the City.

Alternative Three: Aerated Lagoon treatment technology. Because there is no de-nitrification process, this alternative does not meet RWQCB requirements.

Alternative Four: No land owners were interested in use of treated effluent, which made this alternative infeasible. In addition, it does not meet RWQCB requirements and potentially violates Dept. of Natural Resources laws regarding use of treated effluent on agricultural lands. In addition, it potentially requires use of lands and possible construction on lands along Fresno Slough that may be wetlands.

Flexibility

Alternative Two: "No Project." This alternative offers no flexibility, as the current WWTF is working at full capacity, and repair/replacement of current pumps and equipment would not meet the criteria.

Alternative Three: Aerated Lagoon treatment technology. Although some flexibility exists in the types and sizes of equipment to be used, this alternative does not include a de-nitrification process.

Alternative Four: No Extended Aeration Process. This alternative would require surrounding landowners to participate in the WWTF program. Since none of the three potential adjacent landowners is willing to participate, this alternative has no flexibility.

Water/Energy Use Comparison

An insignificant amount of additional water would be used for any of the alternatives. However, the preferred alternative includes pumping liquids (water) back to the oxidation ditch, which essentially recycles that water.

The current facility utilizes about 136,000 kwh per year for facility operations. Alternative Two is expected to utilize approximately same amount of energy as the current use. Alternative Three would require an increase in power, and would Alternative Four. Because each of these alternatives uses different pumping and aeration systems, energy use is estimated to increase to approximately the same usage as the Proposed Alternative. The proposed alternative would require approximately 200,000 kwh for operation. Also, Alternative Two (No Project) would not require the acquisition of property, and conversion from farmlands: therefore, the parcel would continue to use an estimated 58.75 acre-feet of water for cotton production. Alternative Four (No extended aeration process and release of treated effluent onto adjoining properties) would release water onto adjacent farmland, thereby reducing or eliminating the need to water those crops.

PRESENT ENVIRONMENT

Community Location and Service Area

The City of San Joaquin is a small, incorporated city, located in western Fresno County, in an area primarily dedicated to the raising of crops including cotton, alfalfa, and tomatoes. The WWTF serves the City of about 4,060 residents. Figure one is the regional map, showing the location of the Project, while Figure Two shows the location of the Project site in relation to the location of the City of San Joaquin. These and other figures are located at the end of this document. The City is located on Belmont Avenue, west of Route 33, which can be accessed by driving west on Highway 180 from Fresno.

The current WWTF is located approximately 1.5 miles west of the City of San Joaquin. The City is approximately 30 miles southwest of the City of Fresno, about seven miles west of State Highway 145, and nine miles south of State Highway 180 in Fresno County. Proposed improvements will be located in Section 27, Township 15 south, Range 16 east of MDB&M. The project consists of two parcels of land: the current WWTP on a 52-acre parcel, and the proposed expansion to be on a 23.5-acre parcel to be purchased. That parcel is currently farmed for cotton and/or alfalfa. Figure Three depicts the location of current facilities and placement of facilities to be constructed during Phase I.

The physical location of the WWTF is approximately 1.5 miles west of the City south of Manning Avenue, between El Dorado Avenue and Yolo Avenue.

Population

The City of San Joaquin, with a 2009 population of approximately 4,060, is served by the WWTF. The 2007 Regional Housing Needs Assessment estimated that the population of the City would increase to 4,221 in 2013. The Fresno County Council of Governments estimated that if the City continued the same rate of growth (18%) as it experienced from 1997 through 2007, it would grow to an estimated 4,221 by 2013 and to 6,811 by 2030. However, based on the current economic downturn and high unemployment in the area, it is unlikely that the population will increase at that rate.

Topography

The City and project area are located in the broad, flat San Joaquin Valley. A number of other communities and small cities surround San Joaquin, including Cantua Creek, Tranquility, Raisin City and Lanare. Fresno is located approximately 30 miles to the northeast of San Joaquin. The Diablo Range of the Coastal Mountains are to the west of the City, with the topography varying little in elevation between Fresno and these mountains.

Geology

The project area is located in the V1 seismic zone, as discussed in the Seismic Safety Element for the Five Counties. This zone "is characterized by a relatively thin section of sedimentary rock overlying a granitic basement." The City and project area are in an area that would be expected to have little or no damage from groundshaking. However, a 6.7 magnitude earthquake was recorded in Coalinga (25 miles southwest of San Joaquin) in 1983 - no damage was reported in San Joaquin.

Soils

Soils in the vicinity of the proposed project are classified as "variable and non-uniform layers of sand, clay, silty sand and clay sand," and indicate stream deposition from Fresno Slough, which lies immediately to the east of the project site. Sloughs are common in Merced soils, which occur in basin areas that are almost flat or have slight depressions. These soils have poor drainage with slow surface runoff and permeability.

Climate and Air Quality

The project area is located within the San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). To be eligible for federal funding, the project must conform to State Implementation Plan (SIP) guidelines. Additionally, all development projects in the San Joaquin Valley region are reviewed by the SJVAPCD. The San Joaquin Valley is classified in the SIP as a Nonattainment Area with a classification of Serious for ozone. In compliance with the City of San Joaquin General Plan, the District will adhere to any dust abatement measures that may

apply. The project will be subject to SJVAPCD Regulation VIII control measures to minimize dust and reduce PM-10 levels.

Surface Water and Wetlands

The WWTF and the use area lie within the Kings River Hydrologic Area. Surface water drainage flows westward toward the Fresno Slough, which is channelized and equipped with levees. The Fresno Slough discharges into the San Joaquin River north of the project area. Other sloughs and ditches in the vicinity carry water to the James Irrigation District.

Some areas outside the current site are considered wetlands. Some of lands were converted to farmlands before 1986, before wetlands were classified using current standards. Fresno Slough adjoins the project site, and portions along the Slough are considered wetlands. There are no U.S. Army Corps of Engineers jurisdictional waters in the immediate vicinity of the proposed construction site. No construction is expected to occur in any wetlands.

Groundwater

Groundwater is located between 90 and 100 feet below the ground surface and flows northwesterly. In the discharge vicinity, the "modified E-clay" layer occurs about 550 feet below ground surface and is about 80 feet thick. Extensive clay deposits that characterize area soils have caused localized perched groundwater conditions. Shallow groundwater in the discharge vicinity is characterized by high salinity. According to the NEPA document and WDR Order R5-2002-0103, "poor quality of groundwater in the shallow-upper aquifer has been and continues to be affected by uncontrollable sources of waste, and therefore attainment of water quality objectives is not reasonable." The USDA Environmental Report 2008 indicates that the project will not impact a US EPA designated "sole source" aquifer. The discharge from the WWTF will occur only in the upper aquifer, which is separate from the lower aquifers.

Potable water is provided by the City from groundwater wells. As noted above, the water is separated from other, shallow aquifers, and is of sufficient depth to be safe for drinking. The previously adopted CEQA document (see Appendix A) for the project states that, "Effluent from the wastewater treatment ponds will not likely commingle with the lower aquifer and will not degrade the quality of this drinking water supply."

Floodplains

The WWTF is approximately 50 feet east of the Fresno Slough. The FEMA FIRM, revised February 18, 2009, indicates that the project area and the City of San Joaquin are in Zone X. Therefore the project site is outside the 100-year and 200-year flood zones.

A levee is located approximately 1.25 miles north (downstream) of the project site on Fresno Slough. The FIRM for the vicinity is included as Figure Six at the end of this document.

Vegetation

Land surrounding the project site is used primarily for farming of cotton, alfalfa, and tomatoes, and is zoned for agricultural use. The area, therefore, no longer supports native vegetative species. No known sensitive, threatened, or endangered plant species are known to exist in the Project area.

Fish and Wildlife

Fresno Slough is adjacent to the project area, but supports no fish species. A biological report was prepared for the project in 2002, before the proposed action was considered. If the proposed action is selected, a field inspection of 23.5 acres to be acquired will be required before construction begins. The lands included in the biological report do not contain suitable habitat for special status plant species. Seven special status animal species (all birds) may fly over the site, but would not be expected to remain. The biological report indicates that the site and surrounding areas are not suitable for most wildlife or plant life.

Endangered or Threatened Species

The lands included in the biological report do not contain suitable habitat for special status plant species. Seven special status animal species (all avian species) may fly over the site, but would not be expected to remain.

