YOSEMITE AVENUE-GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

DRAFT ENVIROMENTAL IMPACT REPORT

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Prepared for:

CITY OF MERCED
678 W. 18th Street
Merced, CA 95340

CONTACT:
Julie Nelson
Senior Planner

Prepared by:

DUDEK

853 Lincoln Way, Suite 208
AUBURN, CA 95603
T 530.863.4642

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ACOE	U.S. Army corps of Engineers
ADT	average daily traffic
AFY	Acre-feet per year
AMSL	Above meal sea level
APN	Assessor's Parcel Number
A-R	Agricultural Residential zone district
BMP	best management practice
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards
CalRecycle	California Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CBOC	California Burrowing Owl Consortium
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
City	City of Merced
CN	Neighborhood Commercial land use designation
C-N	Neighborhood Commercial zone district
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DOC	U.S. Department of Conservation
DOE	U.S. Department of Energy
OF	California Department of Finance
DMP	diesel particulate matter
du/ac	Dwelling units per acre

Acronym/Abbreviation	Definition
DWR	California Department of Water Resources
EIR	environmental impact report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FICON	Federal Emergency Committee on Noise
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Authority
GHG	greenhouse gas
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HAP	hazardous air pollutant
HMD	High/Medium Density Residential land use designation
HVAC	Heating, ventilation, and cooling
Hz	Hertz
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
kBtu	kilos British thermal units
kWh	kilowatt-hour
LAFCo	Local Agency Formation Commission
LCFS	Low Carbon Fuel Standard
L_{dn}	day/night average noise level
LD	Low Density Residential land use designation
LDR	Low Density Residential zone district
L_{eq}	equivalent sound level
L_{max}	maximum noise level
L_{min}	minimum noise level
MAF	Million acre-feet
mgd	Million gallons per day
MGWB	Merced Groundwater Basin
MID	Merced Irrigation District
MIRWMP	Merced Integrated Regional Water Management Plan
MMRP	mitigation monitoring and reporting program
MS4	Small Municipal Separate Storm Sewer System
MT	metric ton
NAAQS	National Ambient Air Quality Standards
NAHC	California Native American Heritage Commission
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMFS	National Marine Fisheries Service

Acronym/Abbreviation	Definition
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OPR	Office of Planning and Research
P-D	Planned Development zone district
PEAIP	Program Effectiveness Assessment and Improvement Plan
PM_{10}	particulate matter equal to or less than 10 microns in aerodynamic diameter
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in aerodynamic diameter
ppm	parts per million
PPV	Peak particle velocity
R-1-10	Low Density Residential zone district
R-4	High Density Residential zone district
RCNM	Roadway Construction Noise Model
ROG	reactive organic gas
RMS	Root mean square
RPS	Renewable Portfolio Standard
RR	Rural Residential land use designation
R-R	Rural Residential zone district
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S1	Critically imperiled
S2	Imperiled
S3	Vulnerable
SB	Senate Bill
SCS	Sustainable Communities Strategy
SDWA	Safe Drinking Water Act
SGMA	Sustainable Groundwater Management Act
SLF	sacred lands file
SOI	Sphere of Influence
SUDP	Specific Urban Development Plan
SWMP	Stormwater Management Plan
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant OR Technical advisory committee
TAF	Thousand acre-feet
TMDL	Total maximum daily load
TNM	Traffic Noise Model
Tpd	Tons per day
UBC	Uniform Building Code
UC Merced	University of California, Merced

Acronym/Abbreviation	Definition
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
U-T	Urban Transition
UWMP	Urban Water Management Plan
VdB	Vibration decibels
VLDR	Very Low Density Residential
VMT	vehicle miles traveled
WDR	Waste Discharge Requirements
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

ES.1 PROJECT UNDER REVIEW

This Draft Environmental Impact Report (EIR) evaluates the environmental impacts of the proposed Yosemite Avenue-Gardner Avenue to Hatch Road Annexation project (proposed project). The City of Merced (City) is the lead agency for preparation of this EIR. The project site is currently located in Merced County and within the City's Sphere of Influence (SOI) and Specific Urban Development Plan (SUDP). The proposed project includes a request to annex the approximately 68.6-acre site to the City. The site extends north of East Yosemite Avenue between Gardner Avenue on the west and Hatch Road on the east. Approximately 28.4 acres of the site is proposed to be developed as The Crossings, which would construct a multi-family residential complex and retail center that would include 540 apartments, 66,000 square feet of commercial uses, and 12 multi-family dwelling units and 18 extended stay units located on the second floor of the commercial buildings. The Crossings is proposed to be developed in the southwestern and central portion of the project site. The approximately 40.2 acres of the site that would not be developed as part of The Crossings is referred to in this EIR as the Remainder Area. This area consists of two separate portions of the site – an approximately 9.4-acre area in the northwest corner of the site that is proposed to be zoned Urban Transition (U-T) and the approximately 30.8 acres in the eastern portion of the site of which 10 acres are proposed to be zoned U-T and 20.8 acres are proposed to be zoned Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portions zoned R-1-10 could support development of single-family residences with 10,000 square foot minimum lot sizes. Areas zoned U-T would support only continued operation of the existing land uses and new agricultural uses. A detailed description of the project and all its components is contained in Chapter 2, Project Description.

In general, the project seeks to develop a mixed-use village and to annex the adjacent properties to create a logical city boundary. While the project is not designated as student housing, the proximity of the project to the University of California Merced campus would help provide nearby housing opportunities for students. The specific project objectives include:

- Develop an attractive and high-quality mixed-use project comprising housing, retail and general commercial.
- Provide quality and affordable living space for the local housing market in close proximity to commercial uses.
- Create a low-carbon footprint living environment desirable to eco-conscious residents through the use of select building materials, low-energy appliances, and native landscaping.

- Operate a professionally managed secure living space for residents that includes dedicated village-style retail, restaurant, and mixed-use.
- Produce economic benefits by creating hundreds of construction jobs, twelve to fifteen jobs operating the housing project when completed, and dozens of retail and restaurant job opportunities for the village retail and mixed-use center.
- Provide residents a variety of transit options.

ES.2 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

This summary chapter provides an overview of the technical analysis contained in Sections 3.1 through 3.12 in Chapter 3, Environmental Analysis. This summary also includes a discussion of: (a) effects found to be less than significant, (b) comments received in response to the Notice of Preparation (NOP), (c) potential areas of controversy, (d) significant and unavoidable impacts and mitigation measures to avoid or reduce identified significant impacts, and (e) alternatives to the proposed project.

The California Environmental Quality Act (CEQA) Guidelines Section 15382 defines a significant effect as a substantial, or potentially substantial, adverse change in any physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Implementation of the proposed project would result in significant impacts to the environment. As lead agency, the City prepared an Initial Study for this project and determined that this Draft EIR must address the following technical issue areas:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Energy
- Greenhouse Gas Emissions
- Hydrology, Drainage, and Water Quality
- Land Use and Planning
- Noise
- Public Services and Utilities
- Transportation and Circulation

The following discussions provide a brief summary of the findings of each technical section in Chapter 3 (Technical Analyses). A table identifying each of the environmental impacts evaluated in Chapter 3, the impact's level of significance, any mitigation measures applicable to that impact, and the impact's level of significance after mitigation is presented in Section ES.7.

Aesthetics

The project site is located at a point of transition between the urbanized area within the City and the non-urbanized area within the County, with single-family residential subdivisions present to the south and west within the City limits, and agricultural and rural residential properties to the north and east within Merced County.

The proposed project was found to result in a less-than-significant impact related to scenic quality and conflicts with zoning regulations related to aesthetics because it would be required to comply with the City's development standards identified in Municipal Code, which include standards for density, setbacks, structure height, building architecture and design, parking, and landscaping. Consistency with these standards would be verified under the City's Final Site Utilization Plan process as described in Municipal Code Chapter 20.26.

The proposed project was found to have the potential to create lighting that could adversely affect nearby properties, but this impact would be reduced to a less-than-significant level with implementation of Mitigation Measure 3.1a which requires compliance with 'dark sky' lighting standards.

There is no significant cumulative impact associated with degradation of scenic quality to which the project could contribute. Although development within the City associated with the City's General Plan would change the visual character of the City, the General Plan EIR finds that adherence to policies and actions set forth by the City's General Plan and Municipal Code would ensure that these changes serve to maintain and enhance the City's visual character by promoting development that is consistent with existing neighborhoods.

The proposed project was found to result in a less-than-significant cumulative impact related to nighttime lighting and glare after the implementation of mitigation. Due to the location of the project site on the edge of more rural, less dense development in the County the addition of light generated by past, present, and probable future development in the City and County surrounding the project site is considered a significant cumulative impact. However, the implementation of the dark sky practices as required under Mitigation Measure 3.1a would ensure that the proposed project, including the future development in the remainder area, would remain less than significant.

Agricultural Resources

Currently, The Crossings portion of the project site (28.4 acres) is used for agriculture with the exception of an approximately 3-acre portion that is developed with a residence, barn and associated outbuildings. The 40.2-acre Remainder Area contains several single-family residences, a church, a private school, and agricultural uses.

The proposed project was found to result in a less-than-significant impact related to farmland conversion. By converting Primate Farmland and Unique Farmland to urban uses, the project would result in a direct and project-specific impact due to the loss of 26.3 acres of Prime Farmland and 2.1 acres of Unique Farmland. This impact would be mitigated to a less-than-significant level through the implementation of Mitigation Measure 3.2a, which requires the Applicant to provide a permanent conservation easement over an equal amount of Prime Farmland as would be developed under the project.

The project would not result in other changes in the existing environment that could result in conversion of Farmland to non-agricultural use. The project would not contribute to or result in the conversion of adjacent agricultural land to non-agricultural uses outside of the project site. Through the implementation of the City's General Plan policies pertaining to agricultural land preservation and minimization of agricultural-residential adjacency land use conflicts, this would be a less-than-significant impact.

The proposed project would contribute to a cumulative loss in agricultural resources in the project region. While the project would be required to implement Mitigation Measure 3.2a, this mitigation measure does not offset or compensate for cumulative losses of agricultural land, and there are no feasible mitigation measures to offset or compensate for these cumulative losses. Thus, this impact would be significant and unavoidable.

Air Quality

The proposed project involves the development of 540 residential units in twenty 3-story buildings with a 13,700 square foot supporting clubhouse building, and five mixed-use buildings with a total of 66,000 square feet of ground floor retail and 30 additional residential units on the 2nd floors. Emissions from construction and operation of the project were estimated using the California Emissions Estimator Model (CalEEMod).

The project was found to have a less-than-significant impact in terms of potential conflict or obstruction to the implementation of applicable air quality plans. The project would not exceed the growth forecast in Merced County Association of Government's *2018 Regional Transportation Plan and Sustainable Communities Strategy* and air pollutant emissions resulting from construction and operation of the project would not exceed San Joaquin Valley Air Pollution Control District's (SJVAPCD) thresholds.

Implementation of the proposed project would result in a less-than-significant impact because it would not exceed SJVAPCD significance thresholds and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment. Construction and operation of the project would not conflict with SJVAPCD Ozone Attainment

Plans. The project would not result in a cumulatively considerable increase in emissions of nonattainment criteria pollutants.

Based on the air pollutant emission estimates developed through the CalEEMod modeling, the project would not expose sensitive receptors to substantial concentrations of pollutants or potential health effects associated with criteria air pollutants, and the impacts due to exposure to toxic air contaminants and substantial concentrations of criteria air pollutants would be less than significant. However, project construction could result in workers and nearby receptors being exposed to the *C. immitis* fungus, which causes Valley Fever. This is a potentially significant impact that would be mitigated to a less-than-significant level through the implementation of Mitigation Measure 3.3a, which would minimize that potential exposure to the *C. immitis* fungus and associated risk that workers and nearby sensitive receptors could contract Valley Fever.

The proposed project would result in a less-than-significant impact related to other emissions and odors. Project related construction odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. The project includes residential and retail buildings which are not commonly associated with generation of objectionable odors.

As noted above, the project would not result in a cumulatively considerable contribution to the significant cumulative impact identified in the City's General Plan EIR. The proposed project would not generate substantial construction or operational emissions, would not impede implementation of the SJVAPCD Attainment Plans, or exceed SJVAPCD significance thresholds.

Biological Resources

The proposed project includes the approximately 28.4-acre The Crossings component, and the 40.2-acre Remainder Area where no development is currently proposed. The Crossings portion of the project site has been farmed extensively and thus contains very few native/natural plant communities. No federally designated critical habitat for threatened or endangered species occurs within or adjacent to the project area.

The project may have a potentially significant impact on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. The project could also result in a potentially significant impact on riparian habitat or other sensitive natural communities, However, implementation of Mitigation Measures 3.4a through 3.4i would reduce potential impacts to special-status species and sensitive natural communities to less-than-significant levels. The project would have a less-than-significant impact relating to conflicts with the City of Merced land use plans, policies, regulations, or ordinances that address biological resources.

The project could contribute to potentially significant cumulative impacts to special-status species in the region due to the removal of foraging, cover, and breeding habitat. However, compliance with Mitigation Measures 3.4a through 3.4h would ensure these impacts would be avoided and/or off-set through compensatory measures.

Cultural Resources and Tribal Cultural Resources

Based on a records search, literature review, and pedestrian survey of The Crossings component of the project site, there are no known archeological resources, tribal cultural resources, or historic resources within the site. However, the Remainder Area was not subject to a pedestrian survey or historic resource evaluate and thus this portion of the site could support cultural resources. Further, there is a potential for cultural resources to be present below-grade throughout all of the project site.

If any cultural resources are identified within the site during further evaluation of the Remainder Area and/or during earth-moving activities associated with construction, the proposed project could cause a substantial change in the significance of such resources. This would be considered a potentially significant impact. Implementation of Mitigation Measures 3.5a through 3.5c would reduce these potential impacts to less-than-significant levels by requiring adherence to specific protocols and standards that would ensure compliance with General Plan policy and State law in the event that any cultural resources are identified.

Similarly, there are no known human burials within the project site, but if any are discovered during construction, disturbance to them could result in a significant impact. However, in the event that human remains are discovered, compliance with the State Health and Safety Code and Public Resources Code would ensure potential impacts associated with an accidental discovery of human remains would be less than significant.

The proposed project would have a less than significant impact on paleontological resources after the implementation of mitigation. While there is no evidence that paleontological resources are present within the project site, it is possible for paleontological resources to be discovered during earth disturbing activities within the project site. Mitigation Measure 3.5e would ensure that contractors on site would be aware of the potential of paleontological resources and that the proper course of action would be taken to ensure the preservation of the resource in the event that a resource is discovered.

Energy

Pacific Gas and Electric Company (PG&E) currently provides electrical service to the existing land uses within the project site. The proposed project would not cause a significant impact related to energy consumption because the project would not result in wasteful, inefficient or unnecessary

use of energy and would not conflict with existing energy standards and regulations. The project would contribute to a cumulative increase in regional energy consumption; however, this impact is considered less than significant in that it would not result in wasteful or inefficient energy use.

Greenhouse Gas Emissions

For the EIR analysis, the project's potential contribution to climate change, the project's short-term construction-related and long-term operational greenhouse gas (GHG) emissions were estimated using the CalEEMod software. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, and water use.

The CalEEMod results indicates that the project would result in less-than-significant impacts related to direct or indirect GHG emissions. Project construction would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. Project operation would result in GHG emissions from vehicular traffic, area sources (e.g., natural gas combustion and landscaping), electrical generation, water supply, and solid waste. The proposed project would not conflict with any applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions and would not cause a less-than-significant impact in that it would not make a cumulatively considerable contribution to GHG emissions.

Hydrology, Drainage, and Water Quality

The project site is located adjacent to the City of Merced and within the San Joaquin Valley drainage basin. The City of Merced is located in the Middle San Joaquin-Lower Chowchilla watershed, which in turn is part of the San Joaquin River Groundwater Basin.

Because the project site generally slopes from the northeast to the southwest, it drains to the southwest corner of the parcel at Yosemite Avenue and Gardner Avenue. This drainage would be conveyed to the city's storm drain system.

The EIR finds that the project would pose a less-than-significant impact in that it would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. The project would implement Best Management Practices to control erosion and prevent transport of construction-related contaminants to impaired surface waters. Also, for stormwater quality protection, various combinations of low impact design features would be developed during the design phase of the project, as required by the City's Post Construction Standards Plan.

The proposed project would cause a less-than-significant impact related to changes in the drainage pattern of the site or area in a manner which would result in a substantial erosion or siltation, substantial increases in the rate or amount of surface runoff in a manner which would result in flooding, or creating or contributing runoff water that would exceed the capacity of existing or planned stormwater drainage systems. The project would comply the City stormwater management regulations; specifically the project design would ensure that stormwater discharge would be equal to or less than the current discharge so there would be no adverse impact to the city's existing downstream system.

The project would result in a less-than-significant impact related to groundwater supplies and recharge because it would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. The City's Urban Water Management Plan (UWMP) and other water planning documents include consideration of projected increases in City population and find that the water demand associated with the planned growth can be accommodated by the City's existing and future groundwater supply.

Similarly, the project would result in a less-than-significant impact related to cumulative effects on water quality, drainage patterns, flooding, or groundwater supplies through the compliance with federal, state, and local regulations, and the ongoing implementation of the City's General Plan.

Land Use and Planning

The project site is located in unincorporated Merced County contiguous to the City of Merced and within the City's Sphere of Influence (SOI) and Merced Specific Urban Development Plan (SUDP). Residential development in the City is located to the south and west, and a medical office complex is located southwest of the site. Land in the County under active agricultural use is located to the north and rural residential uses are located to the north and east. The project proposes to change the General Plan land use designations for The Crossings component of the site from Rural Residential (RR) to Neighborhood Commercial (CN) and High-Medium Density Residential (HMD) and proposes to change the land use designation for the eastern portion of the Remainder Area to Low Density Residential.

The project would have no impact related to possible incompatibilities with adjacent land uses and properties because it would not create conditions that would be incompatible with existing and planned land uses surrounding the project site and in the project vicinity. The project is consistent with applicable General Plan goals and policies and is designed to comply with the City's Zoning Ordinance. Therefore, the project would result in a less-than-significant impact related to potential conflict with regional land use plans, policies, or regulations.

Noise

Section 3.10 of the EIR analyzes existing and future noise environments based on observations, noise level measurements, published data, and computer modeling. Existing noise levels were monitored in the vicinity of the site traffic noise modeling involved calculation of existing and future traffic noise levels along roadway sections to which the project would substantially contribute traffic trips. Noise-sensitive land uses in the project vicinity include single-family residences to the west and to the south, and within the Remainder Area, as well as Yosemite Church and Stoneridge Christian School within the Remainder Area, and the medical offices southwest of the site.

The project could result in a potentially significant impact related to construction noise and its effect on sensitive uses in the project vicinity. In particular, the EIR finds that while construction noise would likely not interfere with conversation or other daytime residential activities, it could result in sleep disruption if construction were to occur during the nighttime. However, these impacts would be mitigated to less-than-significant levels through the implementation of Mitigation Measures 3.10a through 3.10e; the measures would reduce construction noise effect on adjacent residents by regulating construction hours, equipment, and requiring the Remainder Area to be evaluated for noise prior to any future discretionary permit is issued for that site.

Operational noise for The Crossings component of the project would not result in noise levels at adjacent properties that exceed exterior noise exposures and thus impact would be less-than-significant. However, operational equipment noise levels from the Remainder Area are not yet determined and therefore pose a potentially significant impact. This impact would be reduced to a less-than-significant level through the implementation of Mitigation Measure 3.10f which requires the Remainder Area to be evaluated for operational noise impacts before any future discretionary permits are issued for that site.

The project would lead to less-than-significant impacts related to noise generated by project vehicle trip generation on sensitive land uses located along off-site roadways. Traffic noise levels under the project would remain below General Plan thresholds of significance for the impacted roads. Similarly, the project would induce a less-than-significant impact related to vibration during construction, which would not exceed applicable threshold and thus not adversely affect sensitive uses in the project vicinity.

The project could contribute to cumulative changes in ambient community noise levels, although these increases would represent a less-than-significant impact. The proposed project would contribute less than 1 decibel to the noise levels associated with nearby roadways. Because an increase of less than 1 decibel cannot be distinguished by the human ear, the project's

contribution to noise levels on these roadways would be less than cumulatively considerable and the project impact is considered less than significant.

Public Services and Utilities

The project site is located within the City of Merced's Sphere of Influence and is designated Rural Residential in the City's Merced Vision 2030 General Plan. With the proposed annexation of the site to the City, most public and utility services would be provided to the site through the City.

The project would increase demand for public services and utilities; however, this represents a less-than-significant impact because the project would not require provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, and other public facilities. Furthermore, the project applicant would be required to make payment of school impact fees which would ensure satisfaction of statutory requirements. The project would also be required to dedicate park acreage or payment of an in-lieu fee for sufficient parkland, as provided in the City's Municipal code.

The project would create a less-than-significant impact in that it would not exceed existing wastewater capacity to serve the project's demands and would not result in either the relocation or construction of new or expanded wastewater treatment facilities. An existing sewer line within the project vicinity would be used for the project that has adequate capacity to serve the project.

The project would not require or result in the relocation or construction of new or expanded water treatment facilities and therefore represents a less-than-significant impact. The City would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple years. There is sufficient capacity in the City's existing water main and water treatment system to serve the project and the project's demand for water supply would be consistent with the City's projected water supply under the UWMP and Merced Subbasin Groundwater Management Plan.

The project would not generate solid waste that would exceed the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals and would not generate any type of waste not typically associated with residential and commercial land uses. Project operation would not exceed the daily maximum disposal rate and would not shorten the associated landfill's expected lifetime. Project construction would generate less than 800 tons of solid waste per year and thus would not exceed the daily maximum disposal rate or the overall landfill capacity. Thus, the project would result in less-than-significant impacts related to solid waste.

While the project could contribute to a cumulative increase in demand for police and fire protection services, parks, and other government facilities, this would not result in the need for new or

physically altered facilities and thus would represent a less-than-significant impact. The implementation of goals within the City's General Plan would ensure availability of adequate services for fire protection, emergency services, library services and police. The project applicant would also be required to pay impact fees, school impact fees, and parkland dedication and/or in-lieu fees at the time that building permits for any new residences within the Remainder Area are issued.

The EIR also concludes that the project would represent less-than-significant cumulative impacts for the demand on wastewater or water treatment facilities or cumulative increase in waste in excess of State or local standards, as described above. The project, cumulatively, would not result in the relocation, construction, or expansion of these facilities or impair the attainment of solid waste reduction goals.

Transportation and Circulation

The proposed project would not conflict with programs, plans, ordinances, or policies that address circulation systems, including transit, roadway, bicycle and pedestrian facilities and therefore would result in a less-than-significant impact. It is not anticipated that the project would result in over-capacity conditions on local bus routes or hinder the development of planned bicycle or pedestrian facilities. The project would include new sidewalk facilities on roadways in the project vicinity, closing gaps in the existing pedestrian network.

The project would create a less-than-significant impact related to vehicle miles traveled (VMT) because the residential VMT would be at least 15% below the regional average and the project would not develop regional-serving commercial land uses. The project does not include design features that would substantially increase hazards and would not introduce incompatible vehicle traffic to the local roadway network. Therefore, this impact is considered less than significant.

The proposed project would result in a less-than-significant impact related to emergency access because all uses within the project site would be served with two or more vehicular access points and the proposed project would be reviewed by the City's Fire Department to ensure adequate emergency access is provided.

The project would not contribute to cumulative significant impacts related to any transportation topics discussed above. Demand for transit, bicycle and pedestrian facilities and services would increase over time as the City's residential population increases. However, under the General Plan and other planning efforts, the City has anticipated these increases and identified a range of improvements that would help meet future demands. Although the project would increase residential density in the project vicinity, the proposed commercial uses within the project would have a greater local population service base and would not be expected to become a regional-

serving commercial area. Thus, the project's contribution to commercial VMT would not make a substantial contribution to the significant cumulative (statewide) VMT impact.

ES.3 EFFECTS FOUND TO BE LESS THAN SIGNIFICANT

Due to certain aspects of the project and project site, project characteristics, and existing regulatory requirements, the project is not anticipated to have significant impacts on the following resources: forestry resources, hazards and hazardous materials, geology, soils or mineral resources, and wildfire. In addition, the Initial Study prepared for this project found that the project would result in no impact or a less-than-significant impact for discrete issues within the following resource areas: aesthetics, biological resources, hydrology and water resources, land use and planning, noise, and population and housing. The following provides an overview that explains why the project would not adversely affect these resources or discrete issues within these resource areas and therefore these resources/issues are not further analyzed in this Draft EIR.

Aesthetics

Discrete issues: Scenic vistas and scenic resources within view of a state scenic highway

The Initial Study prepared for the project (see Appendix B) determined that the project would not have an adverse effect on a scenic vista because the project site is not within any of the City's 11 designated scenic corridors. In addition, none of the three highways that pass through the City of Merced (140, 59, and 99) are listed as state scenic highways within the City of Merced or this portion of Merced County. The project site is currently tilled land used for growing crops and does not contain any trees or rock outcroppings. Therefore, the project would not substantially damage scenic resources within a State scenic highway and these issues are not further addressed.

Agricultural and Forestry Resources

Discrete issues: Forest or timberland resources within the project site or vicinity

There are no trees within the project boundaries or in the areas designated for off-site improvements that would be considered timberland or forest land. Forestry resources or forest land is typically defined as land covered with forests or reserved for the growth of forests. Because the project site does not contain any forestry resources, construction of the project would not result in the loss of protected forestry resources, and no impact would occur.

Biological Resources

Discrete issues: Wildlife movement or nursery sites within the project site or vicinity

The Initial Study determined the project would have a less than significant impact related to wildlife movement or nursery sites because it is a non-linear feature and bound by existing roads, development, and agricultural production, thus it has little value as a potential wildlife corridor, habitat linkage or native wildlife nursery site. The project site is not located within or adjacent to any preserve or conservation area and no Habitat Conservation Plan or Natural Community Conservation Plan that include the project site have been adopted.

Geology, Soils, and Mineral Resources

The project site contains flat topography and no known earthquake faults exist in the project vicinity. Construction would include grading and soil engineering activities intended to abate any adverse soil conditions that may exist and would ensure that project buildings have adequate structural support. Also, the project site does not support mineral extraction operations. Neither the State of California nor the City of Merced designates the project site as a location of known mineral deposits. These conditions preclude the possibility of a loss of mineral resources of statewide or local importance.