Environmentally Sensitive Areas

The Project area is not an environmentally sensitive area. As noted in 3.7, sections of the Fresno Slough, outside the Project area, are considered wetlands. However, neither the Project area nor the adjacent section of Fresno Slough contain habitat suitable for either plant or wildlife species.

Historic, Prehistoric, Archaeological, Architectural, and Cultural Resources

No historic, prehistoric, or other cultural resources or architectural resource have been found to exist in the Project Area. However, mitigation measures are included to assure that no archaeological resources will be impacted.

No historic resources have been recorded on the site or on proposed land to be acquired. However, if a geotechnical exploration occurs on the project site, the State Office of Historic Preservation requests that a geoarchaeologist or cultural resources specialist is present to monitor to assure that potential impact to any found resources is minimized. See the MND/IS Appendix B for more detailed information.

Aesthetic

The Project area has been impacted by agricultural use, as well as the WWTF and associated roads, utility lines, and similar human impacts. No aesthetic resources are known to exist in the vicinity of the Project area.

Hazardous Materials

There is the potential for hazardous materials to exist on the Project site, stemming from two sources. The public is currently at risk from untreated or insufficiently treated influent and overflow of the WWTF.

Additionally, growing of cotton requires disking and applications of pesticides, herbicides, and defoliant and a nine to ten-month growing season. These activities preclude use of the land by many animals or most other plant species, or use by humans for other activities. An estimated 2.1 pounds of chemicals are needed per acre for cotton, production, at a total of approximately 50 pounds of these potential pollutant sources per year. Converting the land from agricultural use would eliminate the use of these potential pollutants.

EVALUATION OF IMPACTS

Surface Water and Wetlands

The proposed project is located in an arid area of the County, and receives slightly over 7 inches of annual precipitation. The region is in the third year of a drought, which in addition to other issues regarding imported water for irrigation, has already had serious impacts to local agricultural production. In years of normal precipitation, irrigation is provided solely by surface waters, and groundwater levels do not decline.

The WWTF and the use area lie within the Kings River Hydrologic Area. Surface water drainage flows westward toward the Fresno Slough, which is channelized and equipped with levees. The Fresno Slough discharges into the San Joaquin River north of the project area. Other sloughs and ditches in the vicinity carry water to the James Irrigation District.

Growing of cotton on parcels adjacent to the WWTF is estimated to use 2.5 acre feet of water per year for a total annual water use of 58.75 acre feet (or approximately 19,143,746 gallons). As a part of the Proposed Action Alternative, this parcel would be converted from agricultural use to ponding basins at the WWTF. Because this parcel would provide an area for drying beds, it would not use additional water, thereby eliminating use of this water for agricultural purposes.

Alternative 1 (Preferred Alternative) - No Impact. Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water and less resulting groundwater recharge.

Alternative 2 (No Action Alternative) – If no action is taken, lands adjacent to project area would continue to use approximately 58.75 acre feet/year of surface water for irrigation. No direct, indirect, or cumulative impact would occur.

Alternative 3 – No Impact. Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water. This alternative would recharge groundwater; however, nitrogen levels would not meet State NWRCB requirements.

Alternative 4 – Treated effluent would be applied to adjacent farmlands, reducing the need for use of approximately 58.75 acre feet/year in surface water for agricultural purposes. No direct, indirect, or cumulative impact would occur to surface waters or wetlands.

Floodplains

The WWTF is approximately 50 feet east of the Fresno Slough. The FEMA FIRM, revised February 18, 2009, indicates that the project area and the City of San Joaquin are in Zone X. Therefore the project site is outside the 100-year and 200-year flood zones. A levee is located approximately 1.25 miles north (downstream) of the project site on Fresno Slough. The FIRM for the vicinity is included as Figure Six at the end of this document.

The FIRM for the County of Fresno (revised January 2009) reveals that the City and surrounding areas, including the project area, are in Zone X, and would most likely not be subject to flooding.

No direct, indirect, or cumulative changes or impacts would occur to floodplains as a result of the implementation of the Project.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Significant or Important Farmlands

Land surrounding the project site is used primarily for farming of cotton and/or alfalfa, and is zoned for agricultural use. The acquisition of 23.5 acres of adjacent farmland for the WWTF expansion will convert at least 6.5 acres of important farmland. The acquisition of land for the WWTF expansion would be a permitted use of land for the City. No viable alternative is available to avoid this impact. Impervious cover area will increase, as at least a portion (13 acres minimum) will be converted from agricultural use to lined ponds intended to be impervious.

Alternative 1 (Preferred Alternative) – Of the 23.5 acres of land to be acquired, 6.5 is important farmland. The cumulative impact includes the loss of 23.5 acres of agricultural land used for production of cotton. Loss of this farmland is considered irreversible and unavoidable. No mitigation is available.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – Of the 23.5 acres of land to be acquired, 6.5 is important farmland. The cumulative impact includes the loss of 23.5 acres of agricultural land used for production of

cotton. Loss of this farmland is considered irreversible and unavoidable. No mitigation is available.

Alternative 4 – Treated effluent would be applied to adjacent farmlands, and need for surface water would decrease. No farmlands would be lost under this alternative and therefore no cumulative impact would occur.

Coastal Zones

No coastal zones exist in or around the Project Site.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Wild and Scenic Rivers

No wild and scenic rivers exist in or around the Project Site.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Coastal Barrier Resources

No coastal barrier resource exist in or around the Project Site.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact

Alternative 3 – No direct, indirect, or cumulative impact

Alternative 4 – No direct, indirect, or cumulative impact

Air Quality

Air quality will not be significantly impacted during operation or construction phases of the project. SJVAPCD Rule VIII and other measures will be required, and mitigation measures will be included to minimize impacts from dust. Upon completion of the project, the electrical motors and pumps would operate in an increased capacity. The proposed project would remain in compliance with the California State Implementation (SIP) guidelines. The project is not expected to generate a substantial increase in traffic in the project area, and would not substantially contribute to traffic that would generate air pollution.

In order to comply with State requirements, the City must complete a Supplemental Application Form for Wastewater Treatment Operations, which must be accompanied by a completed Application for Authority to Construct and Permit to Operate form to be submitted to the SJVAPCD.

Some objectionable odors may occur, although the WWTF is located so that prevailing winds will not carry odors to the City.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Vegetation

As the area surrounding the Project site has been utilized for the production of cotton or other crops, and pesticides and herbicides have been applied for many years, the area does not support other plant species. The proposed Project will convert land use from agricultural production to another use, so that the amount of vegetation will decrease on at least 13 acres of land acquired by the City.

Alternative 1 (Preferred Alternative) – Reduced production of cotton or other crops on at least 13 acres. The reduction of crops on 13 acres is not considered to be a significant direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – Reduced production of cotton or other crops on at least 13 acres. The reduction of crops on 13 acres is not considered to be a significant direct, indirect or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Threatened and Endangered Species

The biological resources report completed in 2002 indicates that the Project area does not support habitat for many plant or animal species. Five avian species may visit the Project area, but would not be expected to remain. Insects, small mammals and amphibians may exist in the Project area and along Fresno Slough that would attract these avian species. A buffer zone will be installed between the project site and Fresno Slough to minimize potential impacts to biological resources.

The U.S. Fish and Wildlife Service was informally consulted in November 2005, and confirmed that this project would not result in the take of listed species.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impacts to endangered species. Therefore, no mitigation is required, however, to minimize any potential impacts to wildlife, vegetation, or wetlands, a buffer 100 feet in width will be installed between the project site and the Fresno Slough.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect or cumulative impact. Mitigation is not required, however, to minimize any potential impacts to wildlife, vegetation, or wetlands, a buffer 100 feet in width will be installed between the project site and the Fresno Slough.

Alternative 4 – No direct, indirect, or cumulative impact.

Topography

A slight change in topography will occur on the acquired acreage, as it will be converted from agricultural use under Alternatives 1 and 3. Construction of ponds will not impact the nearby Fresno Slough, the only other topographic feature in the area.

Alternative 1 (Preferred Alternative) – No direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect or cumulative impact.

Alternative 3 – No direct, indirect or cumulative impact.

Alternative 4 – No direct, indirect or cumulative impact.

Hazardous Materials

The public is currently at risk from untreated or insufficiently treated influent and overflow of the WWTF. If the project occurs, an additional parcel of 23.5 acres in size will be purchased to provide space for additional treatment ponds. The parcel will be excavated and graded to form ponds, with berms to be approximately 3 to 4 feet above existing ground level and a depth of 18 to 19 feet below existing ground level. The public could be exposed to potential health problems if they come in contact with the effluent stored in these ponds. To mitigate potential exposure, the parcel will be fenced with a six-foot high chain link fence.

The change in land use from agricultural use would eliminate sources of pollutants associated with farming (pesticides, herbicides, and other treatment of cotton and other crops).

Also, the most recent (August 2007) Waste Discharge Permit (WDR) limits groundwater TKN (nitrate as nitrogen beneath the WWTF) to 10 mg/L. The WWTF must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, of both biochemical oxygen demand (BOD5) and total suspended solids (TSS). Therefore, TKN will be reduced, as no prior limit exagricultural production to use as ponding basins and other uses associated with the WWTF.

Alternative 1 (Preferred Alternative) – No Impact with inclusion of mitigation. Mitigation: as noted above, to mitigate potential exposure to potential health hazards, the project site will be enclosed with a fence six feet in height. No direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – Nitrogen levels could increase if no action is taken. The WWTF is located approximately 1.5 miles from the City of San Joaquin, in an area surrounded by agricultural use. Although the risk is low, the public could be exposed to insufficiently treated effluent if no action is taken. No direct, indirect or cumulative impact.

Alternative 3 – This process does not include de-nitrification, and therefore nitrogen levels would increase. Mitigation: as noted above, to mitigate potential exposure to potential health hazards, the project site will be enclosed with a fence six feet in height. No direct, indirect or cumulative impact.

Alternative 4 – With application of treated effluent to adjacent fields, nitrogen levels would increase. No direct, indirect or cumulative impact.

Groundwater Resources

No groundwater overdrafting is expected as a result of the project, although regional use of groundwater and surface water for agricultural use have resulted in overdraft of groundwater. The USDA Environmental Report 2008 indicates that the project will not impact a US EPA designated "sole source" aquifer. The discharge from the WWTF will occur only in the upper aquifer, which is separate from the lower aquifers. Groundwater is located between 90 and 100 feet below the ground surface and flows northwesterly. In the discharge vicinity, the "modified E-clay" layer occurs about 550 feet below ground surface and is about 80 feet thick. Extensive clay deposits that characterize area soils have caused localized perched groundwater conditions. Shallow groundwater in the discharge vicinity is characterized by high salinity.

Potable water is provided by the City from groundwater wells. As noted above, the water is separated from other, shallow aquifers, and is of sufficient depth to be safe for drinking. The previously adopted CEQA document (see Appendix A) for the project states that, " Effluent from the wastewater treatment ponds will not likely commingle with the lower aquifer and will not degrade the quality of this drinking water supply."Listed for the facility, while BOD5 and TSS will not increase.

Alternative 1 (Preferred Alternative) – Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water and less resulting groundwater recharge.

Alternative 2 (No Action Alternative) – Nitrogen levels could increase to groundwater, which could impact the upper aquifer. Water from this aquifer is not used as a source of agricultural or drinking water.

Alternative 3 – Nitrogen levels could increase to groundwater, which could impact the upper aquifer. Water from this aquifer is not used as a source of agricultural or drinking water. Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water and less resulting groundwater recharge.

Alternative 4 – Direct application of treated effluent to adjacent sites could result in a cumulative increase in nitrogen levels to groundwater.

Environmentally Sensitive Areas

No environmentally sensitive areas exist in the Project area or the lands to be acquired for the expansion Project.

Alternative 1 (Preferred Alternative) – No direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect or cumulative impact.

Alternative 3 – No direct, indirect or cumulative impact.

Alternative 4 – No direct, indirect or cumulative impact.

Geology – Seismic Conditions and Soils

The project area is located in the V1 seismic zone, as discussed in the Seismic Safety Element for the Five Counties. The City and project area are in an area that would be expected to have little or no damage from groundshaking. However, a 6.7 magnitude earthquake was recorded in Coalinga (25 miles southwest of San Joaquin) in 1983 - no damage was reported in San Joaquin.

Soils in the vicinity of the proposed project are classified as "variable and non-uniform layers of sand, clay, silty sand and clay sand," and indicate stream deposition from Fresno Slough, which lies immediately to the east of the project site. These soils have poor drainage with slow surface runoff and permeability. The RWQCB requires de-nitrification of influent, so that soils and groundwater will not be affected by the expansion of the WWTF.

Alternative 1 (Preferred Alternative) – No direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect or cumulative impact.

Alternative 3 – No direct, indirect or cumulative impact.

Alternative 4 – No direct, indirect or cumulative impact.

National Natural Landmarks

No national natural landmarks exist in the Project area.

Alternative 1 (Preferred Alternative) – No direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect or cumulative impact.

Alternative 3 – No direct, indirect or cumulative impact.

Alternative 4 – No direct, indirect or cumulative impact.

Historic, Prehistoric, Archaeological, Architectural, and Cultural Resources

No historic, prehistoric, or other cultural resources or architectural resource have been found to exist in the Project Area. However, mitigation measures are included to assure that no archaeological resources will be impacted.

If a geotechnical exploration occurs on the project site, the State Office of Historic Preservation requests that a geoarchaeologist or cultural resources specialist is present to monitor to assure that potential impact to any found resources is minimized.

The Office of Historic Preservation was consulted in March 2009 and confirmed that this project will not adversely affect historic resources.

Alternative 1 (Preferred Alternative) – No Impact with inclusion of mitigation. Mitigation: if geotechnical exploration occurs on site, the State OHP requests that a geoarchaeologist or cultural resources specialist is present to monitor the site. No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No impact with inclusion of mitigation. Mitigation: if geotechnical exploration occurs on site, the State OHP requests that a geoarchaeologist or cultural resources specialist is present to monitor the site. No direct, indirect, or cumulative impact.

Alternative 4 – No impact with inclusion of mitigation. Mitigation: if geotechnical exploration occurs on site, the State OHP requests that a geoarchaeologist or cultural resources specialist is present to monitor the site. No direct, indirect, or cumulative impact.

Aesthetic Resources

No aesthetic resources exist in the Project area.

Alternative 1 (Preferred Alternative) – No direct, indirect or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect or cumulative impact.

Alternative 3 – No direct, indirect or cumulative impact.

Alternative 4 – No direct, indirect or cumulative impact.

Land Use and Zoning

The 52-acre site of the WWTF lies outside the City's SOI, although the facility is on land owned by the City. The site is zoned Quasi-Public. The additional land to be purchased is located in Fresno County. Purchase of the additional 23.5 acres (zoned AE-40) and the construction and operation of the WWTF pond, are permitted uses under the County's zoning ordinance. At least 6.5 acres of land designated as important farmland will be converted to nonfarmland use. Because local agencies (e.g., the City) are exempt from compliance with building ordinances that apply to the "location or construction of facilities for the production, generation, storage, treatment or transmission of water," the City is not required to adopt a change of land use or zoning ordinance for this project. The changes should, however, be recognized in the City's municipal code and future land use maps and descriptions.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact, except as noted under "Significant or Important Farmlands." As noted above, changes to land use should be recognized in the City's municipal code and future land use maps and descriptions.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact, except as noted under "Significant or Important Farmlands." Changes to land use should be recognized in the City's municipal code and future land use maps and descriptions.

Alternative 4 – No direct, indirect, or cumulative impact.

Socio-economic Impacts

The City of San Joaquin has a 2009 population of approximately 4,060. The City is located in western Fresno County. Its economy is base primarily on agriculture. Severe drought conditions have affected growing of crops, and therefore, the resident's ability to find employment. The City's mayor estimated in May 2009 that the unemployment rate was between 40 and 50 percent (Sacramento Bee, May 20, 2009), while other estimates are more conservative (between 14 and 20 percent). The unemployment rate in Fresno County is currently about 16.5 percent. The 2000 U.S. Census indicated that the population at that time was comprised of 91.99 percent Hispanic, 3.51 percent white, and 3.61 percent Asian residents.