Hazards and Hazardous Materials

The project involves residential and commercial uses and does not propose uses that would require the generation or use of hazardous materials and would not create a risk to the public or to schools in the project vicinity. The project site is not within two miles of an airport and would not interfere with an adopted emergency evacuation plan.

Hydrology, Water Quality and Drainage

Discrete issues: Flood and dam inundation zones and other natural disturbances

The project site is outside of flood hazard zones Federal Emergency Management Act designated flood zones for a 100-year storm, 500-year storm or dam failure inundation zone. The site would be subject less than 3-foot deep flooding from Black Rascal Creek and Cottonwood Creek in a 200-year storm event. The site is not subject to inundation by seiche, tsunami or mudflow.

Land Use and Planning

Discrete issue: Disruption or division of an established community

The project would not divide an established community. There are residential subdivisions to the south and west, rural residences to the east, and agricultural land to the north. These are each separate areas and not part of a contiguous community that could be subject to disruption or division from development of the project site.

Noise

Discrete issue: Air traffic noise

The project would result in no impacts related to air traffic noise because the site is more than four miles from the nearest airport and is not located within any Airport Influence Area or Noise Compatibly Zones.

Population and Housing

The project would introduce new residents into the City of Merced but would not displace any housing or require the construction of housing elsewhere.

Wildfire

Discrete issues: Impairment of emergency plans, exacerbation or exposure of wildfire risks, or requirement of additional infrastructure

The project site is not located within or near a State Responsibility Area or a Very High Fire Severity Hazard Area. The project would result in less than significant impacts associated with physically interfering with an adopted emergency response plan or emergency evacuation plan, exacerbating wildfire risks, exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, or exposing people to post-fire hazards such as flooding, landslides, and changes in drainage patterns. The proposed project would not require the installation or maintenance of new infrastructure that may exacerbate fire risk.

ES.4 COMMENTS RECEIVED IN RESPONSE TO THE NOP

The Notice of Preparation (NOP) for this Draft EIR was released on December 9, 2016, and the public comment period closed on January 9, 2017. The City received a total of seven comment letters. Comment letters were received from four public agencies including the California Department of Transportation (Caltrans), Local Agency Formation Commission of Merced County (LAFCO), Native American Heritage Commission (NAHC), and San Joaquin Valley Air Pollution

Control District (SJVAPCD). NAHC and SJVAPCD provided regulatory information but did not identify any project-specific concerns. A majority of the stated concerns in response to the 2016 NOP were related to potential traffic impacts, preservation of agricultural land, noise, lighting, neighboring property values, and the availability and adequacy existing of public services and utilities.

In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. Accordingly, the City issued a revised NOP on May 29, 2020 and public comment period closed on June 29, 2020. In response, the City received an additional eight comment letters. Of these letters, four were received from public agencies including the California Department of Fish and Wildlife (CDFW), California Department of Conservation (DOC), Merced Irrigation District (MID), and NAHC. NAHC and MID provided regulatory information but did not identify any project-specific concerns. In response to the revised 2020 NOP, stated concerns were related to potential impacts on biological resources, preservation of agricultural land, the proposed site plan configuration, the availability and adequacy existing of water supply and utilities, neighboring property values, as well as potential noise, traffic, and visual impacts.

A brief overview of the primary concerns raised in the NOP comment letters that relate to the environmental analysis is included below. The purpose of the NOP process is to solicit input from public agencies and the public on the scope of the EIR analysis. Opinions on the merits of the project are noted, but are not considered relevant for the purposes of defining the scope of the analysis. In addition, the Introduction of each technical section in Chapter 3 provides a brief summary of NOP comments relevant to that particular issue area. All of the NOP comment letters received are included in Appendix A.

Aesthetics – Introduction of new sources of lighting associated with the project and the potential for lighting to adversely impact existing properties in the vicinity.

Agricultural Resources – Conversion of Prime Farmland on the project site and the need for adequate mitigation measures to compensate for the loss of productive farmland; potential impacts to other agricultural resources and activities in the project vicinity.

Biological Resources – Potential impacts to special status wildlife, particularly Swainson's hawk, California tiger salamander, burrowing owl, and nesting birds.

Hydrology, Drainage, and Water Quality – Storm drainage and flooding in the Black Rascal and Cottonwood Creek watershed areas; water supply in drought years and potential impacts to groundwater supplies.

Land Use and Planning – Potential effect on property values and quality of life in the area and overall compatibility with surrounding land uses; consideration of other potential locations for higher density housing where existing infrastructure is available; extent of the proposed annexation area and ensuring logical land use boundaries.

Noise – Potential for existing residents north of the site to be exposed to increased noise levels.

Public Services and Utilities – Infrastructure needs such as water and sewer line capacity; City's long-term plans for extension of public services into the Rural Residential Center located north of the project site; potential need for a Water Supply Assessment; piping the adjacent Yosemite Lateral canal; storm drainage management.

Transportation – Traffic hazards, increased traffic volumes, and the potential need for signalizing the Parsons/Gardner/Yosemite intersection.

ES.5 POTENTIAL ISSUES OF CONCERN

Potential issues of concern identified in the NOP comments are summarized above. They include the potential for lighting and noise to adversely impact existing residences and rural properties in the vicinity, loss of agricultural resources, protection of biological resources, water supply impacts, effects on wastewater conveyance infrastructure, and effects due to increased traffic volumes.

ES.6 SUMMARY OF PROJECT ALTERNATIVES

CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Project modification or alternatives are not required, however, where significant environmental impacts will not occur.

The proposed project was found to result in one significant and unavoidable impact, due to the loss of Prime Farmland within the project site. As discussed in Section 3.2, mitigation requiring establishment of a conservation easement over other Prime Farmland would lessen this impact but would not reduce it to a less-than-significant level. All other significant effects of the project would be mitigated to less-than-significant levels by the adoption of feasible mitigation measures.

The following alternatives to the proposed project are evaluated in Chapter 4:

Alternative 1: No Project Alternative. This alternative assumes no development would occur, and the site would remain in its current condition. All buildings and other site improvements would be retained at existing locations. Under this alternative, the project would likely result in reduced impacts for all evaluated environmental issues as compared to the proposed project.

Alternative 2: Agricultural Retention Alternative. This alternative would retain 9.77 acres of Prime Farmland in the northern portion of the project site and extend the residential development easterly into an approximately 5-acre portion of the proposed Remainder Area. Under this alternative, the project would likely result in reduced impacts to Agricultural Resources, Biological Resources, Cultural Resources, and Hydrology and Water Quality as compared to the proposed project. However, this alternative would still likely lead to significant and unavoidable impacts to Agricultural Resources and would likely lead to a greater impact to Land Use impacts.

Alternative 3: Reduced Density Alternative. This alternative would develop 60 fewer residential units than the proposed project and include a 1.5-acre neighborhood park within the project site. Under this alternative, the project would likely result in reduced impacts to Hydrology and Water Quality and Public Services and Utilities as compared to the proposed project.

ES.7 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Information in Table ES-1, Summary of Impacts and Mitigation Measures, has been organized to correspond with environmental issues discussed in Chapter 3. The summary table is arranged in four columns and organized as follows:

1. Environmental impact;
2. Level of significance prior to mitigation;
3. Applicable mitigation; and
4. The level of significance after implementation of mitigation.

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.1 Aesthetics			
3.1-1: Implementation of the proposed project may degrade the existing visual character or quality of the site and the surrounding area and/or conflict with applicable zoning and other regulations governing scenic quality.	Less than Significant	None required	Less than Significant
3.1-2: Implementation of the proposed project may introduce new sources of light or glare which could cause an annoyance to adjacent residential uses.	Potentially Significant	**The Crossings/Remainder Area:** **3.1a** Lighting throughout The Crossings shall be 'dark sky friendly' by meeting the following requirements: 1. Parking lot lighting shall be designed to provide a minimum of 1 footcandle of light in all portions of the parking lot, a maximum of 1 footcandle at the outer edge of all parking areas, and a maximum of 1 foot candle at a height of 10 feet along the property line; 2. All outdoor lighting, including that required for steps, stairs, walkways, and building entrances shall be directed downward and shall use low-glare and full-cutoff fixtures;	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		3. All outdoor lighting shall include controls that automatically extinguish the lighting when sufficient daylight is available using a control device or system such as a photoelectric switch, astronomic time switch or equivalent functions from a programmable lighting controller, building automation system or lighting energy management system, all with battery or similar backup power or device; and 4. No floodlight fixtures shall be used.	
3.1-3: The proposed project could contribute to cumulative changes in the existing visual character of the area.	Less than Significant	None required	Less than Significant
3.1-4: The proposed project could contribute to a cumulative increase in nighttime light in the area.	Less than Significant	None required	Less than Significant
3.2 Agricultural Resources			
3.2.1: Implementation of the proposed project may result in the significant conversion of Prime Farmland, Unique	Potentially Significant	**The Crossings:** **3.2a** Prior to issuance of a grading permit, the Applicant shall provide a permanent	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Farmland, or Farmland of Statewide Importance to non-agricultural uses.		conservation easement over 28.4 acres of land designated under the California Department of Conservation Farmland Mapping and Monitoring Program as Prime Farmland (26.3 acres) and Unique Farmland (2.1 acres) to ensure that Prime Farmland and Unique Farmland is retained at a 1:1 ratio consistent with the County's past productive farmland conservation mitigation practice. The easement shall be recorded by the project Applicant, or equivalent mitigation may be provided by the Applicant through payment to a qualified third party land trust with 501(b)(3) status, subject to review and approval of the City of Merced Planning and Community Development Department. **Remainder Area:** None required	
3.2-2: Implementation of the proposed project would not result in other changes in the existing environment which, due to their location or nature,	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
could result in conversion of Farmland to non-agricultural use			
3.2-3: The proposed project could contribute to cumulative loss in agricultural resources.	Potentially Significant	Mitigation Measure 3.2a (above)	Significant and Unavoidable
3.3 Air Quality			
3.3-1: Implementation of the proposed project would not conflict with or obstruct the implementation of applicable air quality plans.	Less than Significant	None required	Less than Significant
3.3-2: Implementation of the proposed project would increase the emissions of criteria pollutants in the SJVAB, which is non-attainment under the NAAQS and CAAQS, but would not exceed SJVAPCD significance thresholds and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.3-3: Implementation of the proposed project may expose sensitive receptors to pollutants including criteria air pollutants and TACs. For most pollutants and TACs the project would not create a substantial concentration of pollutants and impacts would remain less than significant. However, potential exposure to the Coccidioides immitis fungus would result in a potentially significant impact.	Potentially Significant	**The Crossings/Remainder Area:** ***3.3a*** Prior to issuance of demolition permits and/or grading permits for The Crossings and any future construction within the Remainder Area, the City shall ensure that construction contracts include implementation of the following measures to reduce short-term fugitive dust impacts to workers and nearby sensitive receptors: • Develop a Valley Fever Management Plan that addresses exposure to the *Coccidioides immitis (C. immitis)* fungus. The Plan shall be submitted to the City for review and approval prior to issuance of demolition permits and/or grading permits. The Plan shall include a program to limit the potential for exposure to *C. immitis* from construction activities and to identify appropriate worker training, dust management and safety procedures that shall be implemented, as needed, to	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		minimize personnel and public exposure to *C. immitis*. • Prior to commencement of any construction activities, the construction contractor shall train all workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor. • Throughout all ground-disturbance activities, the construction contractor shall audit and enforce compliance with relevant Cal OSHA health and safety standards on the jobsite – including injury and illness reporting requirements. • Throughout all ground-disturbance activities, the construction contractor shall conduct job hazard assessments (JHAs) as defined under 8 CCR 1509 and/or 3380 for all job classifications employed on site. The hazard assessments will comprehend the potential for exposure to the Coccidioides spore relative to work activity proximity to	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		other forms of work activity, weather conditions and other relevant variables and will identify appropriate personal protective equipment based on current working conditions. • If determined to be necessary by the JHA performed for the specific work task, affected employees should be provided a National Institute for Occupational Safety and Health (NIOSH) approved respiratory protection to reduce exposure to pollutants and the C. immitis fungus. • Throughout all ground-disturbance activities, the construction contractor shall provide all construction personnel and visitors to the project site with information regarding Valley Fever. This would facilitate recognition of symptoms of Valley Fever and earlier treatment.	
3.3-4: Implementation of the proposed project may result in other	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
emissions, including those leading to odors.			
3.3-5: Ongoing development in the City of Merced would result in increased emissions of criteria pollutants in the SJVAB, which is a significant cumulative impact. However, the proposed project would not generate emissions that exceed SJVAPCD significance thresholds and therefore would not result in a cumulatively considerable net increase of criteria pollutants.	Less than Significant	None required	Less than Significant
3.4 Biological Resources			
3.4-1: Implementation of the proposed project may result in substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or	Potentially Significant	**The Crossings/Remainder Area:** **3.4a** To avoid impacts to burrowing owl, a qualified biologist shall conduct a habitat assessment of the project site for burrowing owl prior to ground-disturbance on the project site. Ideally, the assessment should be conducted prior to the breeding season to allow time for protocol surveys and/or passive relocation, should any	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
regulations, or by the CDFW or USFWS.		suitable burrows and/or burrows with owl sign be detected during the survey. Surveys shall be conducted in accordance with the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and California Department of Fish and Wildlife's (CDFW) "Staff Report on Burrowing Owl Mitigation" (CDFG 2012). Specifically, CBOC and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (April 15 to July 15), when BUOW are most detectable. If the habitat assessment is not conducted prior to the breeding season, a protocol survey for burrowing owls shall be conducted following these guidelines, with the final survey occurring no more than 14 days prior to commencement of construction. The habitat assessment and/or survey(s) shall cover the limits of ground disturbance and potentially suitable and accessible nesting habitat within 300 feet.	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		If nesting or non-nesting burrowing owls, or evidence of an active owl burrow are observed during the survey, construction shall be postponed until the qualified biologist can fully implement a California Department of Fish and Wildlife-approved burrow exclusion plan (to be prepared by the qualified biologist). The exclusion plan shall be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Once owls have been successfully excluded and unoccupied burrows evacuated, construction in the area may proceed. Construction activities within 300 feet of occupied burrows shall be delayed until young owls have fledged and are independent of the burrow, as determined by a qualified biologist in coordination with CDFW. The qualified biologist may reduce the buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once all young have	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		fledged and are no longer dependent upon the nest burrow, the same burrow exclusion procedure described above shall be implemented prior to resuming construction activities in the area. **3.4b** To avoid impacts to nesting birds species (including loggerhead shrike and other special-status species), vegetation clearing operations, including pruning or removal of trees and shrubs, should be completed between September 1 and February 14, if feasible. Further, a pre-construction nesting bird survey shall be performed by a qualified biologist no more than ten days prior to ground-disturbing or vegetation removal activities conducted during the nesting season (February 1 through September 15). The survey shall cover the limits of disturbance and suitable nesting habitat within 500 feet for raptors and 250 feet for other nesting birds. If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance, to be determined by the qualified	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		biologist, usually ranges from 50 to 300 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. If ground-disturbing or vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities. Further, if construction activities lapse for more than 14 days, the pre-construction survey shall be repeated no more than 7 days prior to the re-start of construction activities. If the pre-construction survey shows that there is no evidence of active nests, then a letter report	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		shall be submitted to the City and no additional measures are required. **3.4c.** To avoid impacts to Swainson's hawk, A qualified biologist shall conduct surveys for Swainson's hawk prior to ground-disturbance or vegetation removal activities, if undertaken during the Swainson's hawk nesting season (March 1 – August 31). The surveys shall be conducted in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (TAC 2000). The survey shall cover the limits of construction and accessible, suitable nesting habitat within 0.5 mile. If an active nest is observed in the survey area, construction within 0.5 mile of the nest shall be delayed until young hawks have fledged and are independent of the nest, as determined by a qualified biologist. In consultation with California Department of Fish and Wildlife biologists, the qualified biologist may reduce the buffer based on the type, timing, extent, and intensity of the construction activity	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		and other factors such as site topography and vegetation cover between the construction activity and the nest. Construction within the no-disturbance buffer of the nest may reinitiate once all young have fledged and are no longer dependent upon the nest. **3.4d** To compensate for the loss of Swainson's hawk foraging habitat within The Crossings component of the project site, the project applicant shall provide for habitat mitigation by paying into a habitat mitigation bank and/or acquiring a conservation easement over land that provides Swainson's hawk foraging habitat and is located within 10 miles of the active Swainson's hawk nest nearest to the project site. In total, the compensatory mitigation shall be sufficient to protect an area equal to 75% of the acreage of foraging habitat lost to development. For The Crossings component of the project, the habitat mitigation shall be equal to 21.3 acres of foraging habitat. This is based on the expected loss of 28.4 acres of foraging habitat and the CDFW recommendation to mitigated for 75% of	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		the land lost to development when there is a known Swainson's hawk nest between 1 and 5 miles from the project site. This ratio may be increased to 100% of the land lost to development if an active Swainson's hawk nest is identified within 1 mile of the project site. The land protected under an agricultural conservation easement as required by Mitigation Measure 3.2a can be applied to this mitigation measure subject to confirmation by a qualified biologist that the conserved agricultural land provides Swainson's hawk foraging habitat that is of equal foraging value as provided at the project site, and subject to the agricultural conservation easement being located within 10 miles of the active Swainson's hawk nest nearest to the project site. For the Remainder Area, the amount of habitat mitigation required will depend on the area proposed for development/redevelopment that includes potential foraging habitat and shall be equal to 75% of that total area if the nearest active nest is between 1 and 5 miles of the Remainder Area, or equal to 100% of the total	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		area to be developed if the nearest active nest is within 1 mile of the area to be developed. **3.4e** A pre-construction bat survey for pallid bat, Townsend's big eared bat, western mastiff bat, and western red bat shall be performed by a qualified biologist no earlier than 14 days prior to the onset of construction to assess whether roosting bats occur in the buildings slated for demolition on the project site. If roosting bats are detected, the qualified biologist shall consult with CDFW to identify appropriate measures to avoid/minimize impacts to the species, which can include approval to passively exclude any bats found on the project site. If a maternity roost is identified on the project site, an appropriate buffer shall be determined by the qualified biologist and the roost shall be avoided until the young have fledged (which may require halting building demolition). **Additional Mitigation Measures for the Remainer Area:** **3.4f** Prior to issuance of a discretionary permit or approval within the Remainder Area, the project	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		applicant for that approval shall submit a biological assessment prepared by a qualified biologist to the City of Merced. The biological assessment shall identify special-status species, their habitat and/or other biological resources that could occur in the area subject to the requested discretionary permit or approval. If the Biological Assessment determines that rare plants could be present, the project applicant shall retain a qualified botanist to conduct a floristic survey for special-status plant species within the area to be disturbed. The survey shall be conducted during the time of year when special-status plants with potential to occur onsite are blooming and thus can be positively identified (generally March through June). The results of the survey shall be summarized in a report to the City of Merced. If no special-status plants are located during the surveys, no further mitigation would be required. If special-status plants are located during the survey, the project applicant shall implement the following measures: (i) The project shall be redesigned to avoid the plants, to the extent feasible;	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		and (ii) If the plants cannot be avoided, the project applicant shall consult with the City and the Department of Fish and Wildlife (CDFW) regarding steps to take to off-set the loss of the plants on the project site, such as transplantation, collecting seed or clippings and replanting species in an onsite location, prior to approval of grading plans. The measures shall be sufficient to ensure the continued survival of the special status plants within the Middle San Joaquin-Lower Chowchilla watershed. **3.4g** If the biological assessment prepared for any portion of the Remainder Area proposed for development identifies habitat that could support conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and/or western spadefoot toad, the following requirements shall apply: **1. Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp:** Prior to issuance of a grading permit for any activities within seasonal wetlands or vernal pools, a protocol-level vernal pool branchiopod survey	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		shall be performed by a qualified biologist (i.e., a biologist with several years' experience performing vernal pool surveys, capable of identifying signs of vernal pool fairy shrimp and/or vernal pool tadpole shrimp activity) to determine if conservancy fairy shrimp, vernal pool fairy shrimp and/or vernal pool tadpole shrimp are present on the project site. Alternatively, presence can be assumed. Where presence is identified or assumed, compensation for the loss of habitat for these species shall be provided at a ratio of 3 acres for every 1 acre affected (3:1). This ratio shall include creation of 1 acre of vernal pool habitat for every 1 acre impacts (1:1), and preservation of 2 acres of vernal pools for every 1 acre impacted (2:1), as described in the U.S. Fish and Wildlife Service (USFWS) programmatic biological opinion issued to the U.S. Army Corps of Engineers for small impacts to listed branchiopods (USFWS 1996). Mitigation for impacts to listed branchiopods shall be implemented according to one of the following three options, to be determined and completed	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		prior to impact: participation in a USFWS approved mitigation bank, off-site mitigation at a non-bank location approved by USFWS and subject to preservation in perpetuity such as through a conservation easement, or contribution to the USFWS Species Fund. In the event that protocol-level surveys demonstrate the absence of listed vernal pool branchiopods, mitigation shall not be required. **2. California Tiger Salamander:** A qualified biologist with valid federal and state collecting permits shall conduct protocol-level surveys in accordance with the USFWS "Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander" (USFWS 2003) at the appropriate time of year to determine the existence and extent of California tiger salamander breeding and refugia habitat. The protocol-level surveys for California tiger salamander require more than one survey season and are dependent upon sufficient rainfall to complete. As a result, consultation with the	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		California Department of Fish and Wildlife (CDFW) and the USFWS shall occur well in advance of beginning the surveys and prior to any planned vegetation- or ground-disturbing activities. The protocol-level survey shall include a 100-foot buffer around the proposed development area, subject to landowner authorization, in all areas of wetland and upland habitat that could support California tiger salamander. Protocol-level survey results for California tiger salamander are viable for two years after the results are reviewed by CDFW. If California tiger salamander are encountered during the pre-construction survey, individuals shall be safely relocated to suitable habitat outside of the proposed development area. The approved biologist shall prepare a Salvage and Relocation Plan for California tiger salamander in consultation with, and for approval by, USFWS and CDFW. Any California tiger salamander relocations conducted during the pre-construction survey (as described above) shall be completed in accordance with the agency-approved plan. All	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		relocation areas shall contain animal burrows or other suitable refugia and be identified and approved by USFWS and CDFW prior to the pre-construction survey. Relocated California tiger salamander shall be monitored until they have escaped into upland refugia or aquatic habitat with sufficient water. If California tiger salamander are determined present within the proposed development area, then on-going monitoring by a qualified biologist may be required to ensure no impacts to this species and its habitat during construction and operation and maintenance activities for the project. If impacts to California tiger salamander and/or their habitat cannot be avoided, impacts would require prior authorization from the regulatory agencies in the form of USFWS Section 7 Consultation and a CDFW Lake and Streambed Alteration Agreement. The project applicant shall also obtain "take" authorization for California tiger salamander from the USFWS and the CDFW prior to project implementation. The project may	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		proceed after the Applicant has satisfied all pre-construction conditions in the "take" authorizations defined above. It is expected that avoidance and minimization measures associated with these authorizations will include requirements for providing methods to protect California tiger salamander during project construction and operation and maintenance activities, a Compensatory Mitigation Plan, a detailed California tiger salamander Monitoring Plan, and reporting requirements. **3. Western spadefoot toad:** Surveys for western spadefoot toad shall be conducted by a qualified biologist no more than 48 hours prior to the start of grading or vegetation clearing within 200 feet of any vernal pools and/or seasonal wetlands. The survey shall be conducted by a biologist who has been approved by CDFW. If any western spadefoot toad individuals or populations are observed within the survey area, a no-disturbance area shall be established (flagged or fenced) within 200 feet of that location and no construction activity shall occur	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		in that area until the animal voluntarily leaves the area. If no western spadefoot toads are observed, then a letter report documenting the results of the survey should be provided to the project proponent for their records, and no additional measures are recommended. If construction within each habitat feature that could support this species does not commence within 48 hours of the survey, a new survey shall be completed.	
3.4-2: Implementation of the proposed project could result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.	Potentially Significant	**The Crossings:** None required **Remainder Area:** **3.4h** Prior to approval of any discretionary entitlements or issuance of a discretionary permit for the Remainder Area, the project applicant for that approval shall submit a biological assessment prepared by a qualified biologist to the City of Merced. The biological assessment shall identify special-status species, their habitat and/or other biological resources	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		that could occur in the area subject to the approval. The biological assessment shall identify whether the Remainder Area (or the portion to which the requested discretionary permit or approval would apply) contains any sensitive natural communities, including riparian habitat. If the Biological Assessment determines that sensitive natural communities are present, the Biological Assessment shall assess the nature and quality of those communities and identify avoidance and compensation measures that shall be implemented by the project applicant to ensure no net loss of these resources in the project region. If no sensitive natural communities are located during the surveys, no further mitigation would be required.	
3.4-3: Implementation of the proposed project may result in placement of fill into potential jurisdictional waters of the U.S and State.	Potentially Significant	**The Crossings/Remainder Area:** **3.4i** Prior to issuance of any grading or construction permits, the project applicant shall have a wetland delineation prepared by either a qualified biologist or wetland scientist to	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		determine if the development to which the grading and/or construction permits would apply could result in any impacts to waters of the U.S. or waters of the State. This includes the ditches along the northern and southern project site boundaries, which would be affected by construction of The Crossings component of the project, as well as potential seasonal wetlands and vernal pools within the Remainder Area. A copy of the wetland delineation shall be provided to the City for their review prior to submission to the appropriate agency for verification (e.g., Army Corps of Engineers, Regional Water Quality Control Board, or California Department of Fish and Wildlife). To mitigate for the loss of any waters of the U.S., the project applicant shall obtain a Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the Regional Water Quality Control Board and shall provide compensation for the loss of such waters by creating, preserving, and/or restoring an equivalent amount of jurisdictional	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		waters sufficient to ensure no net loss of jurisdictional habitats, with a minimum ratio of 1:1. Actual mitigation acreage requirements may be adjusted by the authority of the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. To mitigate for the loss of any waters of the State, the project applicant shall obtain Waste Discharge Requirements or Certification of Waste Discharge Requirements from the Regional Water Quality Control Board and a Section 1602 Streambed Alteration Agreement from the and California Department of Fish and Wildlife and shall provide compensation for the loss of such waters by creating, preserving, and/or restoring an equivalent amount of jurisdictional waters sufficient to ensure no net loss of jurisdictional habitats, with a minimum ratio of 1:1. Actual mitigation acreage requirements may be adjusted by the authority of the Regional Water Quality Control Board and California Department of Fish and Wildlife.	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		For both waters of the U.S. and waters of the State, mitigation may be accomplished by either of the following or a combination of these: a. Creation of similar habitat either on- or off-site at an appropriate mitigation site; or b. Purchase of the appropriate number of credits at an agency-approved off-site wetland mitigation bank.	
3.4-4: Implementation of the proposed project would not conflict with the City of Merced land use plans, policies, regulations, or ordinances that address biological resources.	Less than Significant	None required	Less than Significant
3.4-5: The proposed project could contribute to cumulative impacts to special-status species in the region due to removal of foraging, cover and breeding habitat.	Potentially Significant	Mitigation Measures 3.4a through 3.4i (above)	Less than Significant
3.5 Cultural Resources			
3.5-1: Implementation of the proposed project may cause a substantial	Potentially Significant	**The Crossings:** None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
adverse change in the significance of a historical resource.		**Remainder Area:** **3.5a** Prior to issuance of a discretionary permit or approval within the Remainder Area, the project applicant for that approval shall submit to the City of Merced a Cultural Resources Evaluation that includes an assessment of the historical significance and integrity of any buildings proposed to be demolished or that would be located within 300 feet of new structures. The Cultural Resources Evaluation shall be prepared by a qualified architectural historian that meets the Secretary of the Interior's Professional Qualification Standards for architectural history and shall include a determination of whether the affected buildings meet the significance and integrity requirements set forth in the National Register of Historic Places and the California Register of Historical Resources.	
3.5-2: Implementation of the proposed project may cause a substantial adverse change in the significance of an archaeological resource.	Potentially Significant	**The Crossings/Remainder Area:** **3.5b** Prior to issuance of any demolition or grading permits for activities within or adjacent to the project site, the City of Merced shall ensure that	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		construction contracts and/or plans include a note requiring that all construction crews involved in demolition, grading, trenching, and/or excavation receive worker cultural resources awareness training prior to commencement of construction activities. Further, the City shall verify that a qualified archaeologist has been retained by the construction contractor to conduct the worker cultural resources awareness training, and all training materials shall be submitted to and reviewed by the City prior to issuance of grading permits. The training may be presented in-person or by videoconference. Training materials shall include: • A worker cultural resources awareness brochure prepared by the same qualified archaeologist; • Relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and	