The proposed project will bring the WWTF into conformance with the Order of the RWQCB. It will provide wastewater treatment services to the current population, with the ability to meet the needs of a future increased population. As the project is consistent with the provisions of the City's General Plan, the WWTF expansion will be considered a precursor of population growth and not a cause of population growth. Failure to complete the project, however, could have an adverse impact on the City's ability to permit the construction of new housing and to meet the needs of existing and future residents. The project will therefore, potentially have a positive impact on the ability of the City to meet housing needs and targets as described in the Regional Housing Needs Allocation Plan 2007. (A total of 200 housing units to be added between 2006 and 2013).

Potential impacts from odors will be minimized by oversight of plant operation by a chief plant operator and retention of a consulting engineering firm to immediately assist and correct any potential nuisance odor difficulty.

Potential impacts to City residents would be reduced by any of the action alternatives, as each has the potential to increase the WWTF's capacity, and thereby allow future development of housing. However, only the Preferred Alternative meets the requirements of the RWQCB Order, which will assure that the City is not fined for noncompliance.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 – No action could result in non-compliance with RWQCB requirements. This could lead to a restriction on new construction in the City (indirectly affecting the City's ability to collect additional property taxes) and/or fines to the City for the duration of the period of noncompliance. Either of these impacts could be cumulatively significant.

Alternative 3 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Utilities

Currently the City utilizes approximately 136,000/kwh annually for operations. Implementation of any of the action alternatives would require additional pumps and aerators, which would increase power usage. The proposed action alternative would include replacement of an off site pump with a larger one, and the addition of pumps and ponds at the WWTF. Therefore power usage would increase to an estimated 200,000 kwh annually.

Some water is also required for the transport and treatment of influent. However, the proposed action pumps water (secondary treated liquids) back to the sludge bed decant pump station. From there it is pumped to the oxidation ditch and back into the treatment train, so that water use would not be expected to increase.

Alternative 1 (Preferred Alternative) – Use of electrical power is expected to increase from approximately 136,000 /kwh to 200,000 annually. The direct, indirect, and cumulative impact from a minor increase in power usage is not considered significant.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – Use of electrical power is expected to increase with additional equipment. The direct, indirect, and cumulative impact from a minor increase in power usage is not considered significant.

Alternative 4 –Use of electrical power is expected to increase with additional equipment. The direct, indirect, and cumulative impact from a minor increase in power usage is not considered significant.

Transportation and Access

The WWTF is accessed from the City by traveling west on Manning Avenue, then southeast on S. Levee Road. Access will not be altered by the proposed Project. The current treatment process includes transporting biosolids removed from the sludge beds off site; however, this occurs infrequently. Expansion of the WWTF will not affect this process, although it may occur more frequently as the population of the City increases.

Alternative 1 (Preferred Alternative) – Transportation of biosolids from the WWTF to another location would increase as the amount of effluent increases. The direct, indirect, and cumulative impact from a minor increase in biosolids transportation is not considered significant.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact

Alternative 3 – Transportation of biosolids from the WWTF to another location would increase as the amount of effluent increases. The direct, indirect, and cumulative impact from a minor increase in biosolids transportation is not considered significant.

Alternative 4 . Transportation of biosolids from the WWTF to another location would increase as the effluent increases. The direct, indirect, and cumulative impact from a minor increase in biosolids transportation is not considered significant.

Climate (including Climate Change and Greenhouse Gas Emissions)

The three potential sources of GHG emissions for any WWTF are 1) use of fuels and emissions created during construction; 2) use of energy to operate the facility and 3) emissions created as byproducts of wastewater treatment. A fourth source may result from transporting dried biosolids away from the WWTF for disposal. With the exception of the No Action alternative, all alternatives will require construction activities. These will utilize heavy equipment that will cause carbon emissions and increase dust. These air quality issues are addressed under Air Quality.

Energy utilization to operate the facility can vary with the type of WWTF, and is considered an “indirect” source of GHG emissions. “More than half of the GHG emissions from wastewater treatment result from solids processing.” (Black & Veatch). The lagoon-type facility (an aerobic process), such as the one operated in the City, does not utilize methane produced by conversion of wastewater to biosolids (anaerobic operations can convert methane to power operations). It is not economically feasible for the City to convert to an anaerobic system.

Methane, carbon dioxide, and nitrogen that are produced at WWTF all contribute to GHG emissions. Carbon dioxide from residential waste is usually not considered as are other CO₂ sources, as it is of “biologic origin.” As described above, methane is released into the air as the wastewater is treated in open lagoons, while nitrogen remains in biosolids and liquids at the end of the treatment process. Typically nitrogen in this form can be considered a potential pollutant to groundwater but does not remain as a gas. The San Joaquin WWTF will transport dried biosolids from the facility for disposal, which will result in indirect emissions of CO₂.

GHG emission limits or emission reduction measures have been adopted by CARB, and EPA has not established guidelines for the evaluation and mitigation of GHG emissions. The World Resources Institute and the California Climate Action Registry use the GHG Protocol for setting of reporting limits for each industry, although none have been set for process- specific method variations for WWTF. There is, therefore, an absence of regulatory guidance to assist agencies in determining whether a particular project will have a significant impact on global warming.

GHG emissions from all alternatives are controllable only to a degree. The carbon dioxide and methane emissions are largely uncontrollable with the open lagoon system utilized by most small municipalities, including the City of San Joaquin. De-nitrification used in the preferred alternative will minimize nitrates entering the groundwater.

Alternative 1 (Preferred Alternative) – Operations would increase levels of CO₂ and methane released into the air. Nitrate levels would decrease with the installation of a de-nitrification process. No mitigation measures are possible with this system. Increased operations would be minimal and would produce a negligible increase in GHG emissions. No direct, indirect or cumulative impacts would occur.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact

Alternative 3 – Operations would increase levels of CO₂, methane, and nitrates, all considered greenhouse gases. No mitigation measures are possible with this system. Increased operations would be minimal and would produce a negligible increase in GHG emissions. No direct, indirect or cumulative impacts would occur.

Alternative 4 – Operations would increase levels of CO₂, methane, and nitrates, all considered greenhouse gases. No mitigation measures are possible with this system. Increased operations would be minimal and would produce a negligible increase in GHG emissions. No direct, indirect or cumulative impacts would occur.

Noise

Noise levels generated from the construction phase will increase temporarily, while noise levels from operation of additional pumps and other equipment will increase for the long term. However, the increased noise levels are not expected to be significant, as there are no residences within one mile of the WWTF.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Environmental Justice

The storage of treated effluent in the ponds could potentially create odor problems for surrounding residents. Because the site is located about 1.5 miles west of the City, the residents and 17 residences outside the City limits are within two miles of the facility. Prevailing winds are from the northwest, so that those three residences to the southeast of the WWTF are most likely to be affected. Odor emanating from the WWTF can be controlled to a large extent by proper and effective effluent treatment, so that odors emanating from the project site and storage pond will be minimal. Because a WWTF currently exists, it is unlikely that expansion will result in a noticeable increase in odors. Mitigation will include retention of a consulting engineering firm to assist and correct any potential nuisance odor issues.

City residents could be negatively affected if the Project did not occur, as the City might be prevented from permitting future development to take place. This could occur if the City could not treat additional influent at the WWTF. Additionally, the City could be fined by the RWQCB if they continued to be out of compliance with the agency's regulations.

These potential affects would not affect any economic or cultural group more than another. However, because almost 92 percent of the residents are of Hispanic origin, and household wages are low, these economic impacts to the City, should they occur, could be considered negatively by some residents.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact

Alternative 2 (No Action Alternative) – Should this alternative be selected, no improvements would be made to increase capacity of the WWTF. This could impact residents' ability to receive services and the City's ability to issue permits for future development.

Alternative 3 – No direct, indirect, or cumulative impact

Alternative 4 – No direct, indirect, or cumulative impact

Tribal Issues

Several agencies were contacted during preparation of previous environmental documents for this project, including the Agua Caliente Band of Cahuilla Indians and the Office of Historic Preservation. Neither responded to indicate that the proposed Project would potentially cause negative impacts to the area, or to any culturally sensitive areas.

Alternative 1 (Preferred Alternative) – No direct, indirect, or cumulative impact.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact.

Alternative 3 – No direct, indirect, or cumulative impact.

Alternative 4 – No direct, indirect, or cumulative impact.

Energy Use

Currently the City utilizes approximately 136,000/kwh annually for operations. Implementation of any of the action alternatives would require additional pumps and aerators, which would increase power usage. The proposed action alternative would include replacement of an off site pump with a larger one, and the addition of pumps and ponds at the WWTF. Therefore power usage would increase to 200,000 kwh annually. Other alternatives that would use less energy, such as use of methane – a byproduct of the treatment - as an alternative are not economically feasible for the City to consider.

Alternative 1 (Preferred Alternative) – An increase of electrical energy would be required for operations. The direct, indirect, and cumulative impact from a minor increase in energy use is not considered significant.

Alternative 2 (No Action Alternative) – No direct, indirect, or cumulative impact

Alternative 3 – An increase of electrical energy would be required for operations. The direct, indirect, and cumulative impact from a minor increase in energy use is not considered significant.

Alternative 4 – An increase of electrical energy would be required for operations. The direct, indirect, and cumulative impact from a minor increase in energy use is not considered significant.

Water Use

Water use would vary depending on the alternative selected. If the proposed action is selected, it will result in the acquisition of 23.5 acres now in agricultural production. This land currently uses approximately 58.75 acre-feet of water per year for cotton production. Although the WWTF would be expanded, the new process would include recycling of water on-site, so the water use would not increase. Because the WWTF would utilize less water than would be used for continued agricultural use, the net water use would be less than current usage. Additionally, significantly less surface water would be removed from Fresno Slough for irrigation purposes.

However, less groundwater recharge would occur, as irrigation water would not contribute to that recharge.

Alternative 1 (Preferred Alternative) – Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water and less resulting groundwater recharge.

Alternative 2 (No Action Alternative) – Adjacent farmland would continue to utilize surface and groundwater for agricultural use.

Alternative 3 – Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water and less resulting groundwater recharge.

Alternative 4 – Because the expanded WWTF would require no additional water, and the land would no longer require surface water for agriculture, the indirect and cumulative impact would result in use of less surface water and less resulting groundwater recharge.

Summary of Impacts to Resources by Alternative

Resource/Issue	Alternative 1: Potential Issues & Mitigation Measures	Alternative 2: Potential Issues & Mitigation Measures	Alternative 3: Potential Issues & Mitigation Measures	Alternative 4: Potential Issues & Mitigation Measures
Surface Water & Wetlands	Use of surface water would decrease on lands purchased for WWTF expansion. No mitigation needed. This alternative would "recycle" water throughout the facility, so that there would be little increase in water use.	On site water use would not change. However, if the Proposed Action is not selected, adjacent farmlands would continue to use approximately 58.75 acre-feet/year of surface water for irrigation.	Use of surface water would decrease on lands purchased for WWTF expansion.	Use of surface water would decrease on lands purchased for WWTF expansion.
Significant or Important Farmlands	Of the 23.5 acres of land to be acquired, 6.5 is important farmland. Loss of this farmland is considered irreversible and unavoidable. <u>No mitigation is possible.</u>	NA	Of the 23.5 acres of land to be acquired, 6.5 is important farmland. Loss of this farmland is considered irreversible and unavoidable. <u>No mitigation is possible.</u>	Treated effluent would be applied to adjacent farmlands. No farmlands would be lost under this alternative.
Air Quality	Rules of the SJVAPCD will be followed during construction phase. No other impacts will occur. <u>Mitigation: Excavation and grading will cease when wind speeds exceed 20 mph.</u>	NA	Rules of the SJVAPCD will be followed during construction phase. No other impacts will occur. <u>Mitigation: Excavation and grading will cease when wind speeds exceed 20 mph.</u>	Rules of the SJVAPCD will be followed during construction phase. No other impacts will occur. <u>Mitigation: Excavation and grading will cease when wind speeds exceed 20 mph.</u>

Resource/Issue	Alternative 1: Potential Issues & Mitigation Measures	Alternative 2: Potential Issues & Mitigation Measures	Alternative 3: Potential Issues & Mitigation Measures	Alternative 4: Potential Issues & Mitigation Measures
Threatened and Endangered Species	No habitat for species exists in the project area. Mitigation: a <u>buffer of 100' in width will be installed between the project site and Fresno Slough to minimize any potential impacts to wildlife, vegetation or any potential wetlands.</u>	NA	No habitat for species exists in the project area. Mitigation: a <u>buffer of 100' in width will be installed between the project site and Fresno Slough to minimize any potential impacts to wildlife, vegetation or any potential wetlands.</u>	No habitat for species exists in the project area. No mitigation would be needed.

Resource/Issue	Alternative 1: Potential Issues & Mitigation Measures	Alternative 2: Potential Issues & Mitigation Measures	Alternative 3: Potential Issues & Mitigation Measures	Alternative 4: Potential Issues & Mitigation Measures
<p>Hazardous Materials</p>	<p>The project would reduce pollutants associated with farming (pesticides, etc.) on 23.5 acres. The most recent (August 2007) Waste Discharge Permit limits groundwater TKN (nitrate as nitrogen beneath the WWTF) to 10 mg/L. The WWTF must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, of biochemical oxygen demand (BOD5) and total suspended solids (TSS). TKN will be reduced, as no prior limit existed for the facility, while BOD5 and TSS will not increase. A six foot fence will be installed around the effluent ponds to avoid any contact with humans for health reasons.</p>	<p>The WWTF would remain out of compliance with RWQCB requirements regarding nitrogen and other chemicals associated with this type of facility. Not increasing the disposal capacity from .252 mgd will result in potential overflow and hydraulic backups at both the WWTF and the terminal pump station. Without the proposed upgrades, untreated and partially treated wastewater could overflow at various points within the treatment plant and the sanitary sewer system, at least on some days. Public health and the environment will be adversely affected if no project occurs.</p>	<p>The project would reduce pollutants associated with farming (pesticides, etc.) on 23.5 acres. The process does not include denitification, and would not meet RWQCB requirements. Also a six foot fence will be installed around the effluent ponds to avoid any contact with humans for health reasons.</p>	<p>With application of treated wastewater on adjacent farmlands, nitrogen would increase. Other pollutants associated with farming would most likely remain at the same levels as currently applied.</p>

Resource/Issue	Alternative 1: Potential Issues & Mitigation Measures	Alternative 2: Potential Issues & Mitigation Measures	Alternative 3: Potential Issues & Mitigation Measures	Alternative 4: Potential Issues & Mitigation Measures
Groundwater Resources	With de-nitrification, no impacts would occur to groundwater	Nitrate levels could increase in groundwater on site if this alternative is selected.	Nitrate levels could increase in groundwater on site if this alternative is selected.	Nitrogen levels could increase in groundwater on site and to the adjacent site if this alternative is selected.
Historic, Prehistoric Resources	None are known to exist. <u>As mitigation, if geotechnical exploration occurs on site, the State OHP request that a geoarchaeologist or cultural resources specialist is present to monitor the site.</u>	NA	None are known to exist. <u>As mitigation, if geotechnical exploration occurs on site, the State OHP request that a geoarchaeologist or cultural resources specialist is present to monitor the site.</u>	None are known to exist. <u>As mitigation, if geotechnical exploration occurs on site, the State OHP request that a geoarchaeologist or cultural resources specialist is present to monitor the site.</u>
Socio-Economic Impacts	Compliance with RWQCB requirements will avoid fines to the City that could impact its residents. Greater WWTF capacity would allow the City to construct new housing, which could otherwise be restricted.	Without compliance to RWQCB requirements, the City could receive daily fines, and could be required to restrict further construction of residences that would add to the burden of the WWTF.	Without compliance to RWQCB requirements, the City could receive daily fines, and could be required to restrict further construction of residences that would add to the burden of the WWTF.	Without compliance to RWQCB requirements, the City could receive daily fines, and could be required to restrict further construction of residences that would add to the burden of the WWTF.