		consequences of violating state laws and regulations; • Appropriate avoidance and minimization measures for resources that have the potential to be located on the project site; • Steps that must be taken to comply with Mitigation Measure 3.5c, including who to contact if any potential archaeological resources or artifacts are encountered; • The requirement for confidentiality and culturally appropriate treatment of any kind of significance related to Native Americans and behaviors, consistent with Native American tribal values; and • Instruction to construction workers for recognizing potential cultural resources, such as the presence of discolored or dark soil, fire-affected material, concentrations of lithic materials, or other characteristics observed to be atypical of the surrounding area; lithic or bone tools that appear to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; non-local high-quality materials such as chert and obsidian; and historic artifacts such as glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies.	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		3.5c Prior to issuance of any demolition or grading permits for activities within or adjacent to the project site, the City of Merced shall ensure that construction contracts and/or plans include the following note: "If any cultural resources, such as structural features, unusual amounts of bone or shell artifacts, or architectural remains, are encountered during any construction activities, the contractor shall suspend all work within 100 feet of the find, immediately notify the City's Community Development Director, and retain a qualified archaeologist to assess the finds, consult with agencies and descendant communities (as appropriate), and make recommendations for the treatment of the discovery in compliance with Mitigation Measure 3.5c." The qualified archaeologist shall determine if the discovered resources can be preserved in place. If preservation in place is not feasible, the archaeologist shall evaluate the deposit for its eligibility for listing in the California Register of Historical Resources. If the deposit is not eligible, mitigation is not necessary and work	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		can continue. If the deposit is eligible, mitigation shall include excavation of the archaeological deposit in accordance with a data recovery plan (see CEQA Guidelines Section 15126.4(b)(3)(C)). The City of Merced shall ensure that descendant communities are consulted for their input and concerns during the development and implementation of any mitigation plan. Upon completion of the evaluation and/or mitigation, the data recovery plan or report shall be submitted to the City of Merced, the applicant, the Central California Information Center, and, if appropriate, descendant communities. The data recovery plan shall be fully implemented prior to resumption of construction activities proximate to the resource(s).	

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Additional Mitigation Measure for the Remainder Area **3.5d** Prior to issuance of a discretionary permit or approval within the Remainder Area, the project applicant for that approval shall submit to the City of Merced a Cultural Resources Evaluation that includes a records search and site survey, as well as an inventory and evaluation of any resources identified within the area for which the discretionary permit of approval is requested. The Cultural Resources Evaluation shall be prepared by a qualified archaeologist and using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory.	
3.5-3: Implementation of the proposed project could disturb human remains, including those interred outside of dedicated cemeteries.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.5-4: The proposed project could contribute to impacts to tribal cultural resources in the area.	Potentially Significant	**The Crossings and Remainder Area:** Mitigation Measures 3.5b and 3.5c (see above)	Less than Significant
3.5-5: The proposed project would not destroy a unique paleontological resource or site	Potentially Significant	**3.5e** To minimize potential adverse impacts on unique, scientifically important paleontological resources, the project applicant shall do the following: • Before the start of grading or excavation activities, construction personnel involved with earth-moving activities shall be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction activities, and proper notification procedures should fossils be encountered. This worker training shall be prepared and presented by a qualified paleontologist or archaeologist. • If paleontological resources are discovered during earth-moving activities, the construction crew shall immediately cease work in the vicinity of the find and shall notify the City planning department. The project applicant shall retain a	Less than significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		qualified paleontologist to evaluate the resource and prepare a proposed mitigation plan in accordance with SVP guidelines (1995). The proposed mitigation plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations determined by the lead agency to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.	
3.5-6: The proposed project could contribute to cumulative impacts to historical and archaeological resources in the area.	Less than significant	None required	Less than significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.6 Energy Consumption			
3.6-1: Implementation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy.	Less than Significant	None required	Less than significant
3.6-2: Implementation of the proposed project would not conflict with existing energy standards and regulations.	Potentially Significant	None required	Less than Significant
3.6-3: The proposed project would contribute to a cumulative increase in regional energy consumption but would not result in wasteful or inefficient use of energy.	Less than Significant	None required	Less than Significant
3.7 Greenhouse Gas Emissions			
3.7-1: Implementation of the proposed project may generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.7-2: Implementation of the proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Less than Significant	None required	Less than Significant
3.7-3: The proposed project would not make a cumulatively considerable contribution to emissions of greenhouse gases in the cumulative scenario.	Less than Significant	None required	Less than Significant
3.8 Hydrology, Water Quality, and Drainage			
3.8-1: Through compliance with federal, state, and local regulations, implementation of the proposed project would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	Less than Significant	None required	Less than Significant
3.8-2: Through compliance with the City of Merced stormwater management regulations, implementation of the proposed	Less than Significant	None required	Less than Significant

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Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
project would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in a substantial erosion or siltation, substantially increase the rate or amount of surface runoff in a manner which would result in flooding, or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.			
3.8-3: Implementation of the proposed project may substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.8-4: Implementation of the proposed project may conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than Significant	None required	Less than Significant
3.8-5: Through compliance with federal, state, and local regulations, ongoing implementation of the City of Merced General Plan would not result in adverse cumulative effects on water quality, drainage patterns, flooding, or groundwater supply.	Less than Significant	None required	Less than Significant
3.9 Land Use and Planning			
3.9-1: Implementation of the proposed project would not create land use incompatibilities with adjacent properties.	No impact	None required	No impact
3.9-2: Implementation of the proposed project would not conflict with a regional land use plan, policy or regulation.	Less than Significant	None required	Less than Significant

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Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.10 Noise			
3.10-1: Noise from construction of the project could impact existing noise sensitive uses in the project vicinity.	Potentially Significant	**The Crossings:** 3.10a Noise generating construction activities for the project (including demolition, excavation, and building construction), shall be restricted to the hours between 7 a.m. and 6 p.m. daily unless attenuation measures are implemented to reduce exterior noise levels at the nearest sensitive receptors to a maximum of 65 dBA L_{eq}. 3.10b All construction equipment employing an internal combustion engine shall be equipped with suitable exhaust and intake silencers which are in good working order. 3.10c Stationary construction equipment such as generators or compressors shall be located on-site as far away from adjacent residential property boundaries as is practicable. **Remainder Area:** 3.10d Prior to approval of any discretionary entitlements for the Remainder Area, the applicant shall submit a site-specific construction	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		noise evaluation that determines the likely maximum and average construction noise levels at the nearest sensitive receptors and identifies noise attenuation measures where necessary to ensure that exterior noise levels at the nearest sensitive receptor would remain below a maximum of 85 dBA L_{eq} and remain below an average, as measured by determining the acoustic center of the construction area, of 75 dBA L_{eq}. 3.10e Prior to issuance of permits for building demolition, grading, and/or construction for any future project within the Remainder Area, the City of Merced shall ensure that construction plans demonstrate that Mitigation Measures 3.10a, 3.10b, and 3.10c will be implemented throughout all construction activities.	
3.10-2: Operational noise from roof-mounted mechanical equipment within The Crossings component would not result in noise levels at adjacent residential properties that exceed exterior noise exposure	Potentially Significant	**The Crossings:** None required **Remainder Area:**	Less than Significant

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Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
limits, however operational equipment noise levels from the Remainder Area cannot be determined.		**3.10f** Prior to approval of any discretionary entitlements for the Remainder Area, the applicant shall submit a site-specific operational noise evaluation that determines the likely maximum operational noise levels at the nearest sensitive receptors and identifies noise attenuation measures where necessary to ensure that exterior noise levels at the nearest sensitive receptor would remain below a maximum of 55 dBA Leq during daytime (7 a.m. to 10 p.m.) and 45 dBA Leq during nighttime (10 p.m. to 7 a.m.).	
3.10-3: Project vehicle trip generation from The Crossings project component would not result in off-site roadway noise level increases that impact noise sensitive land uses located along such roadways. Vehicle trip generation from future residential development under the proposed zoning designations for the Remainder Area would be less than the traffic generated by The Crossings	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
component and thus would also not result in off-site roadway noise level increases that impact noise sensitive land uses located along such roadways.			
3.10-4: Vibration from construction of the project would not exceed applicable thresholds and thus would not adversely affect vibration sensitive uses (residences) in the project vicinity.	Less than Significant	None required	Less than Significant
3.10-5: Long-term project operations could result in vibration impacts to vicinity residences.	Less than Significant	None required	Less than Significant
3.10-6: The proposed project could contribute to cumulative changes in ambient community noise levels in the area but would not create a cumulatively considerable increase in noise levels.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.11 Public Services and Utilities			
3.11-1: The project would increase demand for public services and utilities but would not require provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, and other public facilities.	Less than Significant	None required	Less than Significant
3.11-2: The proposed project would not exceed existing wastewater capacity to serve the project's demand in addition to existing commitments and would not result in either the relocation or construction of new or expanded wastewater treatment facilities.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.11-3: The proposed project would not require or result in the relocation or construction of new or expanded water treatment facilities, the construction of which could cause significant environmental effects, and the City would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	Less than Significant	None required	Less than Significant
3.11-4: The proposed project would not generate solid waste that would exceed the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals, and would not generate any type of waste not typically associated with residential and commercial land uses.	Less than Significant	None required	Less than Significant
3.11-5: The proposed project could contribute to a cumulative increase in	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
demand for police and fire protection services, parks, and other government facilities but would not result in the need for new or physically altered facilities.			
3.11-6: The proposed project would contribute to a cumulative increase in demand on wastewater treatment facilities, which could result in inadequate capacity and require either the relocation or construction of new or expansion of existing wastewater treatment facilities.	Less than Significant	None required	Less than Significant
3.11-7: The proposed project would contribute to a cumulative increase in demand on water treatment facilities but would not require relocation or construction of new or expanded water treatment facilities or expansion of existing facilities; and the City would have sufficient water supplies available to serve the project and	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
reasonably foreseeable future development during normal, dry, and multiple dry years.			
3.11-8: The proposed project could contribute to a cumulative increase in solid waste in excess of State of local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	Less than Significant	None required	Less than Significant
3.12 Transportation			
3.12-1: The proposed project would not conflict with a program, plan, ordinance, or policy, addressing the circulation systems, including transit, roadway, bicycle and pedestrian facilities but could create demand for additional pedestrian facilities.	Potentially Significant	**The Crossings:** **3.12a** The applicant shall provide for striping of crosswalks on the north and east legs of the East Yosemite Avenue/Gardner Avenue intersection to facilitate pedestrian access to points west and south of the project site.	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Remainder Area: None required	
3.12-2: The proposed project would not result in residential VMT that is at least 15 percent below the regional average and would not develop regional-serving commercial development.	Less than Significant	None required	Less than Significant
3.12-3: The proposed project would not substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersection(s) or incompatible uses (e.g. farm equipment)).	Less than Significant	None required	Less than Significant
3.12-4: The proposed project could increase traffic on neighborhood streets within the study area, but the additional traffic volumes would not cause a change in the character of those streets.	Less than Significant	None required	Less than Significant

Table ES-1
Summary of Impacts and Mitigation Measures

Environmental Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3.12-5: The proposed project would not result in inadequate emergency access.	Less than Significant	None required	Less than Significant
3.12-6: The proposed project would not contribute to cumulative impacts due to conflicts with a program, plan, ordinance, or policy, addressing the circulation systems, including transit, roadway, bicycle and pedestrian facilities.	Less than Significant	None required	Less than Significant
3.12-6: The proposed project would not result in cumulative impacts associated with VMT.	Less than Significant	None required	Less than Significant
3.12-7: The proposed project would not contribute to cumulative impacts regarding roadway hazards or emergency access.	Less than Significant	None required	Less than Significant

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CHAPTER 1
INTRODUCTION AND SCOPE OF THE EIR

The City of Merced (City) has prepared this Draft Environmental Impact Report (Draft EIR) to inform the general public, the local community, responsible agencies, trustee agencies, and other interested public agencies, and the City's decision-making bodies (Planning Commission and City Council) regarding the potential significant environmental effects that would result from implementation of the proposed Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project (proposed project). This Draft EIR includes mitigation measures to reduce, avoid, and/or compensate for significant effects and also includes analysis of alternatives to the proposed project. As discussed in Section 1.1, this EIR is both a Project EIR and a Program EIR in compliance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.), the CEQA Guidelines (14 CCR 15000 et seq.), and the City's procedures for implementing CEQA. This EIR focuses on the changes in the environment that would result from implementation of the project, including construction and operation.

As described in CEQA Guidelines Section 15121(a), an EIR is an informational document that assesses potential environmental impacts of a proposed project, as well as identifies mitigation measures and alternatives to a proposed project that could reduce or avoid adverse environmental impacts. As the CEQA lead agency for this project, the City is required to consider the information in the EIR along with any other available information in deciding whether to approve the requested project entitlements. The basic requirements for an EIR include providing information that establishes the existing conditions/environmental setting (or project baseline), and identifying environmental impacts, mitigation measures, project alternatives, growth inducing impacts, and cumulative impacts. An EIR, as an informational document, provides the City, applicant, public, and other public agencies an opportunity to collectively review and evaluate baseline conditions and project impacts through a process of full disclosure. This EIR also provides the primary source of environmental information for the lead agency to consider when reviewing the project and requested project entitlements. It is not the intent of an EIR to recommend either approval or denial of a project.

1.1 Type of EIR

This EIR is both a "Project EIR," pursuant to Section 15161 of the CEQA Guidelines and "Program EIR," per CEQA Guidelines Section 15168. A Project EIR examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from implementation of the project, including construction and operation. In contrast, a Program EIR is an EIR that may be prepared on a series of actions that are either related geographically or are logical parts in a chain of contemplated actions (CEQA Guidelines Section 15168).

Typically, a program EIR is followed by later, project-specific EIRs or negative declarations providing more detailed analysis than presented in the program EIR.

As described in Chapter 2, Project Description, the proposed project includes two major components – The Crossings component would annex approximately 28.4 acres to the City and construct a mixture of commercial and multifamily residential uses, and the Remainder Area, which consists of approximate 40.2 acres that are proposed to be annexed to the City and zoned Urban Transition but for which no specific development is proposed. This Draft EIR evaluates the direct and indirect project impacts and cumulative impacts of construction and operation of The Crossings on a project-specific level and evaluates the Remainder Area at a program level.

1.2 Lead, Responsible, and Trustee Agencies

In accordance with CEQA Guidelines Sections 15050 and 15367, the City of Merced has been designated the "'lead agency," which is defined as the "public agency which has the principal responsibility for carrying out or disapproving a project." The lead agency is also responsible for determining the scope of the environmental analysis, preparing the EIR, and responding to comments received on the Draft EIR. Prior to making a decision to approve a project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the City.

Responsible Agencies

Responsible agencies are state and local public agencies, other than the lead agency, that have some authority to carry out or approve a project, and/or are required to approve a portion of the project or approve a permit for which a lead agency is preparing, and/or has prepared an EIR or Initial Study/Negative Declaration (CEQA Guidelines Section 15813). The following agencies would potentially act as responsible agencies for this project:

- **Merced County Local Agency Formation Commission**. Oversees the annexation of land from the County to the City's jurisdiction.
- **Central Valley Regional Water Quality Board (CVRWQCB)**. Ensures compliance with the City's National Pollutant Discharge Elimination System (NPDES) Permit for any stormwater discharge associated with construction activity.
- **San Joaquin Valley Air Pollution Control District (SJVAPCD).** Oversees air quality and has the authority to require mitigation fees.

Trustee Agencies

Trustee agencies are designated public agencies with legal jurisdiction over natural resources that are held in trust for the people of California and that would be affected by a project, whether or not the agencies have authority to approve or implement the project (CEQA Guidelines Section 15386). The California Department of Fish and Wildlife (CDFW) would be a trustee agency with jurisdiction over the proposed project.

1.3 EIR Process

In accordance with CEQA Guidelines Section 15082, a Notice of Preparation (NOP) was circulated for public and agency review from December 9, 2016 through January 9, 2017. The purpose of the NOP was to provide notification that an EIR for the proposed project was being prepared and to solicit guidance on the scope and content of the document. Pursuant to CEQA Guidelines Section 15082, the lead agency held a public scoping meeting on December 15, 2016. Responsible agencies and members of the public were invited to attend and provide input on the scope of the EIR. After circulation of the NOP in 2016, the applicant revised the proposed project description and site plans. To inform the public and other public agencies of these updates, a revised NOP was issued and circulated for local public and agency review between May 14, 2020 and June 15, 2020, and circulated to state agencies through the State Clearinghouse for review between May 29 and June 29, 2020. As the project location, land uses, and general scope has not substantially changed, the City did not hold another public scoping meeting. A summary of the comments received on both NOP documents is included in Section ES, Executive Summary, as well as in the introduction of each technical analysis section (Sections 3.1 through 3.10). Both NOP documents and the comments received in response to both are included in Appendix A.

Draft EIR Public Review/Comment Period

This Draft EIR is being circulated for public review and comment, as required by CEQA. During this period, the general public, organizations, and public agencies can submit comments to the City regarding the Draft EIR's accuracy and completeness. Release of this Draft EIR marks the beginning of a 45-day public review period pursuant to CEQA Guidelines Section 15105. The 45-day public review period for the Draft EIR will be from September 2, 2021, through October 18, 2021. The public can review the Draft EIR at the following address or on the City's website at http://www.cityofmerced.org.

City of Merced Planning Department
678 W. 18th Street Merced, CA 95340
Hours: Monday–Friday: 10 a.m.-12 p.m.; 1 p.m.–5 p.m.

The City encourages all comments on the Draft EIR be submitted in writing. All comments or questions regarding the Draft EIR should be addressed to:

Ms. Julie Nelson, Associate Planner
City of Merced Planning Department
678 W. 18th Street Merced, CA 95340
Phone: (209) 385-6967 Fax: (209) 388-7314
Email: NelsonJ@cityofmerced.org

Final EIR and EIR Certification

Upon completion of the Draft EIR public review period, a Final EIR will be prepared that will include all written comments on the Draft EIR received during the public review period and the City's responses to those comments. Comments received and the responses to comments will be included as part of the record for consideration by decision makers for the project.

Responses to comments received from public agencies will be provided to those agencies a minimum of 10 days prior to the public hearing before the Merced City Council. The Final EIR will also include the Mitigation Monitoring Program (MMP) prepared in accordance with Section 21081.6 of the Public Resource Code. The Final EIR will address any revisions to the Draft EIR made in response to agency or public comments. The Draft EIR and Final EIR together will comprise the EIR for the proposed project. Before the City can approve the project, it must first certify that the EIR has been completed in compliance with CEQA, that the City Council has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the City. The City Council also would be required to adopt Findings of Fact and a Statement of Overriding Considerations. Because the proposed project would result in one significant and unavoidable impact related to the loss of Prime Farmland and Unique Farmland, the City Council would also be required to adopt a Statement of Overriding Considerations if it approves the proposed project (See also Public Resources Code Section 21081).

EIR Adequacy

The level of detail contained throughout this EIR is consistent with Section 15151 of the CEQA Guidelines, which states the following:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of the environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR

should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

1.4 Use of Previously Prepared Environmental Documentation

CEQA allows for incorporation by reference of "all or portions of another document which is a matter of public record or is generally available to the public" (Guidelines Section 15150). Incorporation by reference is used principally as a means of reducing the size of EIRs. This Draft EIR relies in part on data, environmental evaluations, mitigation measures, and other components of EIRs and plans prepared by the City for areas within the project vicinity. These documents are listed here and used as source documents for this EIR. All documents are available for public review during normal business hours (Monday through Friday, 8 a.m. to 4 p.m.) at the City of Merced (address listed above) and on the City's website at http://www.cityofmerced.org.

- City of Merced 2030 General Plan, adopted January 3, 2012
- Draft and Final 2030 General Plan EIR, City of Merced (SCH No. 2008071069), certified January 3, 2012
- The 2018 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS), San Joaquin Council of Governments, adopted June 2018
- Merced Municipal Code, updated through July 2020, including the City of Merced Zoning Code, City of Merced, adopted October 19, 2016.

1.5 Scope of the Draft EIR

Environmental Resource Areas Evaluated

Based on a review of the project, comments received during the NOP public review period, and the environmental analysis conducted in the course of preparing this EIR, the City determined that this EIR must address the following technical issue areas, which are addressed in each of the technical sections presented in Chapter 3:

- Aesthetics (Section 3.1)
- Agricultural Resources (Section 3.2)
- Air Quality (Section 3.3)
- Biological Resources (Section 3.4)
- Cultural Resources and Tribal Cultural Resources (Section 3.5)
- Energy Consumption (Section 3.6)

- Greenhouse Gas Emissions (Section 3.7)
- Hydrology, Water Quality, and Drainage (Section 3.8)
- Land Use and Planning (Section 3.9)
- Noise (Section 3.10)
- Public Services and Utilities (Section 3.11)
- Transportation and Circulation (Section 3.12)

This EIR evaluates the direct impacts, reasonably foreseeable indirect impacts, and cumulative impacts resulting from planning, construction, and operation of the proposed project using the most current information available and in accordance with the provisions set forth in CEQA and the CEQA Guidelines. In addition, the EIR recommends mitigation measures to reduce, avoid, or compensate for significant impacts, where possible, and evaluates potentially feasible project alternatives that would reduce or eliminate significant adverse environmental effects.

Comments on the NOP also identified concerns about the population increase that could result from the project. Changes in population (and housing) in and of themselves are generally characterized as social and economic effects and are not considered physical effects on the environment. CEQA provides that economic or social effects are not considered significant effects on the environment unless the social and/or economic changes are connected to physical environmental effects. A social or economic change related to a physical change may be considered in determining whether the physical change is significant (CEQA Guidelines Section 15382). Thus, the issue of population growth is not directly addressed as an environmental effect in this section or elsewhere in the EIR; however, the environmental effects related to population growth, such as increased demand for public services, are addressed throughout the EIR. Concerns regarding compatibility with surrounding land uses are addressed in this section of the EIR.

Topics Focused Out of the EIR

Through circulation of a Notice of Preparation (NOP) for this EIR and completion of an Initial Study as part of preparation of the EIR, the City identified several resource areas or discrete impact considerations within specific resource areas where the project is not expected to result in any significant impacts. These are briefly summarized below and discussed in more detail in Chapter 5, CEQA Considerations. Both NOPs prepared for the project are provided in Appendix A and the Initial Study is provided in Appendix B.

- **Aesthetics -** Scenic vistas and scenic resources within a State scenic highway (refer to the Initial Study)

- **Agricultural and Forestry Resources -** Conflict with a Williamson Act contract and impacts to forest land, timberland, or timberland production (refer to the Initial Study)
- **Biological Resources -** Wildlife movement or nursery sites and Habitat Conservation Plan or Natural Community Conservation Plan (refer to the Initial Study)
- **Geology, Soils, and Seismicity –** All impacts would be less than significant (refer to the NOP)
- **Hazards and Hazardous Materials –** All impacts would be less than significant (refer to the NOP)
- **Hydrology, Drainage and Water Quality -** Flood hazards and inundation by seiche, tsunami or mudflow (refer to the Initial Study)
- **Land Use and Planning.** Divide an established community (refer to the Initial Study)
- **Mineral Resources –** All impacts would be less than significant (refer to the NOP)
- **Noise** Air traffic noise (refer to the Initial Study)
- **Population and Housing -** impacts would be less than significant (refer to the NOP)

Project Alternatives

The alternatives chapter of the EIR (Chapter 4, Project Alternatives) was prepared in accordance with Section 15126.6 of the CEQA Guidelines. CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Project modification or alternatives are not required, however, where significant environmental impacts will not occur.

The EIR evaluates the following alternatives to the proposed project:

Alternative 1: No Project Alternative. This alternative assumes no development would occur, the site would remain in its current condition, and the site would not be annexed to the City.

Alternative 2: Agricultural Retention Alternative. This alternative would retain 9.77 acres of Prime Farmland in the northern portion of the project site and extend the residential development easterly into an approximately 5-acre portion of the proposed Remainder Area.

Alternative 3: Reduced Density Alternative. This alternative would develop 60 fewer residential units than the proposed project and include a 1.5-acre neighborhood park within the project site.

1.6 Organization of the Draft EIR

Chapter ES, Executive Summary — Summarizes the elements of the project including the environmental impacts that could result from implementation of the proposed project. A summary table is provided that lists impacts, describes proposed mitigation measures, and indicates the level of significance of impacts before and after mitigation

Chapter 1, Introduction and Scope of the Draft EIR — Provides an introduction and overview of the EIR process and describes the intended use of the EIR and the review process.

Chapter 2, Project Description — Provides a detailed description of the proposed project, including its location, background information, project history, project objectives, and technical characteristics.

Chapter 3, Environmental Impacts and Mitigation Measures — Describes the baseline environmental setting and provides an assessment of potential project impacts for each technical issue area presented. Each section is divided into four sub-sections: Introduction, Environmental Setting, Regulatory Setting, and Impacts and Mitigation Measures (project-specific and cumulative).

Chapter 4, Project Alternatives — Describes alternatives to the proposed project and compares the impacts of each alternative to the impacts of the proposed project.

Chapter 5, CEQA Considerations — Provides information required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, secondary impacts including potential impacts resulting from growth inducement, and significant irreversible changes to the environment.

Chapter 6, EIR Preparation — Lists report authors who provided technical assistance in the preparation and review of the EIR.

Appendices — Includes various documents and data that support the analysis presented in the EIR.

CHAPTER 2
PROJECT DESCRIPTION

2.1 INTRODUCTION

The Yosemite Avenue-Gardner Avenue to Hatch Road Annexation project (proposed project) proposes to annex approximately 68.6 acres currently within Merced County (County) into the City of Merced (City) and construction and operation of "The Crossings," a mixed-use development component on an approximately 28.4-acre portion of the project site. The Crossings would consist of a 540-unit apartment village including a 13,700 square foot clubhouse and associated outdoor recreation space. The Crossings also includes five mixed-use buildings consisting of 66,000 square feet of retail space on the ground level and 45,000 square feet of residential space on the second level, totaling 30 additional units (12 apartments and 18 extended stay units) (Hochhauser Blatter 2020). The other approximately 40.2 acres of the project site are referred to as the Remainder Area. No development or change in the underlying land use designation of Rural Residential is proposed in the Remainder Area; this area is proposed to be zoned Urban Transition.

The project location, project setting and surrounding land uses, project objectives, and specific project elements are described in detail in this chapter.

2.2 PROJECT LOCATION

The approximately 68.6-acre project site is located in unincorporated Merced County but adjoins the City (see Figure 2-1, Regional Location). The site extends north of East Yosemite Avenue between Gardner Avenue on the west and Hatch Road on the east (see Figure 2-2, Project Location). The City limits are immediately adjacent to the project site on the west and south and the project applicant is requesting the site be annexed into the City.

Additionally, Figure 2-2 identifies the approximately 28.4-acre portion of the site proposed for development under The Crossings project component, and the approximately 40.2-acre portion of the site that comprises the Remainder Area, which is not currently proposed for development. As shown in Figure 2-2, The Crossings is proposed to be developed within an L-shaped portion of the site that includes the majority of the western half of the site but excludes an approximately 9.4-acre area in the northwest corner. This 9.4-acre area is included in the Remainder Area, along with the approximately 30.8 acres in the eastern portion of the project site.

The project site includes the following Assessor Parcel numbers (APNs): 060-570-009, 060-570-010, 060-570-011, 060-570-012, 060-570-013, 060-570-014, 060-570-056, 060-570-058, 060-570-059, 060-570-097, and 060-570-098. The total area of the project site reflected in the Assessor's Parcel data is approximately 70 acres. The acreages relied upon in this EIR were

developed using GIS analysis and therefore differ slightly from the Assessor's data. The total area of the project site identified throughout this EIR is approximately 68.6 acres.

2.3 PROJECT SETTING AND SURROUNDING LAND USES

The project site is located adjacent to developed areas of the City to the south and west. Land under active agricultural use is located to the north and a mix of rural residential uses are located to the east, across Hatch Road. The project site is located approximately 0.5 miles west of the County's University Community Plan area.

The project site is located within the unincorporated County and is designated as a Rural Residential Center on the Merced County City Planning Area-Merced land use map (Merced County 2011). The project site is located within the City's Sphere of Influence and designated Rural Residential in the City's Merced Vision 2030 General Plan *(*City of Merced 2012). The land use designations within and surrounding the project site are shown on Figure 2-3, City of Merced Land Use Designations, and Figure 2-4, County of Merced Land Use Designations.

The Crossings component is located adjacent to the northeast corner of East Yosemite Avenue and Gardner Avenue. This area currently supports primarily agricultural land with four buildings, trailers, shipping containers, and various pieces of equipment located on 3 acres of this portion of the project site. All of the buildings on the site would be demolished as part of the project and the equipment removed. The Remainder Area includes a mix of rural residences, a church (Yosemite Church), a private school (Stoneridge Christian School), and undeveloped agricultural lands.

The current County land use designation for the project site is Agricultural-Residential (A-R) and the zoning for the project site is Rural Residential (R-R), which provides areas for rural residential development, hobby farming and limited animal raising operations with less than a full range of urban services. The County's zoning ordinance states that this zone is intended to serve as a transitional area between more dense urban communities and agricultural uses with the option of allowing between one and three dwelling units per acre (Merced County 2020).

Land surrounding the project site to the south and west within the City is designated low density residential in the City's Merced Vision 2030 General Plan and zoned low density residential (R-1-6) with a small area at the southwest corner of East Yosemite Avenue and Gardner Avenue designated commercial/office and zoned Residential Planned Development (RP-D 20). Land to the north in the unincorporated County is designated A-Rand zoned R-R. The City and County zoning designations for the project site and surroundings are shown on Figure 2-5, Zoning Designations.

2.4 BACKGROUND AND NEED FOR THE PROJECT

The City's Merced Vision 2030 General Plan recognizes that the presence of the University of California (UC) Merced campus and its anticipated growth will result in an increased need in housing in a range of housing formats for students, faculty and staff as well as growth from the City itself. Chapter 9 of the 2030 General Plan discusses the need to work with UC Merced staff to "address housing needs and impacts caused by existing student housing on neighborhoods and the community" in accordance with Action 1.1.g as a means to implement Policy H-1.1, which requires support for increased densities in residential areas (City of Merced 2012). UC Merced has adopted plans that anticipated enrollment of 10,000 students by 2020 and approximately 25,000 full-time students and 9,200 employees at full buildout of the campus. The UC Merced Long Range Development Plan expects to be able to house approximately 50% of students on campus and the remaining would be required to find housing elsewhere. UC Merced requires most of its first-year students to live on campus, however there is not sufficient on-campus housing to meet this need and "there are often 200 to 300 students on the waiting list for housing" (Fresno Bee 2021). While enrollment increased steadily at the University, development of residential units stalled between 2006 and 2014, though several projects have been approved in the years since.

In the Merced Vision 2030 General Plan, the City discusses overcrowding in approximately 9.1% of households, suggesting a need for additional housing. Furthermore, the Land Use element of the General Plan states "The University projects at least 50% of its students need to be housed off-campus. The community does not have a well-developed supply of housing specific to students" (City of Merced 2012). Additionally, in 2021, with students returning to campus after engaging in distance learning in 2020, UC Merced has found that students are facing a limited availability of rental spaces, leading to increased rental rates and insufficient affordable options (Fresno Bee 2021). The existing overcrowding issues along with the anticipated growth expected in UC Merced's Long Range Development Plan demonstrate a need for housing, for students, staff and faculty, within the vicinity of the University.

2.5 PROJECT OBJECTIVES

In general, the project seeks to develop a mixed-use village and to annex the adjacent properties to create a logical city boundary. While the project is not designated as student housing, the proximity of the project to the University of California Merced campus would help provide nearby housing opportunities for students. The specific project objectives include:

- Develop an attractive and high-quality mixed-use project comprising housing, retail and general commercial.

- Provide quality and affordable living space for the local housing market in close proximity to commercial uses.
- Create a low-carbon footprint living environment desirable to eco-conscious residents through the use of select building materials, low-energy appliances, and native landscaping.
- Operate a professionally managed secure living space for residents that includes dedicated village-style retail, restaurant, and mixed-use.
- Produce economic benefits by creating hundreds of construction jobs, twelve to fifteen jobs operating the housing project when completed, and dozens of retail and restaurant job opportunities for the village retail and mixed-use center.
- Provide residents a variety of transit options.

2.6 PROJECT COMPONENTS

The Crossings is a proposed mixed-use development located on a 28.4-acre site that fronts East Yosemite Avenue and Gardner Avenue. A breakdown of The Crossings land uses is provided in Table 2-1. The site plan is shown on Figure 2-6, The Crossings Proposed Site Plan. As shown in Table 2-1 and Figure 2-6, The Crossings consists of two primary areas – a residential village and a commercial/mixed-use area. The residential village would consist of 20 three-story buildings with a total of 540 residential units, a 13,700 square foot clubhouse, associated outdoor recreation space. The residential buildings would have 27 units per building. Of the 540 units, 300 units would be one bedroom with one bathroom and 240 units would be two bedrooms with two bathrooms. The commercial/mixed-use portion would include five mixed-use buildings consisting of 66,000 square feet of retail space on the ground level and 45,000 square feet of residential space on the second level, totaling 30 additional units (12 apartments and 18 extended stay units) (Hochhauser Blatter 2020).

Table 2-1
The Crossings - Land Uses

Proposed Buildings	Square Footage
Residential	
20 Buildings (540 dwelling units)	626,280 sf (31,314 sf/building)
Clubhouse	13,700 sf
Total	**639,980 sf**
Mixed-Use	
First Floor Total (Commercial/Retail)	66,000 sf
Second Floor Total (Residential – 30 dwelling units)	45,000 sf

Table 2-1
The Crossings - Land Uses

Proposed Parking	Spaces
Residential	901
Commercial/Retail	323
Total	**1,223**

Source: Hochhauser Blatter 2020

Building Design and Signage

The proposed residential building architecture is designed with a contemporary style, as shown in Figure 2-7. The color palette of the buildings are primarily muted, warm colors in shades of brown, beige and grey. The building exteriors would be finished with a combination of stucco, cementitious horizontal lap siding and panel cladding. The building roof is a combination of pitched standing seam metal roof and flat roof. Each residential unit is provided with covered balconies/ patios, protected by a metal and glass guardrail system. The tall window apertures allow natural light to the interiors, while the solar shades minimize glare and heat gain. Building heights would be generally approximately 36 feet with some features extending to approximately 40-feet 6-inches (Hochhauser Blatter 2020).

The proposed commercial building architecture is also designed with a contemporary style and finished with siding and stucco, as shown in Figure 2-8. The buildings would also be finished in varying shades of beige and the roof would consist of pitched standing seam metal roofs. The second floor of each end of the retail strip includes a balcony with a metal railing. Like the residential buildings, the commercial buildings would have tall window apertures allow natural light to the interiors, while solar shades would minimize glare and heat gain; however, these tall windows would be largely restricted to the first floor (Hochhauser Blatter 2020).

Sections 20.20.010 and 20.20.020 of the City's zoning ordinance discusses the purpose, requirements, and restrictions in Urban Transition (U-T) Zoning District and Planned Development (P-D) Zoning Districts respectively. Under the U-T zone, building heights may reach maximum of 40 feet for principal buildings and 25 feet for accessory buildings whereas the P-D zone does not have an explicit height maximum but buildings require approval from the Planning Commission and City Council (City of Merced 2020).

Monument signs are proposed to be placed at the corner of East Yosemite Avenue and Gardner Avenue, adjacent to the driveway along East Yosemite Avenue that provides access to the residential area, and in the central plaza within the retail area. Monument signs would be a combination of vinyl/metal letters mounted on a concrete cast-in-place wall. The signs would be back-lit, up-lit, or a combination. The City's standards regarding signs are included in Chapters

17.36 and 20.62 of the Municipal Code. The apartment complex within The Crossings component of the project would have more than 200 feet of frontage on East Yosemite Avenue, thus under Municipal Code Section 17.36.572, the monument sign for the complex may have a maximum height of 6 feet and a maximum size of 24 square feet per side. The Municipal Code also addresses materials, color, arrangement within the site, and lighting (specifically that the individual lettering and logo may include internal lamination but may not include direct or reflected lighting).

Security Features

Secure gate access would be a part of the design of the residential buildings. The clubhouse would be accessible only through the use of key card readers. Additionally, closed circuit television (CCTV) network monitoring would be installed throughout the residential component to ensure the security and safety of residents.

Retail/Residential Employees

It is anticipated there would be eight to ten full time and six to eight part time employees managing the apartment component. Their duties would include management, leasing, marketing, property maintenance, technology maintenance, accounting, and resident services. In the retail component of the project, there would be a minimum of four full time property managers and retail housing personnel plus two maintenance and janitorial workers, in addition to employees of the individual retail businesses that locate onsite. Overall, it is estimated that approximately 147 employees would be employed within The Crossings component.

Vehicle Access, Circulation, and Parking

Vehicle access to the residential portion would be provided by a driveway off of East Yosemite Avenue that would provide both ingress and egress to the site. Access to the retail portion would be provided by a driveway off of East Yosemite Avenue and two driveways off of Gardner Avenue. Internal drive lanes would connect the retail and residential portions of the project site.

Vehicle circulation throughout the site would be provided via striped on-site drive lanes that would permit vehicle access and parking. A total of 1,223 surface parking spaces would be provided, with 901 being provided for the residential component and 322 for the commercial/retail component (Hochhauser Blatter 2020). Chapter 20.38 of the City's Municipal Code lists the parking and bike requirements for both retail and residential land uses. The parking spaces included in the project design would satisfy the City's requirements of 1 space per 300 square feet of restaurant or retail uses, and 1.75 spaces for the first 30 units and 1.5 spaces for the remaining 510 units for multi-family residential uses (City of Merced 2020). Bicycle parking requirements are based on a percentage of the required automobile parking requirements and includes separate requirements for short and long term parking. For multi-family residential land

uses, the standards require 10% of required automobile parking spaces for short term bicycle parking and 1 space per 10 units for long term bicycle parking. For non-residential uses (retail), standards require 8% of required automobile spaces for short term bicycle parking and an additional 8% of required automobile spaces for uses 10,000 square feet for long term bicycle parking. Based on these requirements, the project would be required to provide 220 bicycle parking spaces.

Pedestrian and Bicycle Access

Bike storage for residents would be provided at each building. Bike access would be combined with walkways linking the right-of-way and would connect to Class II bike lanes located on both sides of East Yosemite Avenue west of Gardner Avenue and located on the north side of East Yosemite Avenue east of Gardner Avenue. There are no Class II bike lanes on Gardner Avenue or Parsons Avenue.

Outdoor Spaces and other Amenities

All buildings in The Crossings component would be connected with a network of meandering walkways. These walkways would pass through landscaped areas located between the residential buildings. An outdoor plaza is proposed central to the retail portion to be used for evening events and outdoor activities, such as music events, craft fairs, and farmers' markets.

Lighting

On-site lighting would be a combination of post-mounted fixtures at parking areas, building wall mounted exterior fixtures, and light bollards along the meandering walkways. All lighting fixtures would be energy-efficient in compliance with California Building Code Title 24 requirements. Chapter 20.38 of the City's Municipal Code include lighting standards, including that the on-site light fixtures and locations would meet the City's screening requirements, including required hooding and allowable levels of illumination at the property line.

Landscaping

Project site landscaping would be required to conform to the City's Landscape Standards including Municipal Code Chapter 17.60 (Water Efficient Landscape and Irrigation) and the Water Efficient Landscape Ordinance (WELO) (City of Merced 2020). The requirements listed in the City's Landscape Standards aim to ensure that a project's landscape design to provide an attractive and visually appealing environment that would be well-suited to the outdoor living needs of the residents. These requirements outline standards regarding low-water use and ease of maintenance. The standards include requirements for a variety of low-water using species (including California natives) of trees, shrubs, groundcovers and grasses. Other requirements include that turf grass areas be

limited to areas suitable for active recreation, deciduous trees be located to provide solar shading and minimal heat gain on south and west facing building facades, and spreading canopy trees be located in parking lots.

In accordance with the requirements listed in the code, the landscape design in the commercial area would include a variety of special use areas with site furnishings, enhanced paving types, recirculating water features, kiosks, planters and an array of flowering low-water trees, shrubs and groundcovers.

Infrastructure and Energy Features

Water

There is an existing 16" water main located within both East Yosemite Avenue and Gardner Avenue. The 16" water main within Yosemite Avenue is located approximately 20 feet south of the roadway centerline and is looped with a 12" water line heading south on Parsons Avenue, a 16" line heading south on McKee Road, and a 12" line heading north on Paulson Road. The 16" main on Gardner Avenue is approximately 8 feet east of the roadway centerline and is looped with a 12" water line heading west on Dunn Road (connecting with the 12" water line in Paulson Road).

The two 16" water mains would be utilized to supply the anticipated flow requirements for fire, domestic, and landscape irrigation systems. It is contemplated that a 12" onsite water "main" would be looped through the project site with a 12" backflow device at each end where it connects to the 16" main. Smaller water mains and individual service lines to the various buildings would be fed from the 12" onsite loop. The number and location/spacing of onsite fire hydrants would be determined during the design phase of the project in accordance with the fire department and City and Code requirements.

As is typical for most 3-story buildings in Merced, there would be a fire booster pump for the fire sprinkler systems for all 3-story buildings constructed within the project site.

Wastewater

There is an existing 18" gravity sewer line in East Yosemite Avenue (20 feet north of centerline) that flows west from Gardner Avenue to G Street. Based on the estimated rate of 140,000 gallons per minute (gpd), this line has adequate capacity for the proposed development. The point of

connection would be at the terminal manhole at the intersection of East Yosemite Avenue and Gardner Avenue. The onsite sewer lines would consist of 6" and 8" lines.

Stormwater and Drainage

Since the project site generally slopes from the northeast to the southwest, it drains to the southwest corner of the parcel at East Yosemite Avenue and Gardner Avenue. This drainage is conveyed to the city's storm drain system via a 24" storm pipe that crosses under East Yosemite Avenue and continues south through a detention basin and pump station which ultimately discharges into Black Rascal Creek. This system is designed to allow the project site to discharge storm water runoff that would be generated by a 2 year-24 hour storm. In accordance with city standards, The Crossings component of the project would continue to discharge to the same 24" pipe at the same rate but would provide the necessary on-site detention to contain a 50 year-24 hour storm event. The amount of impervious surfaces to be created would be approximately 64% of the 28.4-acre portion of the site that would support The Crossings development. This equates to a detention volume of about six acre-feet. The basin would have a total surface area of approximately 1.1 acre, with sides sloped at a 2:1 ratio, and a maximum water depth for the 50-year storm event of approximately 10 feet (Appendix H). This basin would be fenced for safety. A storm pump station is proposed to be installed at the west end of the proposed detention basin to empty the basin while controlling the discharge rate to the allowable amount.

The project applicant would be required to comply with the City's Storm Drainage Design Standards and the more recently adopted Post Construction Standards Plan (PCSD) (City of Merced 2015). The PCSD describes various low impact design (LID) and hydromodification concepts to reduce the amount of run off generated by the project and improve the quality of the storm water being discharged from the site. Specific LID features for the project have not been identified but typically include bio swales, modular wetlands biofiltration units, storm water planters, and possibly underground mechanical systems such as a nutrient separating baffle box.

Energy Efficiency Features

The project must meet the mandatory requirements of the California Green Building Standards Code. Examples of green principles of design include:

- Use of drought tolerant, indigenous plantings to minimize water use.
- Incorporating open and naturally ventilated circulation spaces in buildings to minimize energy use.
- Cut-off luminaires (no upward light emitted).

- Installation of Electric Vehicle Supply Equipment and designated parking for low-emitting and fuel-efficient vehicles.
- Short-term and long-term bicycle parking.
- Energy efficient mechanical and plumbing systems.
- Energy efficient building envelope with water resistance and moisture management.
- Solar shading devise to minimize heat gain on south and west facing facades.
- Construction waste reduction, disposal and management.
- Energy efficient HVAC systems and building commissioning.
- Indoor air quality using non-toxic, non-volatile-organic-content paints and adhesives, moisture control, acoustical control, natural daylight and natural ventilation.

Project Schedule

The proposed project would develop 540 residential units in twenty 3 story buildings with a 13,700 square foot supporting clubhouse building, a mixed use building with 66,000 square feet of ground floor retail and 30 additional residential units on the 2nd floor. The project would also include 1,223 parking spaces. It is expected that construction of the proposed project would last approximately 27 months.

Site Clearing, Grading, and Construction

The Crossings component of the project site contains limited vegetation, other than agricultural crops, which would be removed from the site. The row of olive trees immediately east of this portion of the site would be retained under this development. The project site is relatively flat. Site grading is expected to require movement of approximately 45,000 cubic yards of dirt and fill, with cuts and fills generally balancing onsite. Project construction would be staged, with construction of the apartment complex occurring first, and materials stockpiles and equipment storage occurring on the commercial portion of the site. It is currently estimated that up to approximately 50 construction trips per day between workers as well as deliveries would be required. All construction activities would utilize existing roadways surrounding the project site. Primary routes would likely include use of East Yosemite Avenue with access to Highway 99.

Off-Site Improvements

No off-site improvements are needed other than construction of curb, gutter and sidewalks along the property frontages on East Yosemite Avenue and Gardner Avenue. These would be constructed in accordance with adopted City standards. All onsite water, sewer and storm drain

infrastructure would tie into existing infrastructure located adjacent to the site within the East Yosemite Avenue and Gardner Avenue right-of-way.

2.7 REQUIRED DISCRETIONARY ACTIONS AND APPROVALS

Project approval from the City would require the following discretionary actions:

- **Certification of the EIR and adoption of the Mitigation Monitoring Plan.** Before the City can approve the proposed project, it must certify that the EIR was completed in compliance with the requirements of CEQA, that the decision-making body has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the City. Approval of the EIR also requires adoption of a Mitigation Monitoring Program (MMP), which specifies the methods for monitoring mitigation measures required to eliminate or reduce the project's significant effects on the environment. The City would also be required to adopt Findings of Facts and a Statement of Overriding Conditions as part of project approval.
- **Pre-zoning.** The project requires pre-zoning to Planned Development (P-D) for the ±28.4 acres within The Crossings component. Within the P-D area, a Site Utilization Plan that includes land use designations must be established. The P-D for The Crossings component would include a Site Utilization Plan land use designation consistent with Multi-Family Residential (R-4) zone district for the residential portion of the site and a land use designation consistent with the Neighborhood Commercial (C-N) zone district for the mixed use portion of the site. The project also proposes pre-zoning to Low Density Residential (R-1-10) and Urban Transition (U-T) for the ±40.2 acres in the Remainder Area.
- **General Plan Amendment.** The project requires amending the land use designations for the site from Rural Residential (RR) to Neighborhood Commercial (CN) and High-Medium Density Residential (HMD).
- **Site Utilization Plan.** The project requires a Site Utilization Plan that establishes the planned development concepts.
- **Minor Subdivision Map**. The project requires a minor subdivision map to allow for phasing of the project site.
- **Development Agreement**. Approval of a Pre-Annexation Development Agreement between the City and the project applicant.
- **Site Plan Review**. Subsequent to the annexation of the project site, Site Plan Review approval is required for all development within the established Planned Development zone.

Responsible and Permitting Agencies

Responsible and permitting agencies are state and local public agencies, other than the lead agency, that have some authority to carry out or approve a project or that are required to approve a portion of the project for which a lead agency is preparing or has prepared an EIR or Initial Study/Negative Declaration. A list of trustee, responsible and/or permitting agencies is included below. However, this list is not exhaustive and approvals from other agencies may be needed. This Draft EIR has been designed to provide information to these agencies to assist them in the permitting processes for the proposed project. While CEQA is not binding on federal agencies, and no federal agencies have been identified that would be required to take action on the project, any such agency may use the analysis in this document in order to assist with the preparation of their own analyses required by federal law.

Merced County Local Agency Formation Commission (LAFCo). Will review the project and the EIR to approve annexation of the Project site to the City of Merced.

Central Valley Regional Water Quality Control Board (CVRWQCB). Ensures compliance with the City's National Pollutant Discharge Elimination System (NPDES) Permit for any stormwater discharge associated with construction activity. Also responsible for issuing Waste Discharge Requirements for any activities that would result in impacts to waters of the State.

San Joaquin Valley Air Pollution Control District (SJVAPCD). Oversees air quality and has the authority to require mitigation fees.

California Department of Fish and Wildlife (CDFW). Responsible for protecting natural resources including protected plant and wildlife species and for issuing a Streambed Alteration Agreement under Section 1600 of the California Fish and Game Code for any activities that would substantially alter the flow, bed, channel, or bank of streams and lakes.