Resource/Issue	Alternative 1: Potential Issues & Mitigation Measures	Alternative 2: Potential Issues & Mitigation Measures	Alternative 3: Potential Issues & Mitigation Measures	Alternative 4: Potential Issues & Mitigation Measures
Utilities	Use of electrical power would increase from approximately 136,000/kwh to 200,000 kwh annually. No mitigation is required.	NA	Use of electrical power would increase with installation of additional equipment. No mitigation is required.	Use of electrical power would increase with installation of additional equipment. No mitigation is required.
Transportation and Access	With increased capacity, transportation of biosolids from the WWTF to another location would increase. Access would not be altered.	NA	With increased capacity, transportation of biosolids from the WWTF to another location would increase. Access would not be altered.	With increased capacity, transportation of biosolids from the WWTF to another location would increase. Access would not be altered.
Greenhouse Gas Emissions	Methane, carbon dioxide(CO2), and nitrogen that are produced at WWTF all contribute to GHG emissions. CO2 from residential waste is usually not considered is of "biologic origin." Methane is released into the air as the wastewater is treated in open lagoons, while nitrogen remains in biosolids and liquids at the end of the treatment process.	NA	Methane, carbon dioxide(CO2), and nitrogen that are produced at WWTF all contribute to GHG emissions. CO2 from residential waste is usually not considered is of "biologic origin." Methane is released into the air as the wastewater is treated in open lagoons, while nitrogen remains in biosolids and liquids at the end of the treatment process. Biosolids will be	Methane, carbon dioxide(CO2), and nitrogen that are produced at WWTF all contribute to GHG emissions. CO2 from residential waste is usually not considered is of "biologic origin." Methane is released into the air as the wastewater is treated in open lagoons, while nitrogen remains in biosolids and liquids at the end of the treatment process. Biosolids will be

Resource/Issue	Alternative 1: Potential Issues & Mitigation Measures	Alternative 2: Potential Issues & Mitigation Measures	Alternative 3: Potential Issues & Mitigation Measures	Alternative 4: Potential Issues & Mitigation Measures
	Biosolids will be transported offsite, which will result in indirect emissions of CO ₂ .		transported offsite, which will result in indirect emissions of CO ₂ .	transported offsite, which will result in indirect emissions of CO ₂ .

SUMMARY OF IMPACTS

Direct, indirect, and cumulative impacts which would result from implementation and operation of Alternative 1 (proposed alternative), Alternative 3, and Alternative 4 are described in detail in the “Evaluation of Impacts” section above. A brief summary is provided below; resources that will not be impacted by one or more alternatives are not included:

- **Surface Water:** net use of surface water would decrease if the proposed action is selected, as there would be no need for irrigation water on the 23.5 acres of land acquired for use of the expanded WWTF.
- **Farmland:** the Project would require the acquisition of adjacent farmland under Alternatives 1 and 3. At least 6.5 acres of important farmland would be converted from agricultural use. This is considered an unavoidable impact.
- **Groundwater Resources:** groundwater recharge from irrigation would decrease with the conversion of farmland to use on the expanded Project site. The use of lined evaporation ponds under Alternative 1 would prevent WWTF biosolids and chemicals such as nitrates, from entering the groundwater. As noted under “Hazardous Materials” pesticides and other chemicals used to treat these agricultural lands would also be eliminated under Alternative 1,

so that they would no longer enter the ground. Under Alternatives 2 (no action) 3 and 4 nitrates would continue to enter the groundwater.

- **Hazardous Materials:** potential hazards to the public from effluent in excess of the amount that could be treated at the WWTF would cease under Alternatives 1, 3, and 4. Should farmlands be converted, pesticides and herbicides would no longer be needed for production of cotton or other crops.
- **Transportation and Access:** travel on S. Levee Road would increase temporarily during the construction phase of the Project under Alternatives 1, 3 and 4. It is expected that transportation of biosolids would increase as the influent to the WWTF increases over time under each of these alternatives.
- **Energy Use:** use of electrical power would increase with the addition of pumps and other equipment. The increase would vary depending upon the alternative selected.
- The project site is located outside of the City of San Joaquin in an agricultural area. No other projects are planned in the vicinity that could, when combined with the Project, increase or compound effects to any resource. No individual effect from the Project, when combined with any other effect from the Project will result in an increased or cumulative impact. Therefore, the Project will not result in any cumulative impacts in or adjacent to the project area.

Project Benefits

Surface Water: net use of surface water would decrease if the proposed action is selected, as there would be no need for irrigation water on the 23.5 acres of land acquired for use of the expanded WWTF.

- **Hazardous Materials:** potential hazards to the public from effluent in excess of the amount that could be treated at the WWTF would cease. Should farmlands be converted, pesticides and herbicides would no longer be needed for production of cotton or other crops.
- **Socio-Economic Impacts and Environmental Justice:** completion of the Project would allow the City to be in compliance with RWQCB regulations. Without this compliance, the City could be restricted from increasing the number of hook-ups to the WWTF services, thereby restricting development or increasing the number of housing units available. Additionally, fees that could be assessed by the RWQCB for non-compliance would no longer be considered, and City funds would be used for other purposes.

Short Term Use of the Environment versus Long Term Productivity

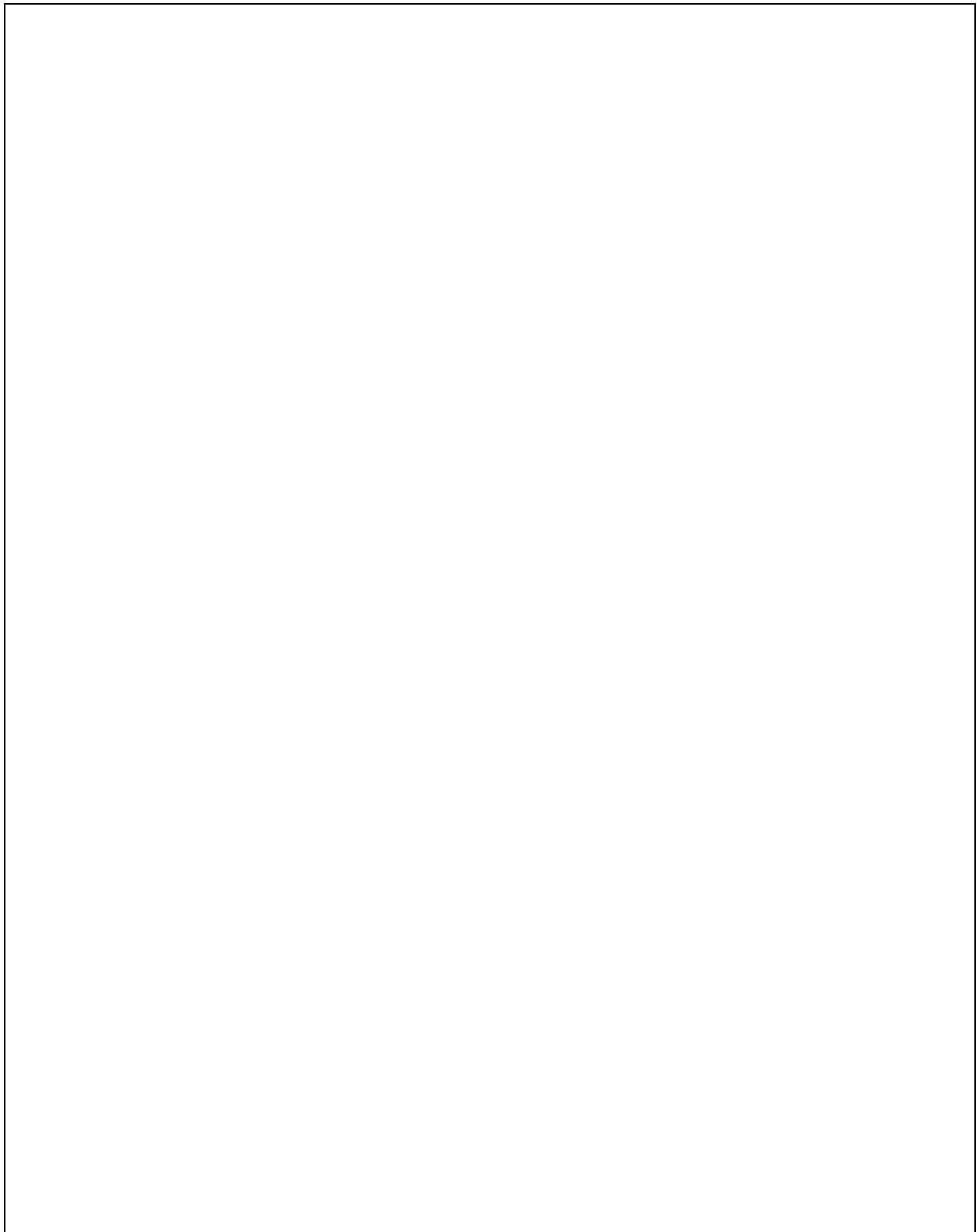
With this proposed project, there is no short-term use of the environment. The existing WWTF is utilizing land for the foreseeable future. Lands surrounding the WWTF are utilized for the production of cotton. Because of the current drought in that area of the County, farmers in the Westside Water District have not been allocated more than 30 percent of the usual water

allotment in the past three years. As a result, some fields used for seasonal production of crops will not be planted, but will remain fallow. If the project does not proceed, the existing WWTF will continue to operate, but will not be able to treat all influent, so that it will not be in compliance with RWQCB requirements.