2.8 REFERENCES CITED

City of Merced. 2012. *City of Merced 2030 General Plan*. Adopted January 2012. https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan

City of Merced. 2015 Post Construction Standards Plan (PCSD). Effected July 1, 2015. https://www.cityofmerced.org/Home/ShowDocument?id=7362

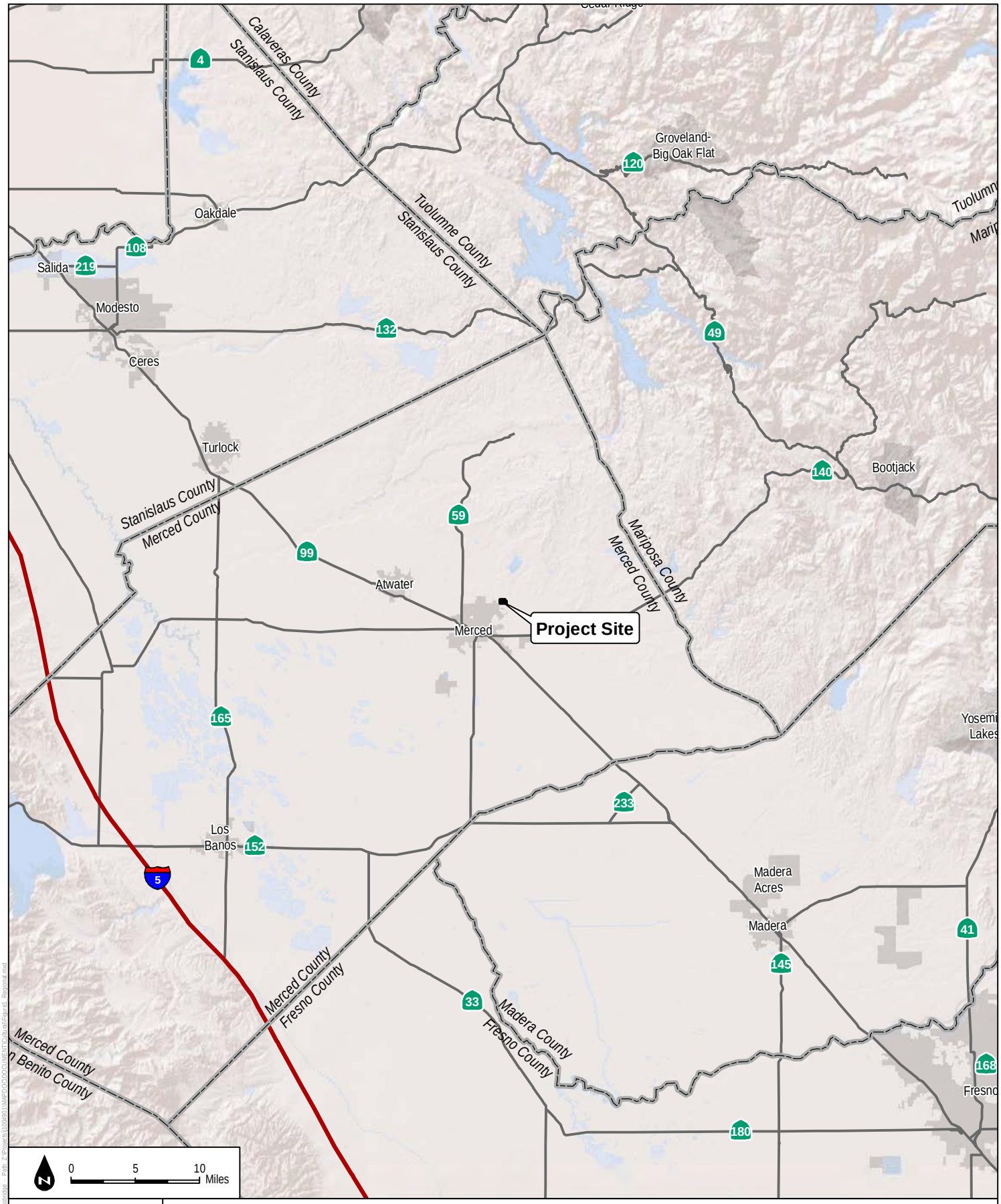
City of Merced. 2020. Code of Ordinance (Municipal Code). Adopted July 6, 2020. https://library.municode.com/ca/merced/codes/code_of_ordinances

County of Merced. 2020. *Merced County Code, Title 18 Zoning Code*. https://www.co.merced.ca.us/2824/Zoning-Code

Hochhauser Blatter 2020. *The Crossings Mixed Use Development*.

Fresno Bee. 2021. *California housing crisis extends to Central Valley college students. What can be done?* July 21, 2021. https://www.fresnobee.com/news/local/education-lab/article252881758.html

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SOURCE: ESRI Basemaps (Accessed 2016); County of Merced (2014)

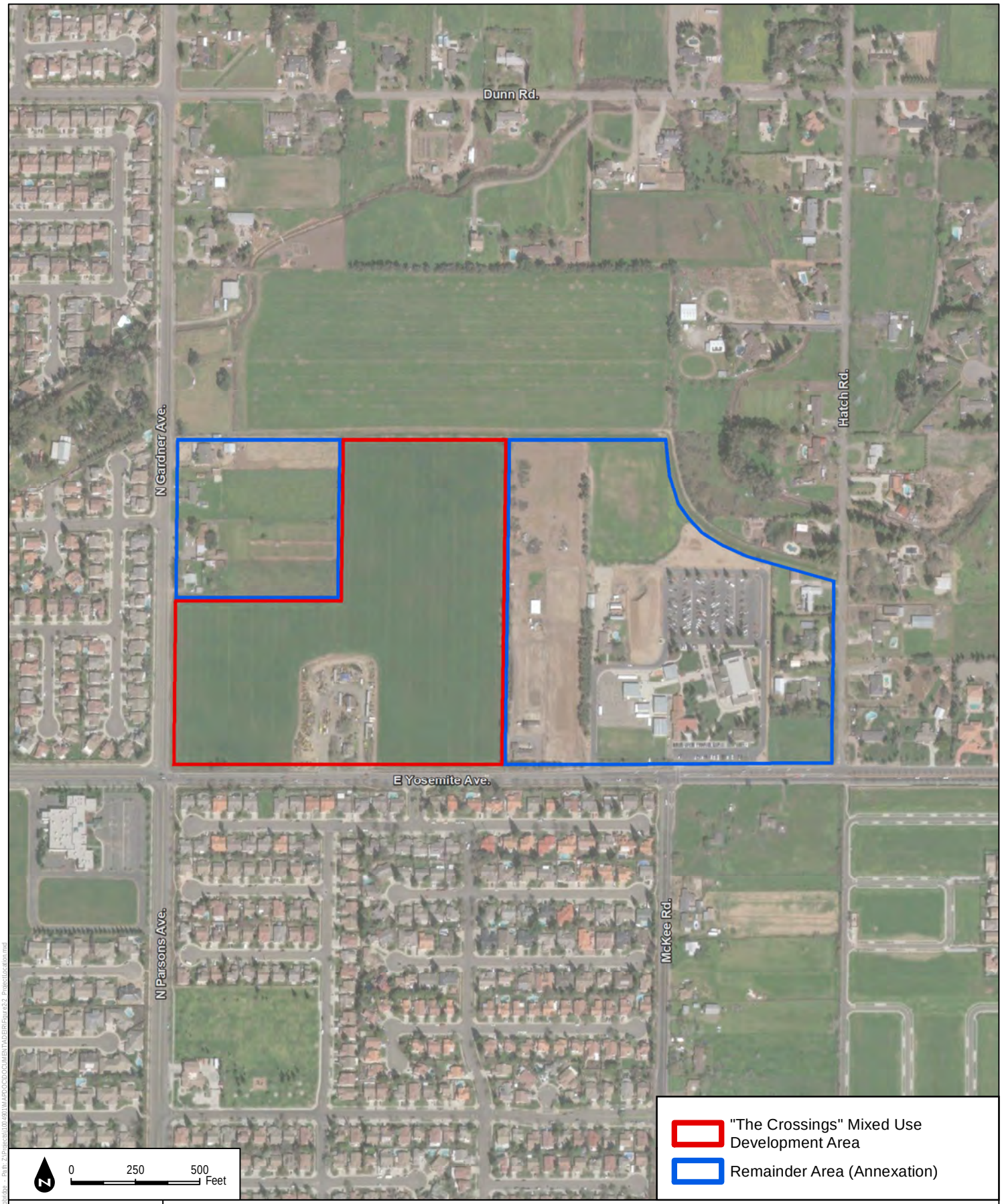
FIGURE 2-1

Regional Map

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Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps 2019, County of Merced 2014

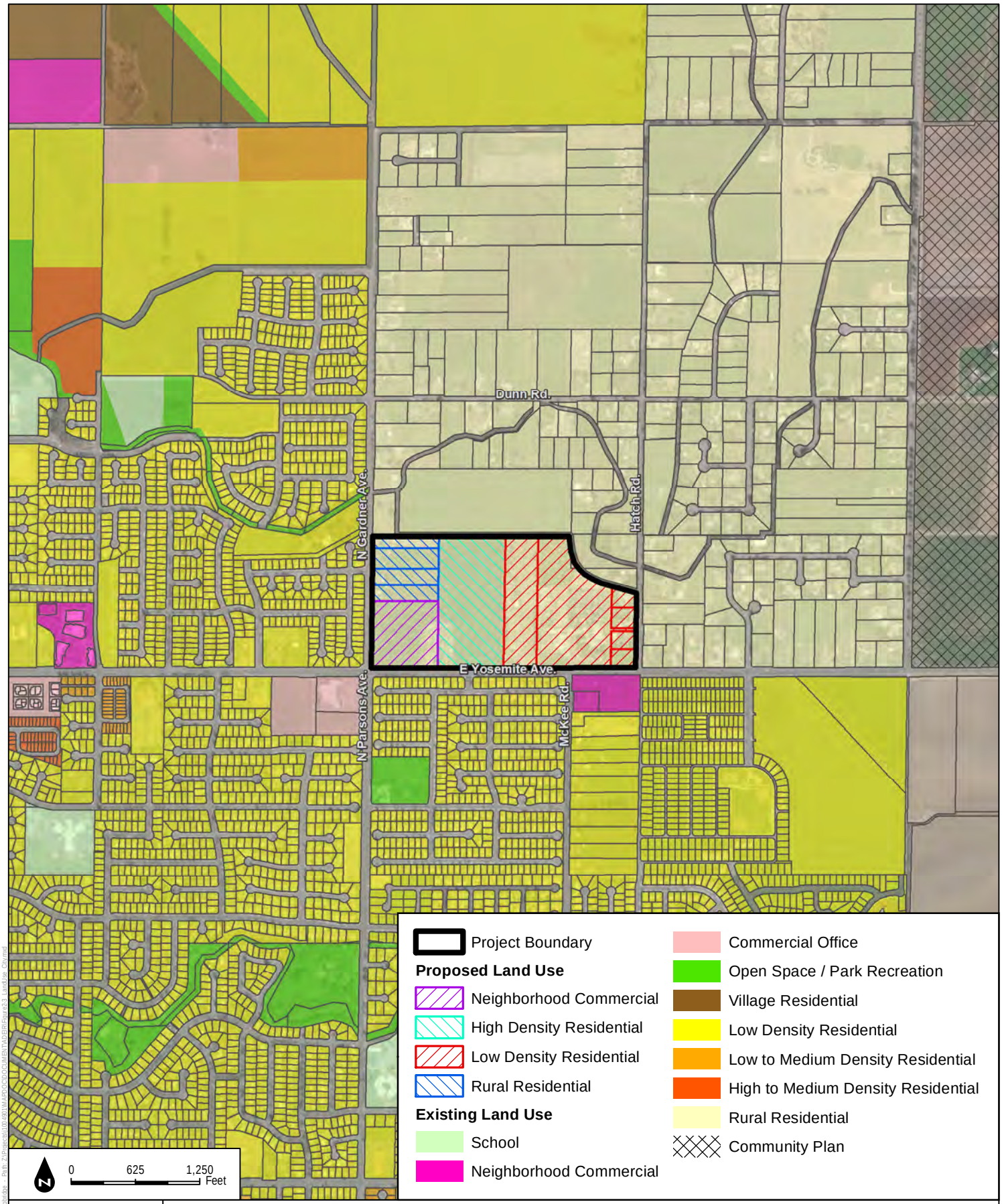
FIGURE 2-2

Project Location Map

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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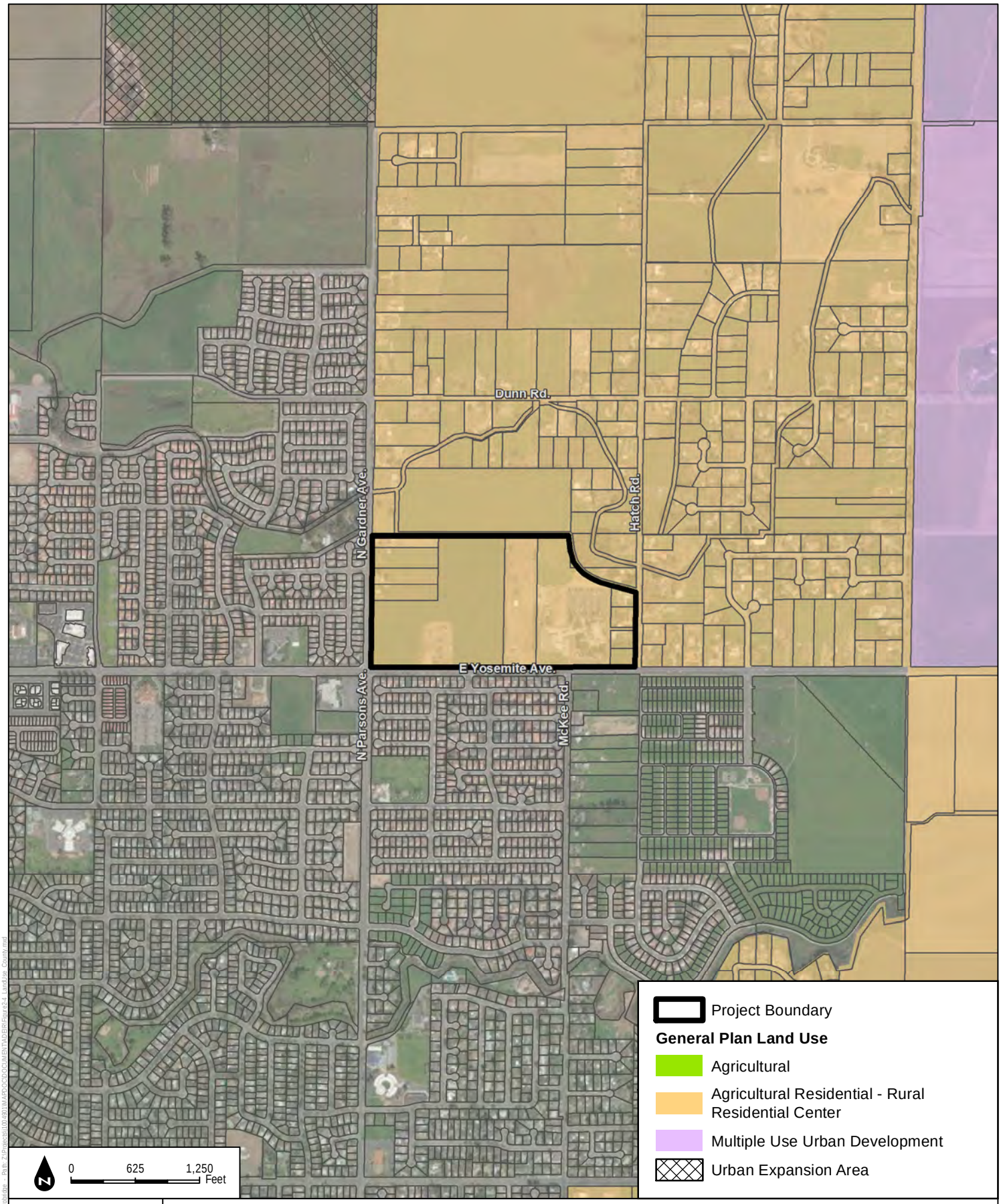
SOURCE: Bing Maps 2019, County of Merced 2014, City of Merced 2015

FIGURE 2-3

City of Merced Land Use Designations

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps 2019, County of Merced 2014, City of Merced 2015

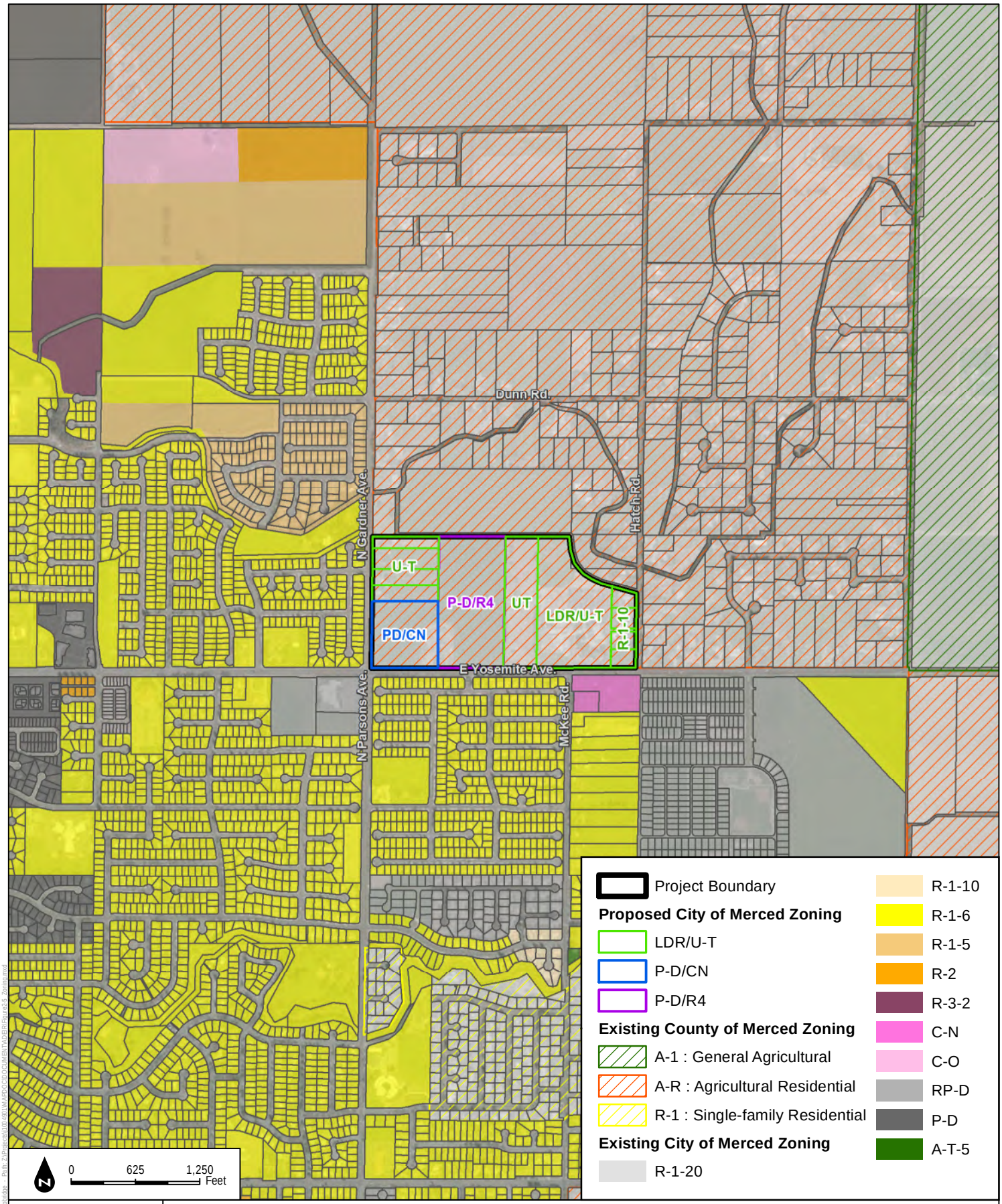
FIGURE 2-4

County of Merced Land Use Designations

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps 2019, County of Merced 2014, City of Merced 2015

FIGURE 2-5

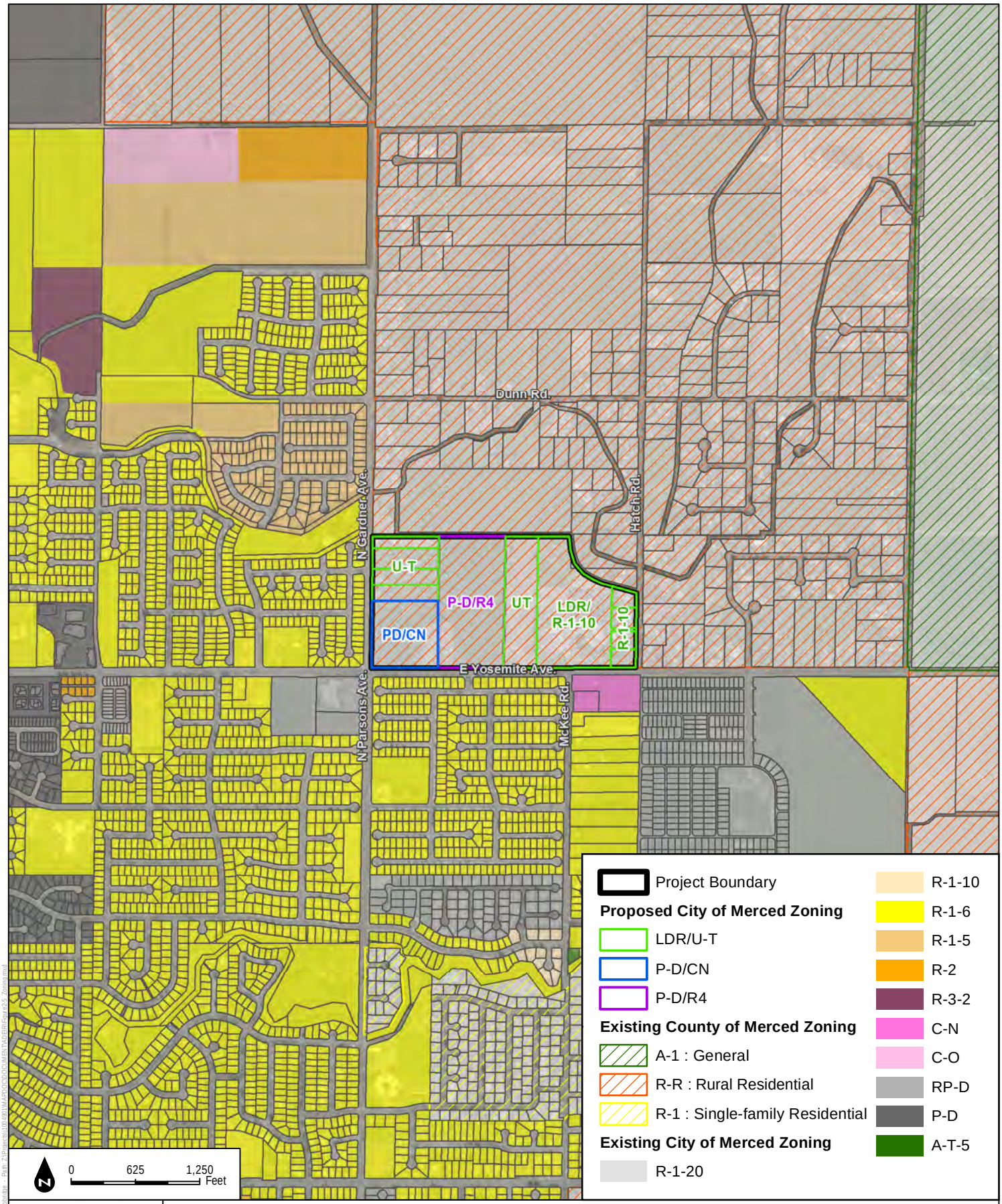
Zoning Designations

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps 2019, County of Merced 2014, City of Merced 2015

FIGURE 2-5

Zoning Designations

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Hochhauser Blatter 2016

Figure 2-6

The Crossings Proposed Site Plan

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Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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Elevation 20



Elevation 21



Elevation 22 - a



Elevation 23 - a



Elevation 24 - a



Elevation 25 - a

SOURCE: Hochhauser Blatter 2017

Figure 2-8

Proposed Mixed-Use Building Elevations

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Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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CHAPTER 3.0
INTRODUCTION TO THE ANALYSIS

3.0.1 SCOPE AND FORMAT OF THE EIR

This chapter of the Draft Environmental Impact Report (Draft EIR) discusses the environmental and regulatory setting, impacts, and mitigation measures for each of the following technical issue areas (Sections 3.1 through 3.12):

3.1 Aesthetics
3.2 Agricultural Resources
3.3 Air Quality
3.4 Biological Resources
3.5 Cultural Resources and Tribal Cultural Resources
3.6 Energy
3.7 Greenhouse Gas Emissions
3.8 Hydrology, Drainage, and Water Quality
3.9 Land Use and Planning
3.10 Noise
3.11 Public Services and Utilities
3.12 Transportation and Circulation

In determining the scope of the Draft EIR, the City of Merced (City) prepared an Initial Study to provide a preliminary analysis of potential project impacts. The analysis in the Initial Study, which is provided in Appendix B, demonstrates that the project would have no impacts or less than significant impacts in several resource areas, such as geology and soils, and hazards and hazardous materials. Thus, as provided for in California Environmental Quality Act (CEQA) Guidelines Sections 15006, 15063(c)(3)(a), and 15128 this EIR is focused on those topics where a potentially significant impact could occur and does not address the issues where the Initial Study determined the project would have no impacts or less than significant impacts. The anticipated scope of the EIR was documented in the Notice of Preparation (NOP) prepared for this EIR and circulated for public review, as required by CEQA Guidelines Section 15082.

It is important to note impacts of the environment on a project or plan (as opposed to impacts of a project or plan on the environment) are beyond the scope of required California Environmental Quality Act (CEQA) review. “[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project” (*Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473 and *California Building Industry Association v. Bay area Air Quality Management District* (2015) Cal.App 4th.). However, in some instances the analysis does address existing effects of the environment on the project.

Technical Studies Overview

A number of technical studies were prepared as part of this Draft EIR and are included in the technical appendices. Studies prepared include modeling of air pollution and greenhouse gas emissions (Appendix D) a Biological Field Survey (Appendix E), a Cultural Resources Report (Appendix F), a Flood Study Report (Appendix G), a Storm Drainage Report (Appendix H), a Phase I Environmental Site Assessment (Appendix I), a Noise Assessment (Appendix J), a Sewer Master Plan (Appendix K), a Water Supply Assessment (Appendix L), and a Transportation Impact Study (Appendix M). The applicable technical studies are summarized in each of the environmental analysis sections.

Environmental Setting

According to subdivision (a) of Section 15125 of the CEQA Guidelines, an EIR must include a description of the existing physical environmental condition in the vicinity of the project as they exist at the time when the NOP is published. This description is provided in each of the impact analysis sections under the heading Existing Conditions. CEQA provides that the existing conditions will normally constitute the baseline condition against which project-related impacts are compared.

For this project, an NOP was initially published in December 2016 based on the original project applications. In 2019, the project applicant, University Village Merced, LLC, on behalf of Cliff Caton, property owner, submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the associated parking. The City issued a revised NOP in May 2020. Thus, the baseline conditions for this EIR are generally based on conditions that existed in 2020.

For analytical purposes, impacts associated with implementation of the proposed Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project (proposed project) are assessed against existing conditions at the time the NOP was published; and cumulative effects are assessed against future, or “cumulative,” conditions, generally defined as buildout of the City of Merced Vision 2030 General Plan. Existing conditions and the cumulative baseline can differ by issue area. Each technical section defines the existing conditions and cumulative baseline for the impacts being analyzed.

In determining the level of significance of environmental impacts associated with the proposed project, the analysis in this Draft EIR assumes that the proposed project would comply with relevant federal and state laws and regulations, City General Plan policies, ordinances, and other adopted City documents, unless otherwise noted. Therefore, such mandatory policies, ordinances, and standards are not identified as mitigation measures, but rather are discussed as

part of the "Regulatory Setting" governing the proposed project and their influence on the significance of potential project impacts is explained.

Section Format

Each technical section in this chapter begins with an **introduction** that explains the issues to be evaluated, provides a general summary of any comments received in response to the NOP relevant to the environmental resource being evaluated in that section, and identifies the primary information sources that were reviewed to prepare the analysis. The introduction is followed by a description of the project's **environmental setting** and **regulatory setting** as it pertains to the environmental resources evaluated in that technical section.

The environmental setting describes the current existing conditions relative to the environmental resource, while the regulatory setting provides a summary of applicable federal, state, and local regulations, plans, policies, and laws that are relevant to the analysis of potential environmental impacts. The regulatory setting description in each section is followed by a discussion of **potential project impacts**. As discussed in Chapter 1, Introduction, the project impacts analysis for the Crossings component of the project (which includes a mixture of residential and commercial space on approximately 28.4 acres proposed to be annexed to the City) is presented at a "project" level of detail as defined in CEQA Guidelines Section 15162, while the impacts analysis for the Remainder Area component (an additional 40.2 acres included in the proposed area to be annexed to the City but where no development is proposed) is presented at a "program" level of detail as defined in CEQA Guidelines Section 15168.

The project-level and program-level impact analysis is followed by an analysis of the **cumulative impacts** of the proposed project. As defined in CEQA Guidelines Section 15355, cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. In other words, the cumulative impact is the change in the environment which results from the incremental impact of the proposed project combined with other past, present, and reasonably foreseeable projects causing related impacts. In some instances, a project-specific impact may be considered less than significant but could still have a considerable contribution to a cumulative impact when evaluated in the context of other development in the surrounding area. Or, in some instances, a potentially significant impact could result on a project level but would not result in a cumulatively considerable impact. To address cumulative impacts, each technical section identifies the cumulative impacts anticipated in the project region, addresses the project's incremental contribution to any cumulatively significant impact, determines whether than incremental contribution is cumulatively considerable and therefore significant, and identifies mitigation measures, if required. The cumulative impacts analysis considers both the Crossings component and the Remainder Area.

In both the project-specific and cumulative impact analyses, each impact statement is prefaced by a number for ease of identification. An explanation of each impact is presented in paragraphs and supported by data, tables, figures and other evidence where appropriate. The explanation includes a determination of the impact significance before implementation of any mitigation measures. Where an impact is identified as significant or potentially significant, the impact analysis is immediately followed by a discussion of potential **mitigation measures** as well as identification of any specific mitigation measures applied to that impacts. An example of this formatting is provided in Exhibit 3.0-1 below.

Exhibit 3.0-1
Sample Impact and Mitigation Measure Format

Impact 3.4-3: Implementation of the proposed project may result in placement of fill into potential jurisdictional waters of the U.S and State. This would be a potentially significant impact.

The Crossings

[impact analysis discussion]

Remainder Area

[impact analysis discussion]

Mitigation Measures

The following mitigation measure would reduce potential impacts to wetland habitat less than significant by requiring the loss of aquatic habitat be replaced at a 1:1 ratio.

The Crossings

3.4g *[mitigation measure text]*

Remainder Area

3.4h *[mitigation measure text]*

Where mitigation measures are required, the text specifies whether each measure applies to both or either project component. The degree to which the identified mitigation measure(s) would reduce the impact is also described. Compliance with applicable laws, policies, and City regulations is assumed and will be identified in the impact analysis. In many cases, compliance with applicable laws, policies, or regulations would ensure that a potential impact remains less than significant. As noted above, compliance with mandatory policies, ordinances, and standards is assumed and thus is not identified as mitigation measures even when such compliance is necessary to ensure impacts remain less than significant.

Note that CEQA Guidelines, Section 15370, defines mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing impacts by limiting the degree of magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- Compensating for the impact by replacing or providing substitute resources or environments.

In addition, provided there is a "reasonable plan for mitigation" and contributions are "sufficiently tied to the actual mitigation" of the project's impacts, a commitment to contribute a fair share to such a program discharges an agency's mitigation duty under CEQA (*Save Our Peninsula Com. v. Monterey County Bd. of Supervisors* 2001) 87 Cal.App.4th 99, 141); see also CEQA Guidelines, Section 15130, subd. (a)(3) [recognizing that a project's contribution to a cumulative impact may be less than cumulatively considerable where "the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact"] see also *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173).

3.0.2 TERMINOLOGY USED IN THE EIR

This Draft EIR uses the following terminology to describe the environmental effects of the proposed project:

- **Thresholds of Significance:** A set of criteria used by the lead agency to determine at what level or "threshold" an impact would be considered significant. Standards of significance used in this Draft EIR include those set forth in CEQA Guidelines Section 15065 (Mandatory Findings of Significance) and those derived from questions set forth in Appendix G to the CEQA Guidelines; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the City of Merced 2030 General Plan. In fashioning criteria based on these sources, City staff has also relied on its own professional judgment and experience in some instances. In determining the level of significance, the analysis assumes that the proposed project would comply with relevant federal, state, and local regulations and ordinances.
- **Less-than-Significant Impact:** A project impact is considered less than significant when it does not reach the standard of significance, indicating that there would be no substantial change in the environment. No mitigation is required for less-than-significant impacts.
- **Potentially Significant Impact:** A potentially significant impact is an environmental effect that could cause a substantial adverse change in the environment; however, additional

information is needed regarding the extent of the impact to make the determination of significance. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact.

- **Significant Impact:** A project impact is considered significant if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects in the context of specified significance criteria. When available, potentially feasible mitigation measures and/or project alternatives are identified to reduce these effects to the environment.
- **Cumulative Impact:** According to CEQA, "cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, Section 15355). CEQA requires that cumulative impacts be discussed when the "project's incremental effect is cumulatively considerable" (CEQA Guidelines, Section 15130 (a)).

3.1 Aesthetics

3.1.1 Introduction

This section of the Environmental Impact Report (EIR) evaluates the potential changes to the existing visual characteristics of the project site and vicinity that could result from future development of the proposed Yosemite Avenue – Gardner Avenue to Hatch Road Annexation project (proposed project). The analysis focuses on the change in visual character, effects on views, visual compatibility with surrounding uses, and the potential for sensitive receptors (e.g., adjacent residential land uses) to be disturbed by light and glare generated by proposed new uses. The Initial Study prepared for the project, provided in Appendix B, concluded that the project would not have an adverse effect on a scenic vista nor would it result in impacts to scenic resources within a state scenic highway. Accordingly, these issues are not further evaluated in this EIR.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. Comments received in response to the two NOPs for this EIR include concerns regarding introduction of new sources of lighting associated with the project and the potential for lighting to adversely impact existing residences and rural properties in the vicinity. Both NOPs and all comments received in response to them are included in Appendix A.

Information reviewed to prepare this section includes Merced Vision 2030 General Plan (City of Merced 2012a) and General Plan EIR (City of Merced 2012b), and the Merced County General Plan (Merced County 2013a) and General Plan EIR (Merced County 2013b).

3.1.2 Environmental Setting

The project site is located in the eastern portion of Merced County (County) adjacent to the eastern boundary of the City of Merced (City). The project site is bounded by East Yosemite Avenue to the south, Gardner Avenue to the west, agricultural land to the north, and Hatch Road to the east. The topography of the site is fairly level. Figure 3.1-1, Photo Locations, provides a legend to the location of photographs taken that show the project site and the surrounding area; the photographs are displayed in Figures 3.1-2 through 3.1-12.

The approximately 28.4-acre The Crossings component of the project site includes a large area of tilled agricultural land with a small area of development that includes a residence, a few trees, and a barn and small outbuildings located adjacent to East Yosemite Avenue. Large pieces of

construction equipment are also visible near the residence along with overhead utility poles that run parallel to East Yosemite Avenue (see Figure 3.1-2, photo location 6).

The 40.2-acre Remainder Area consists of two separate areas – an approximately 9.4-acre area in the northwest corner of the site, and the approximately 30.8 acres in the eastern portion of the site. The northwest corner of the site contains four single-story ranch-style residences, with trees and front yards located adjacent to Gardner Avenue (see Figure 3.1-3, photo location 12). Overhead utility poles are visible along Gardner Avenue. The eastern portion of the Remainder Area supports more tilled agricultural land, a single-story ranch-style residence along East Yosemite Avenue, Yosemite Church, which is located in a large white building surrounded by trees, landscaping, and surface parking, and Stoneridge Christian School, which is located in five buildings surrounded by blacktop with a turf area and play structure located nearest East Yosemite Avenue and bordered by a 6-foot tall screened fence (see Figure 3.1-4, photo location 9, and Figure 3.1-5, photo location 8). A second residence is located behind the church parking lot. Three single-story residences are located adjacent to Hatch Road with more undeveloped agricultural land located on the north side of the church (see Figure 3.1-6, photo location 10). The lot at the corner of Hatch Road and East Yosemite Avenue is vacant.

Land north and east of the project site is within the County boundaries and is visually characterized by the presence of rural residential development and agricultural land. To the north, land adjacent to the project boundary in the County is also undeveloped agricultural land. To the east development in the County includes large lot residential with pockets of undeveloped land interspersed throughout. Trees and typical landscaping are present throughout the residential areas. Figure 3.1-7 (photo location 11) shows a residence in the County east of the project site, which is typical of other residences in the vicinity.

Land south and west of the project site is within the City boundaries and is visually characterized by the presence of primarily residential development. This includes higher density residential areas located to the west of the project site, across Gardner Avenue and south of East Yosemite Avenue (Figure 3.1-8, photo location 7, and Figure 3.1-9, photo location 5), and a small commercial development that includes medical offices and a surgery center located at the southwest corner of the intersection of Parsons Avenue and East Yosemite Avenue.

Views of the Project Site from the Surrounding Area

The project site is visible from vehicles traveling along Gardner Avenue, which borders the western edge of the project site, and residences that back up to Gardner Avenue. Current views from these areas consist of rural residential ranch style homes in the northwest corner of the site and tilled agricultural land. The project site is also visible from the south by vehicles traveling along East Yosemite Avenue and from residences that back up to East Yosemite Avenue. Views

include tilled agricultural land, heavy equipment and a gravel driveway, trees, surface parking and the buildings at Yosemite Church and Stoneridge Christian School. Views of the project site from Hatch Road along the eastern boundary include trees and ranch style single family residences. There is no public access from the north side of the project site. Photographs in Figure 3.1-10 (photo location 3) and Figure 3.1-11 (photo location 4), show views of the site from adjacent areas.

Views from the Project Site

Views looking west from the project site consist of the two lane Gardner Avenue with one and two-story homes, dense green shrubs and landscaping that appear to cover or block the backyard fences, some taller trees, and overhead electrical lines that run parallel to Gardner Avenue. The homes are stucco and wood; most are painted white and beige with gray roofs. The views to the south are unobstructed and include views of East Yosemite Avenue with the second stories and roofs of the one- and two-story homes adjacent to East Yosemite Avenue visible. The homes are typically brown or beige with either light brown or red tile roofs. Similar to the homes along Gardner Avenue, there are dense green shrubs that cover much of the backyard fence/wall that faces East Yosemite Avenue.

Looking to the north, there are views of tilled agricultural land with trees visible in the background. Looking west views are of Gardner Avenue, dense landscaping and green shrubs across Gardner Avenue looking west with the second stories and roofs of homes visible. Figures 3.1-12 (photo location 1) and 3.1-13 (photo location 2) show views of the surrounding area from the project site.

Views to the east from The Crossings portion of the project site include the Stoneridge Christian School, Yosemite Church and associated landscaping and parking adjacent to East Yosemite Avenue. Views to the east from the eastern portion of the Remainder Area consist of single-family residential lots with associated landscaping and utilities.

Existing Light and Glare Conditions

The majority of The Crossings portion of the project site is undeveloped and does not contain any sources of lighting. The small residence, barn and outbuildings located on approximately 3 acres within this portion of the site include sources of light that may be somewhat visible from properties north, west, and south of the site.

Existing development that generates a limited amount of light within the Remainder Area portion of the project site includes the four residences in the northwest corner of the site and the five residences, church, and private school in the eastern portion of the site.

Ambient nighttime light also emanates from interior and exterior building lighting, parking lot lighting, and streetlights in nearby neighborhoods to the south and west and commercial areas to

the southwest, as well as car headlights along Gardner Avenue and East Yosemite Avenue. Overhead street lights are installed along the sidewalks that extend along the southern side of East Yosemite Avenue and along the western side of Gardner Avenue.

3.1.3 Regulatory Setting

Federal Regulations

There are no specific federal or state regulations pertaining to visual quality or aesthetics.

State Regulations

The California State Department of Transportation (Caltrans) identifies a state system of eligible and designated scenic highways that, if designated, are subject to various controls intended to preserve their scenic quality. There are no state-eligible or state-designated scenic highways within the view shed of the proposed project.

Local Regulations

The project site is currently within the boundaries of Merced County and within the City of Merced Sphere of Influence (SOI). The project proposes to annex the site to the City. Although the site would be annexed to the City, and thus would not be subject to the County General Plan, the proposed project would be visible from properties within the County. Thus, relevant policies of the County General Plan are included in this section.

Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan includes the following policies relevant to aesthetics, light, and glare.

Policy UD-2.2 Maintain and Enhance the Unique Community Appearance of Merced

Implementing Actions

2.2.b Encourage the design of buildings that are in scale with adjacent development and harmonize with the character of the area or neighborhood. Through the site plan and design review process, encourage the preparation of architectural renderings of new buildings in scale and context with existing improvements in the area to permit a broader range of review options.

2.2.c Discourage the visual monotony along major streets created by designs which use uninterrupted walls or fences with little or no landscaping. Where it is necessary to develop

fences or walls as visual screens or sound barriers, encourage the use of earth berms and other landscape techniques to minimize visual monotony. Fences and walls shall have landscaped areas with varied setbacks where they are visible from public streets. Adequate measures, such as the annexation to the City's Services Community Facilities District (CFD), shall be imposed on development permits to assure that long-term maintenance of these areas can be assured. Openings for pedestrian access in such walls will also be encouraged at intervals along arterial streets. Modified open-end cul-de-sacs will be encouraged in place of continuous walls along collector and lower-order streets.

2.2.d Encourage the development of methods to require acceptable levels of landscaping for new development and for effective maintenance in highly visible areas of the community. Landscape designs should incorporate water conservation and low maintenance features.

2.2.e Expand the City's programs for undergrounding utility lines and require all new utility lines to be placed underground. Working closely with PG&E and other utility companies, the City shall continue its efforts to place existing overhead electrical and communication lines underground. All new utility lines shall be placed underground. Utility boxes, which cannot be placed underground, shall be screened from view in residential and commercial areas.

2.2.f Expand the City's policies which require architecturally suitable means of screening utility equipment and garbage containers. Site plan review procedures shall consider screening of utility equipment, garbage collection/recycling stations and other necessary appurtenant features of urban development.

City of Merced Municipal Code

The City of Merced Municipal Code includes specific requirements for parking lot landscaping and lighting. The portions of the City's code relevant to consideration of the potential aesthetic impacts of the proposed project are shown below.

Chapter 20.38, Parking and Loading

F. Landscaping

1. General Standards. All landscaping within parking areas shall comply with the requirements of Chapter 20.36 (Landscaping) in addition to the standards within this section.
2. Landscaping Defined. Except as otherwise specified in this section, landscaping and landscaped areas shall consist of drought-tolerant plant materials, including any combination of trees, shrubs, and ground cover.

3. Parking Lot Standards. As illustrated in Figure 20.38-2 (Parking Lot Landscaping Standards), the following landscaping standards, as well as the standards in the city's Standard Designs of Common Engineering Structures, shall apply to parking lots containing six (6) or more parking spaces. All landscape areas shall have an irrigation system.

a. Interior Landscaping. All areas within a parking lot not utilized for parking spaces or access/circulation shall be landscaped with plantings with drought-tolerant, non-invasive species.

b. Shade Trees.

(1) One (1) shade tree shall be provided for every six (6) parking spaces, or portion thereof, in a parking lot in addition to street trees.

(2) Shade trees shall be a minimum fifteen (15) gallon box in size and shall provide a minimum thirty (30)-foot canopy at maturity.

(3) Shade trees shall be of a type that can reach maturity within fifteen (15) years of planting and shall be selected from a city-approved list of canopy tree species suitable for the valley climate.

(4) Shade trees shall be arranged in a parking lot to provide maximum shade coverage (based on a thirty (30)-foot canopy) on August 21. The arrangement should approximate nearly fifty (50) percent shade coverage at noon on August 21 within fifteen (15) years of planting.

(5) The above standards may be modified with a minor use permit if alternative shade structures (including solar carports) are provided. Design standards for such shade structures shall be approved as part of the minor use permit process as well.

G. Lighting

1. A parking area with six (6) or more parking spaces shall include outdoor lighting that provides a minimum illumination of 1.0 foot candles over the entire parking area or as otherwise required by the building code.
2. Outdoor lighting as required by Subsection G.1 above shall be provided during nighttime business hours.
3. All parking space area lighting shall be energy efficient and designed so that any glare or spillage is directed away from residential properties.
4. All fixtures shall be hooded.

I. Screening. Parking lots of six (6) spaces or more shall comply with the following screening standards, unless otherwise approved with a minor use permit.

2. Height.

a. Screening adjacent to streets shall have a minimum height of two and one-half (2½) feet.

b. Screening abutting a residential zoning district shall have a minimum height of six (6) feet, except in required setback areas, where the minimum height shall be four (4) feet.

c. Commercial parking lots abutting residential zoning districts shall have a solid wall with a minimum height of six (6) feet.

3. Materials. Required screening may consist of one (1) or more of the following materials:

a. Low-profile walls constructed of brick, stone, stucco or other durable material with graffiti-proof coating materials or landscaping/vines.

b. Evergreen plants that form an opaque screen.

c. An open fence combined with landscaping to form an opaque screen.

d. A berm landscaped with ground cover, shrubs, or trees.

20.46.030 - General design standards for multi-family dwellings.

B. Exterior Treatment.

1. Blank walls shall be treated with a variety of textures, use of projecting details that create shade/shadow and contrasting trim materials.

2. Any pipes, vents or tubes, etc., on the roof shall be painted or otherwise covered to match roof color or shall be screened.

3. Ground-mounted air conditioning units shall be screened from public view, using either landscaping or a combination of landscaping and screening comprised of the same materials as used on the buildings.

D. Parking.

1. Parking areas shall be screened from public right-of-way by landscaping, which may include berms or fencing/screening.

2. Parking areas shall be landscaped with a minimum of one (1) tree per every six (6) spaces.

3. Parking areas shall be lit at night for security reasons, but the lighting shall not spill over onto adjacent properties.

E. Trash Collection Area.

2. Refuse collection areas shall be screened with the same and/or complementary materials and colors used on the main buildings.

20.46.040 - Specific design standards for multi-family dwellings.

A. All Multi-Family Dwelling in the Planned Development Zoning District and Multi-Family Dwellings with Five (5) or more Units (or Three (3) or more Units on Corner Lots) in Non-Planned Development Zoning Districts. In addition to the standards in Section 20.46.040 above, such units shall comply with the following:

1. Building construction shall not exceed the plane established by 1:1 height and setback ratio from any exterior property line of a lot or parcel, for more than 50 percent of the allowable building area at any established distance from said exterior property line.
2. A minimum of 1 tree per 3 units is required, and foundation plantings with a minimum mean horizontal depth of 3 feet covering the equivalent of a minimum of 50 percent of the overall horizontal building frontage shall be required in the overall project area.
3. Fences.
   a. Private balconies or patios shall be screened with solid or near-solid fencing/railings.
      (1) Materials used shall be comparable quality and aesthetics to those used on the rest of the project.
      (2) The color shall complement or match building trim.
   b. Patio or Swimming Pool. Following standards exclude perimeter fencing.
      (1) Fencing shall use the same materials, textures and colors as are used for the main building.
      (2) Fencing shall not include chain link.
4. Parking, Garage, and Carports.
   a. Carports shall have fascia boards. Materials for the fascia board shall match building material(s) of main structures; both fascia boards and vertical members (supports, screening elements, etc.) shall be painted to match or complement building trim.
   b. A directory, with a list of all apartment unit identifications and a schematic or other locational device/site plan, shall be required in proximity to each parking lot entrance for use by emergency vehicles or visitors:
      (1) Materials and color(s) of the directory will match/complement the building(s).
      (2) City's approval is required for its placement and dimension, including orientation and lighting arrangements.
5. Mechanical and Utility Equipment and Trash Collection Area.

a. No roof-mounted air-conditioning equipment shall be permitted.

b. Trash Collection Areas.

(1) The perimeter of trash enclosures shall be planted with landscaping, such as shrubs or climbing evergreen vines, unless otherwise required by the city.

(2) Decorative gates shall enclose a trash area; walk-in access for tenants, other than the main gates to the trash area, shall be provided unless otherwise required by the city.

c. Utility meters shall not be located within setback nor should they be visible from the public right-of-way, consistent with the following:

(1) A 3-foot clear space shall be provided in front of the meters;

(2) The meters shall be located near the front of the complex, but may be along the side of a unit;

(3) The meters may be screened with plants or materials as long as the utility company can still reach the meters to read them;

(4) Screening materials shall be the same as used on main buildings and shall be painted to match/complement building colors; and,

(5) The meters shall be located away from parking areas where they could be hit or backed into.

B. Multi-Family Dwellings in the Planned Development Zoning District. In addition to the standards in Section 20.46.030 and 20.46.040.A above, such units shall comply with the following: No composition roof materials shall be permitted except three-dimensional, architectural grade shingles.

Merced County 2030 General Plan

The Merced County 2030 General Plan Natural Resources Element includes the following policies that address scenic resources.

Policy NR-4.1 Scenic Resource Preservation (RDR) Promote the preservation of agricultural land, ranch land, and other open space areas as a means of protecting the County's scenic resources.

Policy NR-4.3 Building Design (RDR) Require that siting and design of buildings protect, improve, and enhance the scenic quality of the built and natural environments and take full advantage of scenic resources through site orientation, building setbacks, preservation of view sheds, height limits, and the use of appropriate construction materials and exterior modulation.

Policy NR-4.5 Light Pollution Reduction (RDR) Require good lighting practices, such as the use of specific light fixtures that reduce light pollution, minimize light impacts, and preserve views of the night sky.

3.1.4 Impacts

Methods of Analysis

The value attached to changes in visual character is largely subjective. This EIR does not assign a judgment of "good" or "bad" to a proposed change; rather, it identifies any "substantial adverse effect," as defined below, as a significant environmental impact.

The descriptions of the project site and the surrounding area provided in Section 3.1.2 are derived from a site visit and photographs. The Merced Vision 2030 General Plan was reviewed to determine what visual elements have been deemed valuable by the community. Similarly, the Merced County 2030 General Plan was reviewed to identify the applicable visual elements that are valued within the County. The impact analysis focuses on the manner in which development could alter the visual elements or features that exist in or near the project area.

This analysis assumes that development of the project site would comply with the City's General Plan goals and policies, improvement standards, and design standards; therefore, such policies and standards are not specifically identified as mitigation. Where specific design details are not available from which to verify compliance with City standards, the impact analysis notes the specific standards that would be applicable and identifies the mechanisms by which compliance with those standards would be verified by City staff prior to issuance of building permits,

Items Addressed in the Initial Study

The Initial Study prepared for the project (see Appendix B) determined that the project would not have an adverse effect on a scenic vista because the project site is not within any of the City's 11 designated scenic corridors. In addition, none of the three highways that pass through the City of Merced (140, 59, and 99) are listed as state scenic highways within the City of Merced or this portion of Merced County. The project site is currently tilled land used for growing crops and does not contain any trees or rock outcroppings. Therefore, the project would not substantially damage scenic resources within a State scenic highway and these issues are not further addressed.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. In urbanized areas, conflict with applicable zoning and other regulations governing scenic quality.
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Impacts and Mitigation Measures

Impact 3.1-1: Implementation of the proposed project may degrade the existing visual character or quality of the site and the surrounding area and/or conflict with applicable zoning and other regulations governing scenic quality. This would be a less than significant impact.

The project site is located at a point of transition between the urbanized area within the City and the non-urbanized area within the County. The site is designated as a Rural Residential Center on the Merced County General Plan Land Use Policy Diagram, Figure LU-1 (Merced County 2013a). The County's zoning designation for the project site is Rural Residential (R-R), which provides areas for rural residential development, hobby farming, and limited animal raising operations with less than a full range of urban services. The project site is located within the City's SOI and is designated Rural Residential (RR) in the City of Merced Vision 2030 General Plan (Merced Vision 2030 General Plan, Figure 2-3). Land surrounding the project site to the south and west within the City is designated low density residential in the City's 2030 General Plan and zoned low density residential (R-1-6) with a small area at the southwest corner of Parsons Avenue and East Yosemite Avenue designated commercial/office and zoned Residential Planned Development (RP-D 20). Land to the north in the unincorporated County is designated Rural Residential and zoned A-R. The City and County zoning designations for the project site and surroundings is shown on Figure 2-5, Zoning Designations. The City's General Plan and zoning ordinance do not regulate scenic quality other than building height and general aesthetics.

The Crossings

The project proposes a General Plan Amendment that would change the land use designation of The Crossings portion of the project site to Neighborhood Commercial (C-N) and High-Medium Density Residential (HMD), once annexed. The project also proposes to pre-zone this portion of the site to Planned Development (P-D). Under the P-D zoning, the City must approve a Site

Utilization Plan that includes land use designations for the project site. The Site Utilization Plan for The Crossings would apply a land use designation consistent with R-4 zoning for the residential portion of the site and a land use designation consistent with Neighborhood Commercial (C-N) zoning for the mixed use portion of the site.