Irreversible and Irretrievable Commitment of Resources

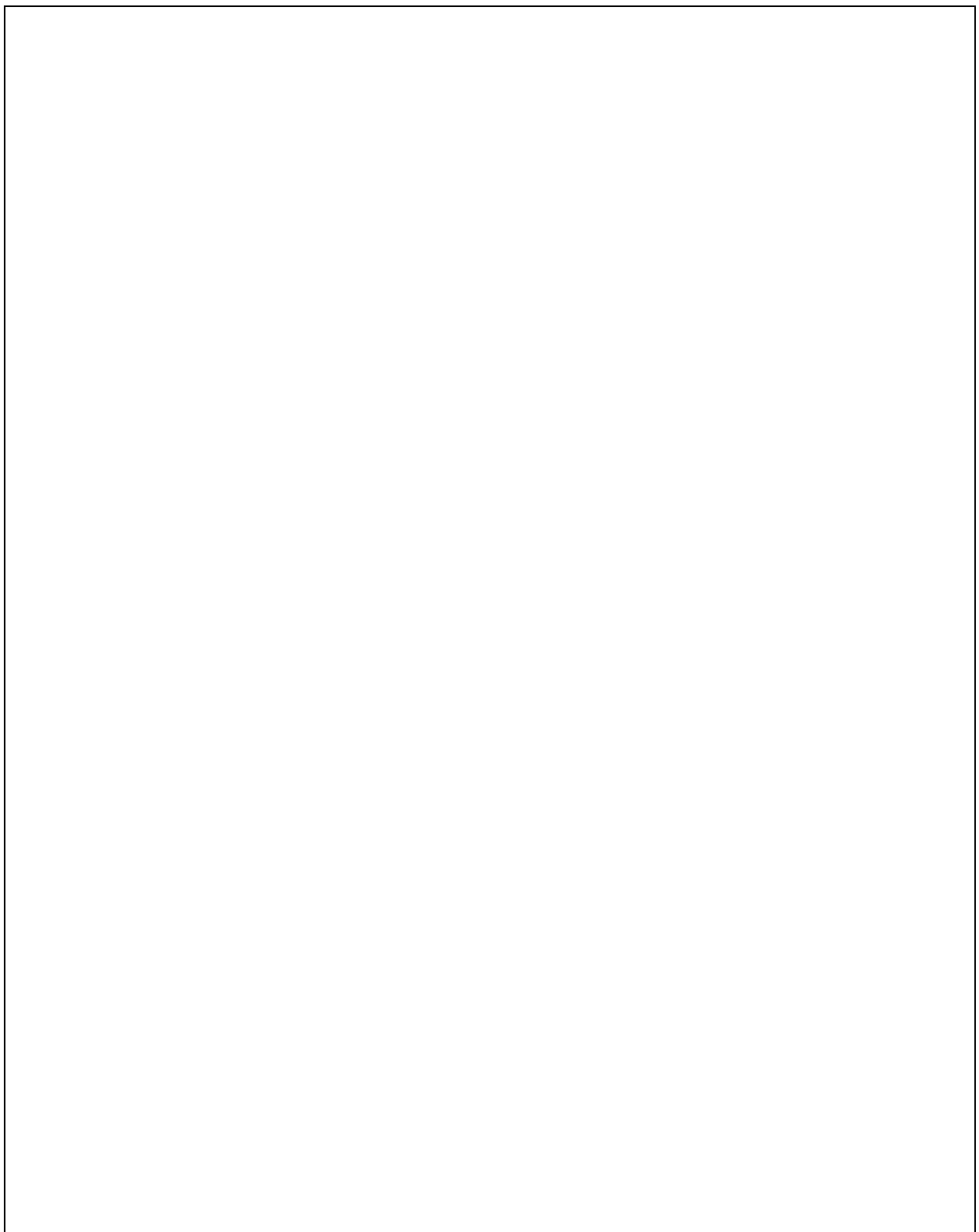
Should no action be taken, so that the Project is not expanded, the land that would be used for the expansion would remain as farmland. The loss of this farmland, some of which is considered Important Farmland, would be a permanent, irreversible and irretrievable commitment of resources.

The operation of the expanded WWTF will require additional electrical power for pumps and other equipment. Transportation of biosolids to an offsite location will require more diesel or other fuel.