The City's zoning ordinance identifies that the P-D zoning district allows for high quality development that deviates from standards and regulations applicable to other zoning districts within the City. The P-D zoning districts are intended to promote creativity in building design, flexibility in permitted land uses, and innovation in development concepts. The P-D zoning districts are also intended to provide a mechanism by which to ensure a proposed project is consistent with the General Plan (City of Merced 2016). Permitted land uses within a P-D zone would be required to conform to the applicable General Plan designation; thus, the proposed project would be required to comply with the development standards of the proposed land use designations of C-N and HMD. Under Municipal Code Section 20.20.020, and as required by Chapter 20.66 of the City's Municipal Code (City of Merced 2016), the development standards for the proposed project would be included within the Final Site Utilization Plan, which would prescribe the density, setbacks, structure height, building architecture and design, parking, and landscape requirements. Since a Final Site Utilization Plan would be required to be approved by the Site Plan Review Committee, the proposed project would reflect the allowed building heights and scenic quality as approved by the City. Under Municipal Code Section 20.20.020, approval of the Final Site Utilization plan and mitigation measures would be required as a part of the approval and construction of the proposed project. Thus, because construction would not be permitted to proceed until approval of a Final Site Utilization plan, and approval of that plan would be contingent on the plan meeting the City's development standards, potential impacts associated with conflicts with zoning regulations would be **less than significant**.

Remainder Area

The project proposes to pre-zone the 40.2-acre Remainder Area to Low Density Residential (R-1-10) and Urban Transition (U-T). No new development within the Remainder Area is proposed at this time. If development within the portion of the Remainder Area zoned R-1-10 is proposed in the future, it would require approval of a tentative subdivision map to create single-family residential lots with a minimum size of 10,000 square feet. If development within the portion of the Remainder Area zoned U-T is proposed in the future, the proposal would need to include a rezone request since no additional non-agricultural development is permitted under the U-T zone. Both a tentative subdivision map application and a rezone request are discretionary actions requiring environmental review under CEQA. As part of the environmental review, the City would evaluate the proposed development to ensure compliance with the design standards included in the Municipal Code (City of Merced 2016), such the single-family residential standards provided in Municipal Code Section 20.08, including the Development Standards provided in Table 20.08-

2. Thus, because construction would not be permitted to proceed until the City has verified that site plan meets the applicable City development standards, potential impacts associated with conflicts with zoning regulations would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 3.1-2: Implementation of the proposed project may introduce new sources of light or glare which could cause an annoyance to adjacent residential uses. This would be a potentially significant impact.

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as "light trespass." Types of light trespass include spillover light and glare. Spillover light, which is light that illuminates surfaces beyond the intended area, is typically caused by artificial lighting sources, such as from building security lighting, signs, parking lot lights, roadway lights, and stadium lights on playing fields. Spillover light can adversely affect light-sensitive uses, such as residential neighborhoods at nighttime. The type of light fixture determines the extent to which light will spill over onto adjacent properties and/or be visible from far away. Modern, energy-efficient fixtures that face downward, such as cutoff-type fixtures and shielded light fixtures, are less obtrusive than light fixtures that have been used in the past.

The second type of light trespass is glare, which results when a light source in the field of vision is brighter than the eye can comfortably accept. Glare can result when sunlight or artificial light reflects off building exteriors, such as glass windows or other highly reflective surface materials. Squinting or turning away from a light source is an indication of glare. Glare is particularly associated with high light intensity. Glare can be reduced by design features that block direct line of sight to the light source and that direct light downward, with little or no light emitted at high (near horizontal) angles, because these types of light sources prevent light from traveling long distances. Cutoff-type light fixtures minimize glare because they emit relatively low-intensity light at these angles. Glare resulting from sunlight reflecting off building exteriors can be reduced with design features that use low-reflective glass and exterior materials and colors that absorb, rather than reflect, light.

The Crossings

The majority of the Crossings portion of the project site is undeveloped and currently does not contain any source of lighting. There is an approximately 3-acre portion that includes a small residence, barn and outbuildings that include sources of light. Ambient nighttime light also emanates from nearby neighborhoods to the south and west, as well as from commercial areas

to southwest, and car headlights along Gardner Avenue and East Yosemite Avenue. Adjacent neighborhoods have lighting on individual homes and street lighting at night. Currently, there are no sources of glare within the Crossings portion of the site.

The proposed project would introduce new sources of light into the area, including security lighting, parking lot lights, building lights, landscape lighting, car headlights, illuminated signage, and light emitted from the interior of the buildings through windows. The amount of light would be typical of urban areas. Views into the project site at night would be altered by these sources of artificial light. In addition, lighting introduced by the proposed project could be an annoyance if it spills into backyards or homes, because it could interfere with sleeping or other activities. Furthermore, the proposed project could result in light spillover on the neighboring agricultural and rural residential properties to the north and a general increase in ambient light levels that would be visible from offsite properties.

Parking Lot and Building Lighting

The specific end-users of the proposed 66,000 square feet of commercial space within the project are not known, and thus the likely hours of operation for the commercial uses has not been determined. If businesses are open during evening hours, some building and parking lot lighting would be needed and could cause light spillover into adjacent and nearby residential properties and increased ambient light levels. After business hours, low level building lighting and some parking lot lights would remain on all night for security, which could also result in increased ambient light levels in the project vicinity.

Within the project site, light and glare from car headlights would be limited to people parking and driving along internal roadways. On-site parking is proposed adjacent to the project boundaries. Along the northern site boundary, parking for the multi-family residential buildings would be set back from the boundary with a 10-foot deep landscape area and a 6-foot tall masonry wall would be constructed at the property line. Parking lot landscaping for the multi-family portion of the project would include a minimum of one shade tree for every six parking spaces as required by Section 20.38.070 of the City's Zoning Ordinance. The setback, wall, and shade trees would also extend along the western and eastern property lines, which are adjacent to both sections of the Remainder Area. The setback, wall, and shade trees would help shield adjacent properties from direct exposure to onsite lighting. Along the western and southern boundaries of The Crossings component, adjacent to N Gardner Avenue and E Yosemite Avenue, a larger landscaped setback, approximately 30 feet deep and including a separated sidewalk, would be provided. Parking lot landscaping within the mixed-use portion of the project would also include a minimum of one shade tree for every six parking spaces as required by Section 20.38.070 of the City's Zoning Ordinance. A detention basin is proposed on the north side of the commercial uses, which would provide a separation from the existing residences located in the northwest portion of the Remainder Area.

The landscaped setback and shade trees would help shield adjacent properties from direct exposure to onsite lighting.

Project lighting would include building lights, parking lot lights, and lighting for pedestrian pathways interior to the project site. Section 20.38.030 of the City's Zoning Ordinance requires that parking lot lighting be "energy efficient and designed so that any glare or spillage is directed away from residential properties" and that all fixtures be hooded. Similarly, Section 20.46.030 of the City's Zoning Ordinance requires that parking area lighting for multi-family developments be designed such that "lighting shall not spill over onto adjacent properties." Compliance with the Zoning Ordinance would ensure that lighting within parking areas for both the multi-family buildings and the mixed-use buildings does not spillover onto adjacent residential properties. However, lighting within the project site could contribute to an increase in the nighttime ambient lighting levels in the area, which could lead to annoyance for residents of nearby property, particularly for the rural residential properties north of the site. This is a **potentially significant** impact.

Offsite Vehicle Lights

The proposed project would contribute additional cars to local roadways during the nighttime hours, but traffic on local roads would not increase significantly relative to what exists today. The project includes a main entrance off East Yosemite Avenue that would provide access to the student housing portion of the site. This driveway would be directly across from Chaparral Drive. Another driveway is proposed off East Yosemite Avenue to access the commercial area with two additional driveways off Gardner Avenue. The residences located to the south, across East Yosemite Avenue, do not front East Yosemite Avenue, but are set back from the road with landscaping, a sidewalk, and a fence that blocks the backyards from the road. The same is true for residences that back up to Gardner Avenue. None of the residences in this area front onto Gardner Avenue.

The proposed project is not proposing any new roadways that would potentially shine headlights directly into an adjacent residence, contributing to an unacceptable condition. The proposed project would not result in the creation of substantial levels of glare associated with car headlights that would be any different from current conditions along roadways in the area, thus impacts associated with vehicle lights would remain **less than significant**.

Glare from Building Features

Glare is caused by light reflections from pavement, vehicles, and building materials, such as reflective glass, polished surfaces, or metallic architectural features. During daylight hours, the amount of glare depends on the intensity and direction of sunlight. The proposed three-story student housing buildings, particularly in the architectural style and building materials identified for the project, would not include the large expanses of reflective surfaces necessary to generate

substantial glare, as shown in Figure 2-7, Proposed Multi-Family Building Elevations. The two-story mixed-use buildings would use large storefront windows on the first floor and residential-scale windows on the second floor, as shown in Figure 2-8, Proposed Mixed-Use Building Elevations. These windows would be shielded with awnings and overhangs that would reduce the potential for these reflective surfaces to generate glare. Additionally, the mixed-use buildings would be placed interior to the site, with parking lots placed between the buildings and the adjacent public roadways, which would further reduce the potential for glare from windows to cause adverse effects for neighboring properties or people traveling along the adjacent roadways. Thus, the Crossings component of the project is anticipated to result in **less than significant** effects due to glare.

Conclusion

The Crossings component does not include any buildings or uses that would generate glare that could create a hazard to motorists or a nuisance to nearby residences. The proposed onsite landscaping along the project's frontage with Gardner Avenue and East Yosemite Avenue and surrounding the multi-family area would serve to shield light from the proposed buildings, and from vehicles traveling along internal roadways. Compliance with the Zoning Ordinance requires use of hooded fixtures to ensure that parking lot lighting does not spillover onto adjacent properties. However, building and parking lot lighting could cause annoyance due to increases in the ambient light levels in the project vicinity, which is considered a **potentially significant** impact.

Remainder Area

Existing development within the Remainder Area portion of the project site includes four residences located in the northwest corner of the project site and five residences and a church located in the eastern portion of the project site. No new development that could introduce new sources of light and glare area is proposed at this time. However, if development is proposed in the future, it is anticipated compliance with the City's Zoning Ordinance would address spillover light, similar to the analysis of light and glare associated with The Crossings component of the project. Because it is not known if future development could result in the creation of glare this is considered a **potentially significant impact**.

Mitigation Measures

The following mitigation measures would reduce impacts from light and glare to a less-than-significant level by establishing performance standards for lighting fixtures, light levels, and building materials that ensure light and glare would not adversely affect existing land uses in the project vicinity.

The Crossings/Remainder Area

3.1a Lighting throughout the project site shall be 'dark sky friendly' by meeting the following requirements:

1. Parking lot lighting shall be designed to provide a minimum of 1 footcandle of light in all portions of the parking lot, a maximum of 1 footcandle at the outer edge of all parking areas, and a maximum of 1 foot candle at a height of 10 feet along the property line;
2. All outdoor lighting, including that required for steps, stairs, walkways, and building entrances shall be directed downward and shall use low-glare and full-cutoff fixtures;
3. All outdoor lighting shall include controls that automatically extinguish the lighting when sufficient daylight is available using a control device or system such as a photoelectric switch, astronomic time switch or equivalent functions from a programmable lighting controller, building automation system or lighting energy management system, all with battery or similar backup power or device; and
4. No floodlight fixtures shall be used.

3.1.5 Cumulative Impacts

The geographic scope of the cumulative impact analysis varies depending on the specific environmental issue area being analyzed. The scope of the cumulative impact analysis for aesthetics includes the area that comprises the view shed of and from the project site, which includes development in the immediately surrounding areas.

The cumulative context for light considers other development in the surrounding area that could affect the same area as that affected by project-generated light.

As discussed previously, the proposed project would not alter scenic vistas or resources because there are no designated scenic vistas or scenic resources in the area. The cumulative change in scenic vistas and scenic resources is a local effect of the project and not cumulatively considerable because there are no scenic vistas or resources in the immediate project vicinity. Therefore, these issues are not discussed in the cumulative analysis.

Impact 3.1-3: The proposed project could contribute to cumulative changes in the existing visual character of the area. This would be a less-than-significant impact.

The Crossings/Remainder Area

The project site is located at a point of transition between the urbanized area within the City and the non-urbanized area within the County. As stated under Impact 3.1-1, the County land use designation for the site is Rural Residential Center (Merced County 2013a) and the County's zoning designation for the project site is Rural Residential (R-R). The project site is located within the City's SOI, indicating that it is anticipated to be annexed to the City, and is designated Rural Residential (RR) in the City of Merced Vision 2030 General Plan (City of Merced 2012a). The City's General Plan EIR analyzes the cumulative impacts to visual resources, including the area containing the project site. The General Plan EIR finds that buildout of the General Plan would have a less than significant cumulative impact on visual resources within the City's SOI (City of Merced 2012b), thus there is no significant cumulative aesthetic impact to which the project would contribute. Although development within the City associated with the City's General Plan would change the visual conditions in portions of the City, the General Plan EIR finds that adherence to policies and actions set forth by the City's General Plan and Municipal Code would ensure that these changes serve to enhance the City's visual character by promoting development that is consistent with existing neighborhoods. Because new development and redevelopment activities associated with the General Plan would be compatible with existing surrounding land uses, the visual character of the City would be maintained. The proposed project as well as all other projects within the City and its SOI are required to follow the City's design requirements as identified in the General Plan and Municipal Code, which encourage design elements that are consistent with the development's surroundings. Therefore, a **less-than-significant** impact would occur.

Mitigation Measures

No mitigation measures are required.

Impact 3.1-4: The proposed project could contribute to a cumulative increase in light and glare. This would be a less-than-significant impact.

The Crossings /Remainder Area

Current development within the area surrounding the project site has introduced artificial lighting, including property lighting, street lighting from adjacent residential uses to the south and west, and vehicle headlights along Gardner Avenue and East Yosemite Avenue. Future development both in the City and County in the surrounding area is also anticipated to generate an increase in light. Future development in the City would be required to comply with City requirements that

necessitate all lighting be shielded with a hood to reduce light spillover. Development that may occur north of the project site would be regulated by the County General Plan and County Code. Merced County General Plan policy NR-45 also requires using light fixtures that reduce light pollution and minimize light impacts. Due to the anticipated development around the perimeter of the existing City limits, on the edge of more rural, less dense development in the County the addition of light generated by past, present, and probable future development in the City and County surrounding the project site is considered a **potentially significant** cumulative impact.

As discussed in Impact 3.1-3, development of The Crossings portion of the project site as well as future development in the Remainder Area would introduce new sources of light. The proposed project could contribute to the existing ambient light in the area by introducing exterior building lights, parking lot lights, security lighting, landscape lighting, illuminated signs, car headlights, and interior-building light emitted through windows. Building and parking lot lights would be timed to turn on and off at specific times and would be shielded to prevent light spillover. For security purposes, there would be some building lights and parking lot lights left on during the evening hours. However, all lighting would be required to comply with the City's Zoning Ordinance and with the 'dark sky' standards included in Mitigation Measure 3.1a; therefore, the project's contribution to an increase in light would not be cumulatively considerable and the project's contribution to the cumulative impact would be **less than significant**.

There are no buildings or other uses in the City or County near or surrounding the project site that create glare and due to the suburban nature of the City it is not anticipated that new development would create large expanses of reflective glass, polished surfaces, or metallic architectural features that could result in glare effects. Therefore, glare generated by past, present and probable future development is considered a less-than-significant cumulative impact and the project's contribution would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.1.6 References Cited

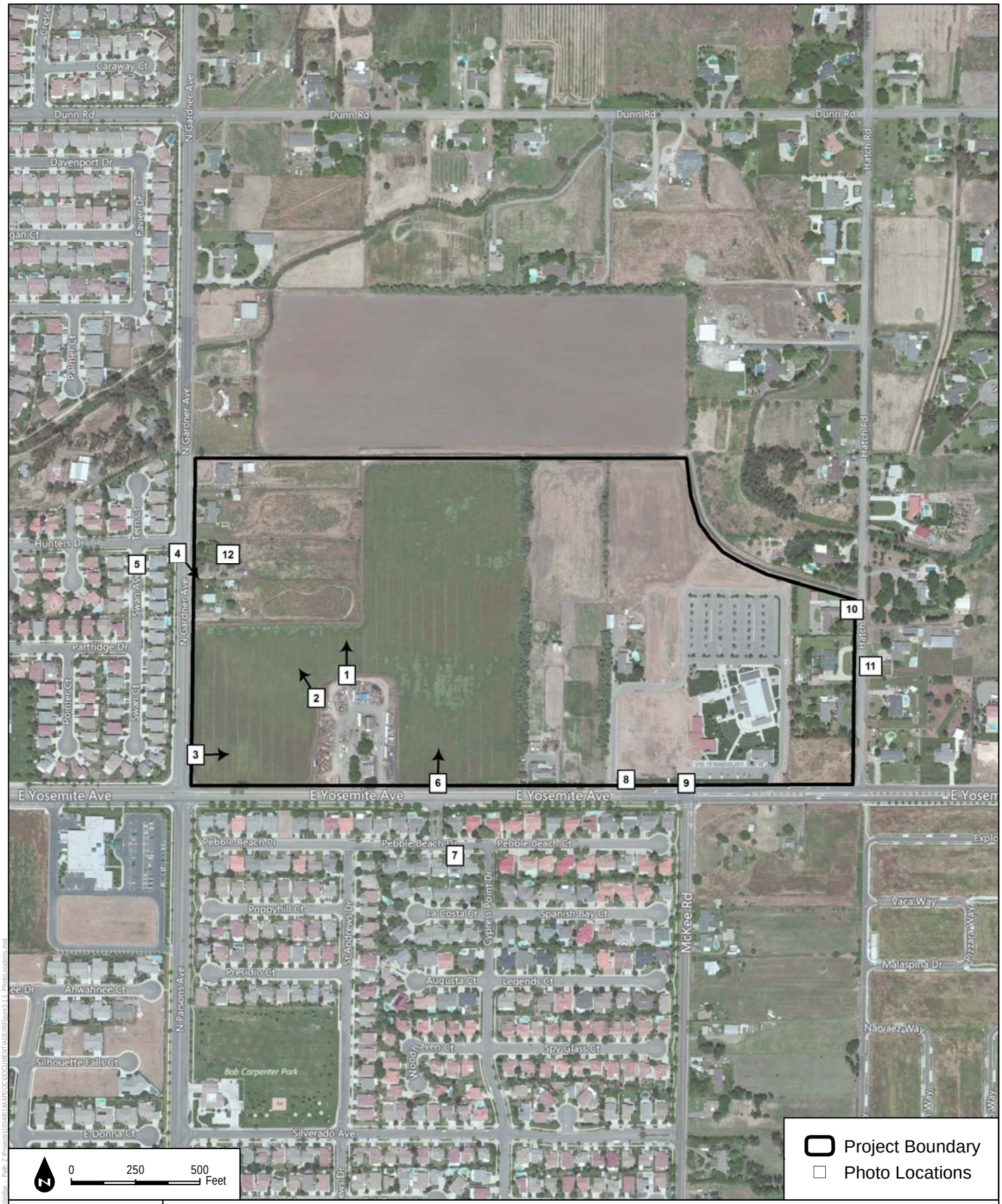
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SOURCE: Bing Maps (Accessed 2017)

FIGURE 3.1-1

Photo Locations

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Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project

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FIGURE 3.1-2
View of Project Site from Residential Area Along E Yosemite Ave



FIGURE 3.1-3
House on Western Edge of Project Site

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FIGURE 3.1-4
View of Church from McKee Road



FIGURE 3.1-5
Stoneridge Christian School in Remainder Area

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FIGURE 3.1-6
Residence in Remainder Area along Hatch Road



FIGURE 3.1-7
Residence Across from Site Along Hatch Road

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FIGURE 3.1-8
Typical Residence in Residential Area South of E Yosemite Ave



FIGURE 3.1-9
Typical Residence in Gardner Ave Residential Area

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FIGURE 3.1-10
Looking East from Residential Area on Gardner Ave



FIGURE 3.1-11
View of Project Site from E Yosemite Ave and Gardner Ave Intersection

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FIGURE 3.1-12
Looking North Across Project Site



FIGURE 3.1-13
Looking West Across Project Site

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3.2 Agricultural Resources

3.2.1 Introduction

This section evaluates the potential effects on agricultural resources associated with development and operation of the Yosemite Avenue – Gardner Avenue to Hatch Road Annexation project (proposed project). Items discussed include the potential loss of protected agricultural resources, productivity of soils, impact of the project on surrounding agricultural areas, and the cumulative impact associated with the loss of agricultural resources. The Initial Study prepared for the project, provided in Appendix B, documents that the project site is not under a Williamson Land Act contract, nor is the project site zoned for agricultural uses; therefore, the Initial Study concluded that the project would not conflict with land zoned for agriculture or with a Williamson Act contract. In addition, the project site does not contain any forest or timberland resources and is not zoned for forest land, timberland, or timberland production. The project would have no impact on these resources and, accordingly, these resources are not further evaluated in this EIR.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. The Merced County Local Agency Formation Commission (LAFCo) submitted a comment letter in response to the 2016 NOP that raised concerns regarding agricultural resources. The letter identified issues regarding the conversion of Prime Farmland present on the project site and emphasized the need for adequate mitigation measures to compensate for the loss of productive farmland. In addition, the California Department of Conservation (DOC) submitted a comment letter in response to the 2020 NOP noting that the project site is currently in agricultural use and contains Prime and Unique Farmland, recommending use of a conservation easement to mitigate the loss of agricultural resources, and recommending that the EIR consider potential impacts to other agricultural resources and activities in the project vicinity. Both NOPs and all comments received in response to each NOP are provided in Appendix A.

Information referenced to prepare this section includes the *Merced Vision 2030 General Plan* (City of Merced 2012a), Merced Vision 2030 General Plan EIR (City of Merced 2012b) DOC Farmland Mapping and Monitoring Program (DOC 2021), Merced County Department of Agriculture 2018 Report on Agriculture (Merced County 2018), and U.S. Department of Agriculture Soil Resource Report (NRCS 1962).

3.2.2 Environmental Setting

History of Agriculture in Merced County

The State of California maintains a 54 billion-dollar agricultural economy, which is more than twice the size of any other state in the United States (CDFA 2017). The San Joaquin Valley, or Central Valley, stretches from Redding in the north to the Tehachapi Mountains in the south and is bounded by the Coast Range to the west and the Sierra Nevada Mountains to the east. The Central Valley is one of the most productive agricultural areas in the world and produces more than half of the fruits, vegetables and nuts grown in the United States (CCLT 2014). The region relies heavily on canals, ditches, and groundwater for irrigation (City of Merced 2012a).

The project site is within the County of Merced, which is within the Central Valley. The County is the fifth largest agricultural producing county in the State of California and produces billions of dollars' worth of agricultural products. The County's top five agricultural commodities, according to the 2018 Merced County Agriculture Report, includes milk, almonds, chickens, cattle and calves, and sweet (County of Merced 2018).

Farmland Classifications

The DOC, under the Division of Land Resource Protection, developed and implements the Farmland Mapping and Monitoring Program (FMMP) as a way to classify various types of farmland. Specifically, the DOC produces maps and statistical data under the FMMP that are used for analyzing impacts to California's agricultural resources. FMMP maps are updated every 2 years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The FMMP rates agricultural land according to soil quality and irrigation status, with the best quality land labeled Prime Farmland. There are eight FMMP categories of agricultural lands, as listed here in order of importance: (1) Prime Farmland, (2) Farmland of Statewide Importance, (3) Unique Farmland, (4) Farmland of Local Importance, (5) Grazing Land, (6) Urban and Built-up Land, (7) Other Land, and (8) Water. Table 3.2-1, Farmland Mapping and Monitoring Program Farmland Designations, provides the definition for each of these eight FMMP agricultural land classifications.

Table 3.2-1
Farmland Mapping and Monitoring Program Farmland Designations

FMMP Category	Description
Prime Farmland (P)	Farmland with 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 4 years prior to the mapping date.

Table 3.2-1
Farmland Mapping and Monitoring Program Farmland Designations

FMMP Category	Description
Farmland of Statewide Importance (S)	Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the last FMMP mapping date.
Unique Farmland (U)	Farmland of lesser quality soils used for 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 4 years prior to the mapping date.
Farmland of Local Importance (L)	Land of importance to the local agricultural economy as determined by each county board of supervisors and a local advisory committee. (For Tulare County, this is defined as "lands that produce dry-land grains (barley and wheat); lands that have physical characteristics that would qualify for 'Prime' or 'Statewide Importance' Farmlands except for the lack of irrigation water; and lands that currently supply confined livestock, poultry, and/or aquaculture operations.")
Grazing Land (G)	Land on which the existing vegetation is suited to the grazing of livestock.
Urban and Built-up Land (D)	Land occupied by structures with a building density of at least 1 unit per 1.5 acres, or approximately 6 structures per 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
Other Land (X)	Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
Water	Perennial water bodies with an extent of at least 40 acres.

Source: DOC 2019a

The project site contains approximately 26.3 acres of land designated as Prime Farmland, and 2.1 acres of Unique Farmland within The Crossings development area, which is located in the western portion of the project site. Additionally, there are approximately 7.9 acres of Farmland of Local Importance, 9.4 acres of Rural Residential Land, 7.7 acres of Semi-Agricultural and Rural Commercial Land, and 15.2 acres of Urban and Built Up Land within the approximately 40.2-acre Remainder Area (DOC 2021). Figure 3.2-1 shows the location of farmland resources on the project site. The Agricultural Element of the Merced County General Plan recognizes that

agriculture is the "prominent economic segment in the County and accounts for more than 90 percent of all land area" and identifies the key factors supporting agricultural activity within the County as including "rich soils, accessible irrigation water, favorable climate, a large labor force, and reliable access to local, national, and global markets" (Merced County 2013a). Further, the County's General Plan EIR identifies that in 2010 the County contained 271,100 acres of Prime Farmland, 109,030 acres of Unique Farmland, and 65,057 acres of Farmland of Local Importance (Merced County 2013b).

The California Land Conservation Act of 1965, known as the Williamson Act, allows for local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. The Williamson Act aims to preserve open space and agricultural land from unnecessary development pressures. See section 3.2.3 for further discussion. The County of Merced maintains Williamson Act contracts as part of the State of California Williamson Act agricultural land preservation program. Within the City of Merced's SOI, there are 71 acres of land subject to a Williamson Act contract. The project site is not located within or adjacent to land subject to a Williamson Act contract (City of Merced 2012b).