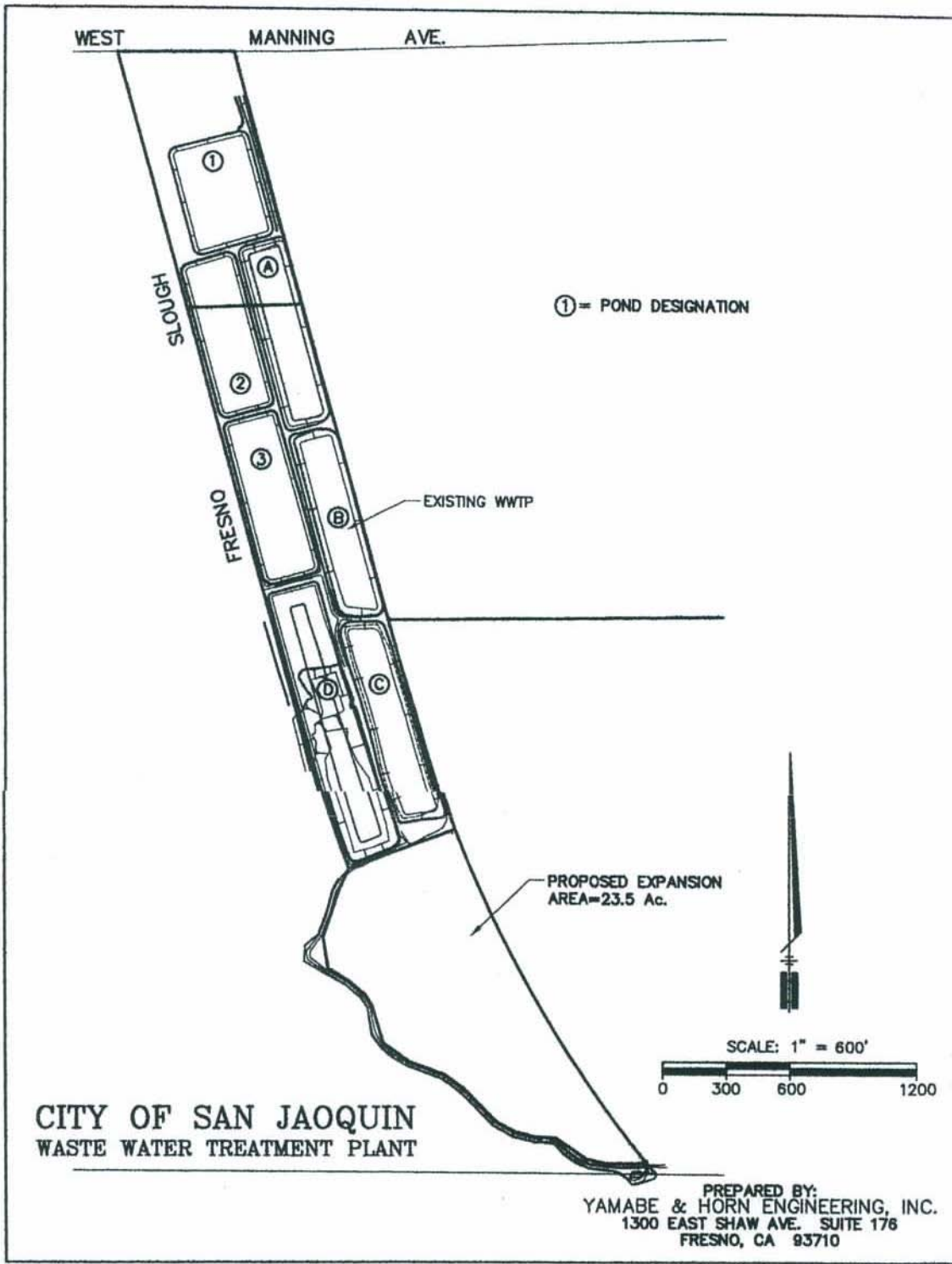
REGIONAL LOCATION MAP

Figure
1



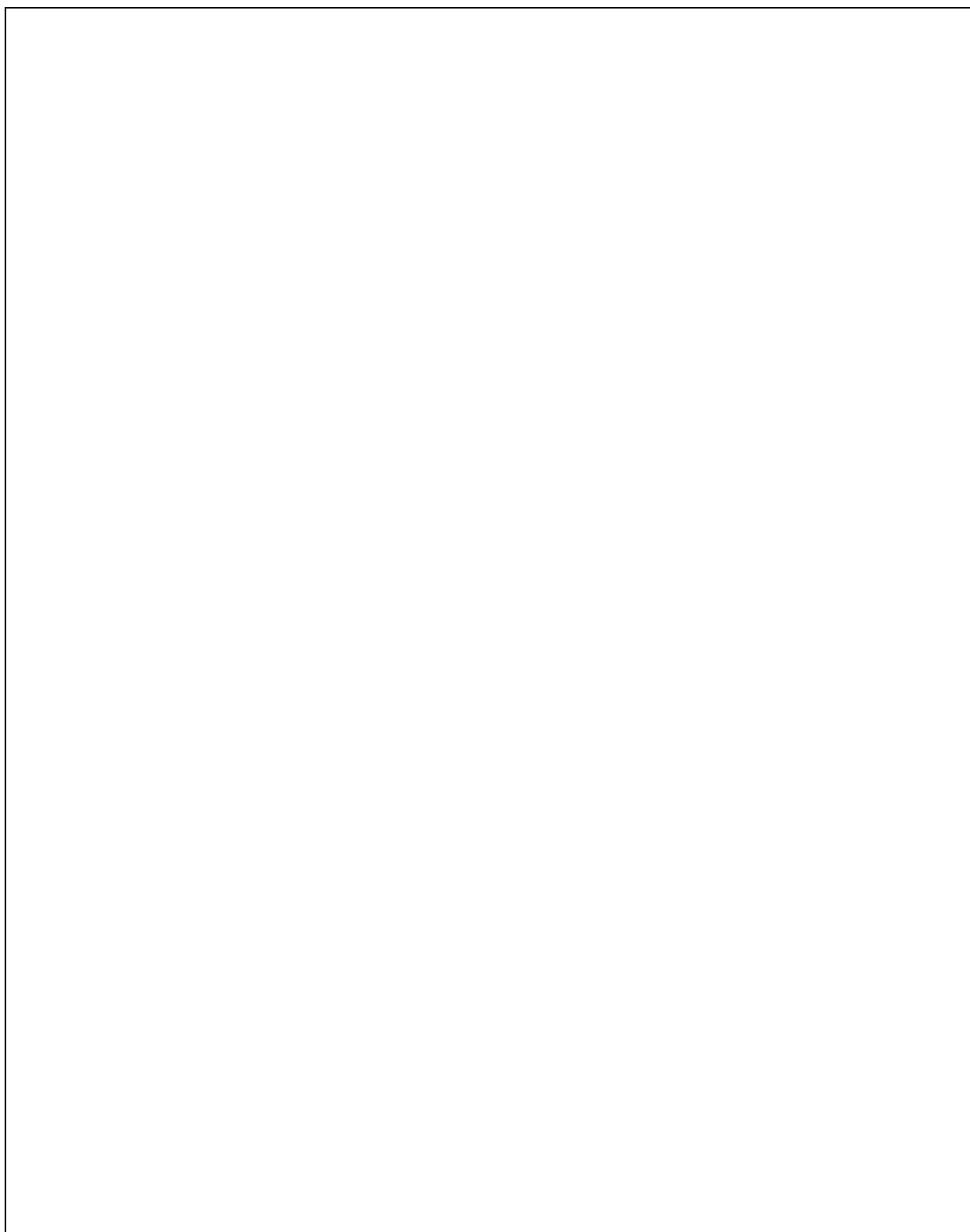
VICINITY MAP

Figure
2



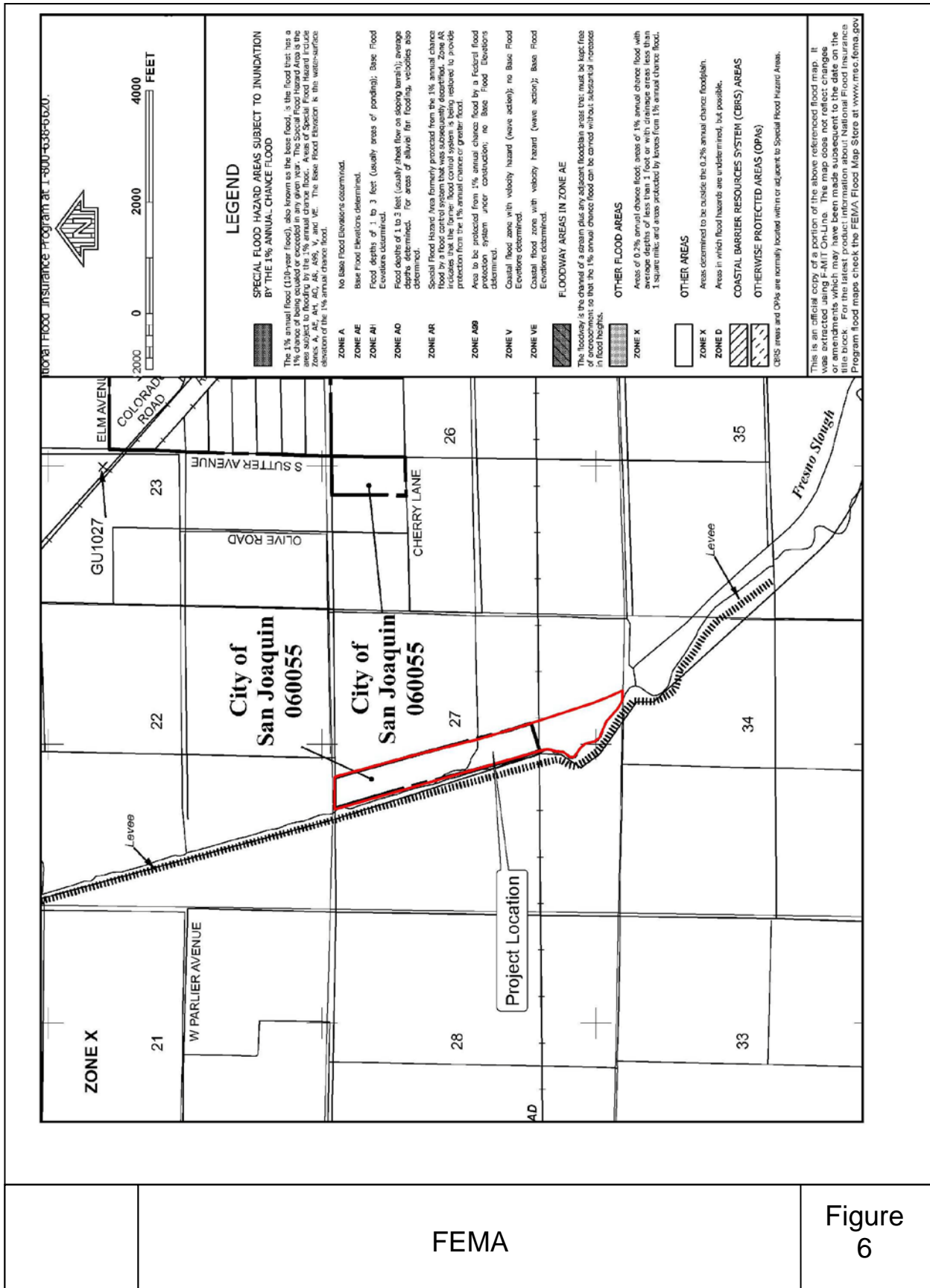
SITE PLAN

Figure 3



U.S. CENSUS BLOCKS

Figure
5



FEMA

Figure 6