Soil Classifications

There are several methods of classifying soil quality for agricultural uses. One method involves a soil capability rating provided by the Natural Resources Conservation Service (NRCS). Capability ratings indicate, in a general way, the suitability of soils for most kinds of field crops. The broadest capability groups are designated by Roman numerals I through VIII. The majority of soil contained within the project site is likely Class I, II, III and IV, based on a NRCS Soil Survey completed in 1962.[1] Prime Farmland usually consists of Class I and II soils. Class I soils have slight limitations that restrict their use; Class II soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices; Class III soils have severe limitations that reduce the choice of plants or require special conservation practices, or both; and, Class IV soils have very severe limitations that restrict the choice of plants or require very careful management, or both (NRCS 1962).

Another method of evaluating soil quality for agricultural uses is the "Storie Index." This index numerically expresses the relative degree of suitability of a soil for general intensive agriculture, as it exists at the time of evaluation. The rating is based on soil characteristics only and is obtained by evaluating such factors as soil depth, surface texture, subsoil characteristics, drainage, presence of salts and alkali, and topography. Storie Index ratings have been combined into six grades as follows: Grade 1 (Excellent) – 80 and 100; Grade 2 (Good) – 60 and 79; Grade 3 (Fair)

[1] This was the most recent data available from the NRCS. Due to the fact that the project site is still designated as Prime Farmland, Unique Farmland, and Farmland of Local Importance, one can infer that the integrity of the soils has remained relatively consistent since this determination in 1962.

– 40 and 59; Grade 4 (Poor) – 20 and 39; Grade 5 (Very Poor) – 10 and 19; and Grade 6 (Non-agricultural) – Under 10. Based on a rough estimation from general descriptions in the NRCS Soil Survey, soils on the project site likely range from 51 to 85 or Grade 3 to Grade 1 (NRCS 1997). The project site has good suitability of soil based on the Storie Index rating as well as a wide range of capability ratings that may or may not severely limit the growth of certain crops.

Existing Agricultural Operations within the Project Site and Remainder Area

The project site, including both The Crossings component and the Remainder Area, have been utilized for agricultural purposes. Currently, The Crossings component of the project site is used for agriculture with the exception of an approximately 3-acre portion that is developed with a residence, barn and associated outbuildings. The Remainder area contains single-family residential development, a church and ancillary buildings, as well as active agricultural uses.

3.2.3 Regulatory Setting

Federal Regulations

Farmland Protection Policy Act

The federal Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that federal programs are administered in a manner that is compatible with state and local units of government and private programs and policies to protect farmland.

The NRCS, responsible for implementation of the Farmland Protection Policy Act, categorizes farmland in a number of ways. These categories include: Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Prime Farmland is considered to have the best possible features to sustain long-term productivity. Farmland of Statewide Importance includes farmland similar to Prime Farmland, but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique Farmland is characterized by inferior soils and generally needs irrigation depending on climate. The Land Evaluation and Site Assessment is a numeric rating system used by the NRCS to evaluate the relative agricultural importance of farmlands.

State Regulations

Department of Conservation

The DOC FMMP classifies and maps land within the state as Prime Farmland, Farmland of Statewide Importance, Unique Farmland (collectively referred to as Important Farmland), Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, and Other Land. “Prime Farmland” is the most prized farmland as it contains the best combination of soil characteristics.

Important Farmland is defined as either the presence of prime agricultural soils, presence of soils of statewide agricultural importance or active agricultural lands. The FMMP is used to provide information regarding Important Farmland conversion to decision makers for use in planning the present and future use of California's agricultural land resources.

Williamson Act

The California Land Conservation Act of 1965, known as the Williamson Act, allows for local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use to promote the continued use of the land in agricultural or related open space use. In return, landowners receive decreased property tax assessments, because they are based upon farming and open space uses rather than full market value. Local governments receive an annual subvention (subsidy) of forgone property tax revenues from the State via the Open Space Subvention Act of 1971.

The goal of the Act is the voluntary conservation and continuing production of agricultural land to preserve open space and agricultural land from unnecessary development pressures (DOC 2019b). The County of Merced maintains Williamson Act contracts as part of the State of California Williamson Act agricultural land preservation program. As noted above, no land within the project site is subject to a Williamson Act contract (City of Merced 2012b).

Cortese-Knox-Hertzberg Act

Government Code Section 56064 defines '"Prime Agricultural Land" as an area of land, whether a single parcel or continuous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:

(a) Land that qualifies, if irrigated, for rating as class I or class II in the NRCS land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.

(b) Land that qualifies for rating 80 through 100 Storie Index Rating.

(c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.

(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.

(e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years.

Local Regulations

Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan Urban Expansion Chapter (2012) designates the project site for future residential development. The following policies regarding agriculture preservation are applicable to the project.

Policy UE-1.1 Designate areas for new urban development that recognize the physical characteristics and environmental constraints of the planning area.

Implementing Actions:

1.1.a: Direct development away from significant concentrations of "Prime" agricultural soils and give priority to the conversion of non-prime agricultural land if reasonable alternatives exist.

1.1.e: Explore techniques to preserve areas of significant agricultural soils, aircraft noise and safety zones, buffers between cities, scenic areas, flood plains, endangered species habitats, etc. from incompatible urban development.

Policy UE-1.5 Promote annexation of developed areas within the City's Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI) during the planning period.

Policy OS-2.1 Protect agricultural areas outside the City's SUDP/SOI from urban impacts.

Policy OS-5.2 Protect soil resources from the erosive forces of wind and water.

Implementing Actions:

2.1.c: Minimize conflict between agricultural and urban uses by requiring buffers, such as landscape areas, roadways, or creeks, to separate these uses.

Merced County 2030 General Plan

The 2030 Merced County General Plan, Agricultural Element includes policies designed to protect agricultural resources (Merced County 2013a). Relevant policies are listed below.

Policy AG-2.1 Protect agriculturally-designated areas and direct urban growth away from productive agricultural lands into cities, Urban Communities, and New Towns.

Policy AG-2.2 Protect productive agricultural areas from conversion to non-agricultural residential uses by establishing and implementing an agricultural mitigation program that matches acres converted with farmland acres of similar quality to those converted preserved at a 1:1 ratio. Coordinate with the six cities in Merced County and the Merced Local Agency Formation Commission (LAFCo), consistent with LAFCo's statutory mission to preserve agricultural land and open space, to establish consistent standards and mitigation for the loss of farmland. In addition, the Land Evaluation and Site Assessment Model (LESA model) may be used to determine whether the conservation land is of equal or greater value than the land being converted.

Policy AG-2.3 Formalize County-City agreements emphasizing concentration of new development in cities that include agricultural mitigation and avoidance of productive agricultural land conversion.

Policy AG-3.2 In consultation with the MCAC, require buffers between proposed non-agricultural uses and adjacent productive agricultural operations to protect farms, dairies, and agricultural-related production facilities from conflicts with non-agricultural uses, specifically rural residences and urban area residential development.

Policy AG-3.3 In consultation with the MCAC, establish agricultural buffer standards based on the type of agricultural operation, and historic cropping and pesticide application patterns, to be applied to rural residences and urban area residential development proposals adjacent to productive agricultural land and agricultural-related facilities.

Policy AG-3.4 Require a minimum 200-foot buffer between new residential development within designated urban areas and existing agricultural operations, and establish design/maintenance guidelines for developers and property owners.

3.2.4 Impacts

Methods of Analysis

The City's 2030 General Plan, General Plan Final EIR, and DOC FMMP were all reviewed to establish the existing land use designations, zoning, and farmland status and to determine potential impacts to agricultural lands.

Issues Addressed in the Initial Study

The project site is not under a Williamson Land Act contract, nor is the project site zoned for agricultural uses; therefore, the project would not conflict with land zoned for agriculture or with a Williamson Act contract. In addition, the project site does not contain any forest or timberland resources and is not zoned for forest land, timberland, or timberland production. Therefore, these issues are not further evaluated.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation, to non-agricultural use.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

Impacts and Mitigation Measures

Impact 3.2-1: Implementation of the proposed project may result in the significant conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses. This would be a potentially significant impact.

The Crossings

The Crossings component of the project proposes to develop a mix of commercial and residential on approximately 28.4 acres of the project site. The project proposes the construction of 540 apartments, a clubhouse, and approximately 60,000 square feet of commercial space. The Crossings portion of the project site includes land designated as Prime Farmland (±26.3 acres) and Unique Farmland (±2.1 acres) by the State's FMMP (DOC 2021), as shown on Figure 3.2-1 and Table 3.2-2.

Table 3.2-2
The Crossings Farmland

FMMP Designation	Acres
Prime Farmland	26.3
Unique Farmland	2.1
Total	***28.4***

Source: DOC 2021

Currently, The Crossings portion of the project site is used for agriculture with the exception of an approximately 3-acre portion that is developed with a residence, barn and associated outbuildings. The majority of the site, including the 3 acres that are developed, is designated as Prime Farmland. The southwestern corner of The Crossings area is designated Unique Farmland.

The Crossings portion of the project site is currently designated Rural Residential Center in Merced County's 2030 General Plan and Rural Residential in the City's General Plan (City of Merced 2012a; County of Merced 2013a). City General Plan Policy OS-2.1 requires agricultural areas outside the City's SUDP/SOI be protected from urban impacts, but the City's General Plan does not include any specific policies that protect agricultural resources. The County's 2030 General Plan encourages development adjacent to existing urban areas as opposed to rural or agricultural areas. The project site is located within the City's SOI and adjacent to the City's current boundary and is proposed to be annexed into the city. Land on the south and west sides of The Crossings portion of the project site are designated Urban and Built Up land under the FMMP while land north of the project site is designated Prime Farmland.

Because the proposed project is located within the City's SUDP/SOI boundaries, the loss of agricultural land was previously analyzed as part of the City's Merced Vision 2030 General Plan EIR. The City has designated lands within the SUDP/SOI for urban development, further indicating its long-range plan for development (City of Merced 2012a). By converting Prime Farmland and Unique Farmland to urban uses, the project would result in a direct and project-specific impact due to the loss of 26.3 acres of Prime Farmland and 2.1 acres of Unique Farmland. This is considered a **significant impact.** Implementation of Mitigation Measure 3.2a is required to reduce the significance of this impact. The measure requires that a conservation easement be established over the same amount of Prime Farmland and Unique Farmland that the project would affect. This conservation easement would ensure that agricultural land elsewhere in the County is protected from future development, and therefore retained for agricultural or open space use. This would offset the impacts of the project by protecting agricultural resources commensurate with the resources that would be lost due to the project.

Remainder Area

The Remainder Area of the project site includes land designated as Farmland of Local Importance (±7.64 acres), Rural Residential Land (±9.28 acres), Semi-Agricultural and Rural Commercial Land (7.23 acres) and Urban and Built Up Land (±16.04 acres) by the State's FMMP (DOC 2021), as shown on Figure 3.2-1 and Table 3.2-3.

Table 3.2-3
Remainder Area Farmland

FMMP Designation	Acres
Farmland of Local Importance	7.64
Rural Residential Land	9.28
Semi-Agricultural and Rural Commercial Land	7.23
Urban and Built Up Land	16.04
Total	***40.2***

Source: DOC 2021

Under the proposed project, no development would occur within the approximately 40.2-acre Remainder Area. The existing uses and activities would not change as part of this project. However, the Remainder Area would undergo a rezone to Urban Transition (U-T) in the northwestern portion of the area and R-1-10, which allows single-family development with a minimum lot size of 10,000 square feet, in the eastern two-thirds of the Remainder Area. The U-T zone district allows for continued use of the site under the existing land uses and for development of new agricultural uses but precludes any additional non-agricultural development. The R-1-10 zone district would allow for development of residential uses on the site; thus the proposed rezoning would make development within the eastern portion of the Remainder Area more likely in the future. However, none of the land within the Remainder Area is designated as Prime Farmland or Unique Farmland, thus conversion of the land to non-agricultural uses would result in a **less than significant** impact and no mitigation is required.

Mitigation Measures

The following mitigation measure would be implemented to provide compensation for impacts associated with the conversion of Prime Farmland and Unique Farmland. Implementation of this mitigation measure would reduce this impact to **less-than-significant**.

The Crossings

3.2a Prior to issuance of a grading permit, the Applicant shall provide a permanent conservation easement over 28.4 acres of land designated under the California Department of Conservation Farmland Mapping and Monitoring Program as Prime Farmland (26.3 acres) and Unique Farmland (2.1 acres) to ensure that Prime Farmland and Unique Farmland is retained at a 1:1 ratio consistent with the County's past productive farmland conservation mitigation practice. The easement shall be recorded by the project Applicant, or equivalent mitigation may be provided by the Applicant through payment to a qualified third party land trust with 501(b)(3) status, subject to review and approval of the City of Merced Planning and Community Development Department.

Remainder Area

No mitigation is required for the Remainder Area.

Impact 3.2-2: Implementation of the proposed project would not result in other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. This would be a less-than-significant impact.

The Crossings/Remainder Area

As discussed under Impact 3.2-1, development of The Crossings portion of the project would result in conversion of ±26.3 acres of land designated as Prime Farmland and ±2.1 acres of Unique Farmland to non-agricultural uses and future development of the Remainder Area portion of the site would result in conversion of ±7.64 acres designated as Farmland of Local Importance (DOC 2021).

Land used for agricultural production borders the project site directly to the north. The land north of both The Crossings portion of the project site and the Remainder Area is designated Prime Farmland by the FMMP and the land north of the Prime Farmland is designated Farmland of Local Importance (D)C 2021). The land immediately north of the project site is also included in the City's SUDP/SOI and is designated as Agricultural Residential (A-R) and zoned as Rural Residential (R-R), the same as the project site.

All other land adjacent to the project site is designated Urban and Built Up land. To the south and west of the project site, development in the City includes established residential neighborhoods, while more rural residential development characterizes the land uses to the east of the project site, as shown on Figure 2-2.

Development of The Crossings component of the project is consistent with adjacent existing urban uses to the south and west. The Crossings component would connect to City utilities including storm drainage, water, sewer, electrical, and natural gas located within or along adjacent roadways. The project would connect to the City's infrastructure but would not extend any utilities beyond the project site. Within the right-of-way of East Yosemite Avenue, the project may include addition of a second parallel sewer line or upsizing of the existing sewer line between the project site and the sewer main located west of the site. This would not extend any new utility services to agricultural land outside of the project boundaries.

The existing agricultural land north and east of the project site is also within the City's SUDP/SOI and thus is anticipated to be converted to urban uses in the future, subject to being annexed into the City. Such development would be required to comply with the City of Merced's urban expansion policies that provide direction as to how the City should analyze annexations.

Policy UE-1.1 directs the City to designate areas for new urban development that recognize the physical characteristics and environmental constraints of the planning area. The Implementing Actions associated with this policy pertaining to agricultural preservation include

- Implementing Action 1.1.a: This Implementing Action states that the City should direct development away from significant concentrations of "Prime" agricultural soils and give priority to the conversion of non-prime agricultural land if reasonable alternatives exist. This Implementing Action would serve to direct urban expansion away from significant concentrations of "prime" soils and where agricultural use can still be realistically and economically sustained. However, this Implementing Action also recognizes that it is not possible to avoid all "prime" soils. This Implementing Action is intended to promote growth that occurs compact form within the City's growth area will decrease the pressure to develop outside urban areas where more prime soils and intensive agricultural operations now exist.

- Implementing Action 1.1.b: This Implementation Action states that the City should limit development and development related impacts on agricultural lands along the City's urban fringe.

- Implementing Action 1.1.d: This Implementation Action states that the City should work with Merced County to establish policies to protect prime agricultural area around the SUDP/SOI, including the areas north of Highway 140, from future development. This process is intended to limit the expansion if the existing Rural Residential Centers and SUDP's into prime agricultural areas around the SUDP/SOI.

Policy UE-1.2 directs the City to foster compact and efficient development patterns to maintain a compact urban form. Implementing Actions associated with this policy pertaining to agricultural preservation include:

- Implementing Action 1.2.b: This Implementation Action states that the City should work with Merced County to ensure that existing unincorporated Rural Residential Centers in the Merced area are not expanded, and no new Rural Residential Centers are established.

Policy UE-1.3 directs the City to control the annexation, timing, density, and location of new land uses within the City's urban expansion boundaries. Implementing Actions associated with this policy pertaining to agricultural preservation include:

- Implementing Action 1.3.a: This Implementation Action states that the City should continue to require that all new urban development and annexations be contiguous to existing urban areas and have reasonable access to public services and facilities. This policy would prevent the conversion of agricultural lands that are not adjacent to the City boundary.

- Implementing Action 1.3.c: This Implementation Action states that the City should encourage phasing of new development, which would prevent premature conversion of agricultural land.

- Implementing Action 1.3.g: This Implementation Action provides a number of conditions annexation requests should consider, such as whether the annexation would result in the premature conversion of prime agricultural, and if so, assess whether there are alternative locations where this development could take place without converting prime soils.

These Policies and Implementing Actions serve to achieve the City's Urban Expansion Goals of providing and compact urban form, preserving agriculturally significant areas, and providing efficient urban expansion (City of Merced 2012a).

In addition, the Open Space, Conservation and Recreation Chapter of the General Plan contains Goal OS-2, which aims to protect regional agricultural resources. This goal is achieved through Policy OS-2.3, which states that the City should protect agricultural areas outside the City's SUDP/SOI from urban impacts. Implementing Actions associated with this policy pertaining to agriculture preservation and minimizing land use conflicts between residential development and agricultural operations include:

- Implementing Action 2.1.b: This Implementing Action states that the City should establish policies and programs which minimize conflicts between urban and agricultural uses. This Implementing Action suggests that the City should adopt a "right-to-farm" ordinance to inform residents of continued agricultural production and the lawful use of agricultural

chemicals, including pesticides and fertilizers, in proximity to urban areas, and to assert that no pre-existing or future agricultural operation would be considered a nuisance solely due to a change in adjacent land use or adjoining residential development.

- Implementing Action 2.1.c: This Implementing Action states that the City should minimize conflict between agricultural and urban uses by requiring buffers, such as landscape areas, roadways, or creeks, to separate these uses.

Specifically pertaining to these Implementing Actions from the Open Space, Conservation and Recreation Chapter of the General Plan, the project would introduce a residential land use adjacent to agricultural operations, which in turn could result in the residents of the project site being exposed to odors and/or chemical/fertilizer drift (City of Merced 2012a). The project has been designed to provide setbacks from the site boundaries through the inclusion of parking areas and internal driveways, which, as stated in Implementing Action 2.1.c, would be considered a buffer (i.e. roadway).

Merced County Ordinance 1213 is the county's right-to-farm ordinance, and the County's Zoning Code, Chapter 18.10.040, provides for specific agricultural setback requirements for residential uses. Because the project proposes annexation of the project site to the City, the project is not subject to either of these ordinances. However, they are discussed here because the project site is adjacent to existing agricultural use in the County.

Ordinance 1213 requires notification to residents of new residential development within 1,000-feet of an agricultural zone advising of the potential inconveniences created by agricultural operations but that these inconveniences are acceptable customs and standards of agricultural operations in the vicinity of the property. The property immediately north of the project site is designated by the County General Plan as Agricultural Residential. This land use designation allows single-family dwellings on large lots in a semi-rural environment and is typically applied to Rural Centers or at the edge of urban areas. The County General Plan notes that "this designation is often used as a buffer between urban and rural land uses." County General Plan Policy AG-3.8 required the County to "Update the County Code to rename the Agricultural Residential (AR) zone to Rural Residential to remove the implication that agriculture is the primary and desired use." This update has been completed, and the property is now zoned by the County as Rural Residential. The adjacent property to the north of the project site is also within the City SUDP/SOI and designated by the City General Plan as Rural Residential. Thus, neither the County nor City General Plan identify this adjacent property as a primarily agricultural area, and the requirements of Ordinance 1213 are not applicable to this property.

Chapter 18.10.040 of the County's Zoning Ordinance requires that new residential dwellings and/or other habitable structures be setback so as to provide a physical separation of 200 feet

between the habitable structure and any abutting parcels used for agricultural production. The agricultural setback may include roads, parking, trails, creeks, canals, and landscape features (County of Merced 2020).

The Merced County General Plan EIR (Merced County 2013b) found that "Zoning is the County's principal regulatory mechanism for protecting farmland, primarily through the designation of minimum parcel sizes and allowable uses in particular zones." Although the property to the north of the project site currently supports agricultural production, the property is not zoned as agricultural land. Further, this property is included in the City's SUDP/SOI and therefore is planned for future development and is not anticipated to remain in agricultural production in perpetuity.

Additionally, the Merced County General Plan EIR found that placement of urban uses "next to or in close proximity to intensely cultivated farmland" and "creation of relatively small numbers of individual residences on large lots scattered throughout the countryside" can lead to land use conflicts that reduce opportunities for agricultural activities (Merced County 2013b). Because the proposed project would develop medium density multi-family residential uses in a compact and concentrated land use pattern, rather than scattered or dispersed development, the project would contribute to the County's goals for supporting agricultural activities by reducing the extent to which residential development may encroach into agricultural areas.

Through the continued implementation of the City's General Plan policies pertaining to agricultural land preservation and minimization of agricultural-residential adjacency land use conflicts, the project would not contribute to or result in the conversion of adjacent agricultural land to non-agricultural uses outside of the project site. Thus, the project would have a **less-than-significant** impact on further conversion of Farmland to non-agricultural uses.

Mitigation Measures

No mitigation measures are required.

3.2.5 Cumulative Impacts

The effects of the proposed project, when considered with other projects in the region, could result in a cumulative impact to the loss of farmland resources. The geographic range for this analysis of potential cumulative impacts to agricultural resources is defined as the boundaries of Merced County.

Impact 3.2-3: The proposed project could contribute to cumulative loss in agricultural resources. This would be a significant and unavoidable impact.

Cumulative loss of agricultural land is a great concern in the State of California, especially within the Central Valley. As noted in the Merced County General Plan EIR, over 90 percent of the land within the County is considered to be agricultural land (County of Merced 2013b). The DOC releases detailed biennial reports of all land type conversions in acres, including those specifically within the County. From 1992 to 2014[2], the county had a net gain of 9,983 acres of urban/built-up space and a net loss of 1,058 acres of agricultural land. By agricultural land type, there was a net loss of 12,853 acres of Prime Farmland, a net loss of 4,929 acres of Farmland of Statewide Importance, a net increase of 17,997 acres of Unique Farmland, and a net loss of 4,179 acres of Farmland of Local Importance (DOC 1996). Based on the detailed Land Use Conversion publications, the majority of these changes stem from alterations in Farmland Classifications, including conversions from grazing land to agricultural land and changes to farmland determinations. Furthermore, the trend in data shows a greater conservation of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland in more recent years, signifying a concerted effort to maintain and conserve existing agricultural lands.

The City of Merced Vision 2030 General Plan EIR addressed the cumulative conversion of agricultural lands within the City's SUDP/SOI, which includes the project site, and determined that the impact would be significant and unavoidable. Specifically, the City's General Plan EIR found that implementation of the General Plan could result in conversion of approximately 8,750 acres of undeveloped land to developed urban land within the proposed SUDP/SOI and outside the City limits of Merced, of which 1,898 acres are Prime Farmland (City of Merced 2012b).

The City's General Plan EIR found that the Merced Vision 2030 General Plan includes Policies and Implementing Actions to ensure that the existing farmland within and surrounding the SUDP/SOI are not developed before they are needed; give priority to the conversion of non-prime agricultural land if reasonable alternatives exist; and encourage infill development and a compact urban form to reduce conversion of agricultural land. The City's General Plan EIR identified Mitigation Measure #3.2-1 to reduce conversion of agricultural land to non-agricultural uses by:

- encouraging property owners outside the City limits but within the SUDP/SOI to maintain their land in agricultural production until the land is converted to urban uses;

[2] This does not include the 2006-2008 report, formatting for this two year period was incompatible with the rest of the biennial reports; the "total area inventoried" varied from 1,261,927 acres in 1994 to 1,265,634 acres in 2014.

- working cooperatively with land trusts and other non-profit organizations to preserve agricultural land in the region, such as through conservation easements; and
- Promoting infill development and sequential and contiguous development over fringe and leap-frog development.

The City's General Plan EIR found that there were no additional feasible mitigation measures available to reduce or avoid the cumulative impact. Thus, despite adoption of policies and implementing actions to reduce conversion of agricultural land, the General Plan EIR concluded that conversion of Prime Farmland would be a significant and unavoidable impact from implementation of the General Plan. The City adopted a Statement of Overriding Considerations to address this impact, finding that the benefits of allowing development to occur in the SUDP/SOI outweighed the adverse effects due to loss of Prime Farmland, Unique Farmland, and Farmland of Local Importance within the City (City of Merced 2012c). The City determined that allowing land to be used for urban uses to accommodate housing growth consistent with local and regional projections was an important consideration.

Similarly, the Merced County General Plan EIR found that although the County's General Plan would direct future growth to designated communities within the unincorporated county and limit new development in unincorporated rural areas outside of urban area boundaries, the anticipated development under the General Plan could convert up to 10,316 acres of important farmland, including approximately 1,695 acres of prime farmland, to non-agricultural uses. The County's General Plan EIR noted that this could result in conversion of "important farmlands scattered among parcels within existing unincorporated rural communities, including Rural Centers and Highway Interchange Centers that have not yet been built out," such as the UC Merced University Community (Merced County 2013b).

The County's General Plan EIR found that several of the goals and policies in the General Plan would reduce the degree to which non-agricultural uses encroach upon agricultural lands. In particular, the General Plan would support a balanced land use pattern for agricultural and non-agricultural land uses, direct urban growth towards existing and suitably located new communities, support compact development patterns, and encourage urban growth to occur where public facilities and services are available rather than on productive agricultural lands, thereby preserving important farmland. The County's General Plan EIR also found that "agricultural parcels located near existing urban uses, specifically suburban areas, may have limited long-term viability for active agricultural activities due to urban edge conflicts" including nuisance complaints; and that "because many agricultural parcels have grown smaller through subdivision, small agricultural parcels may no longer be viable to pursue future agricultural operations. As a result, keeping agricultural land use designations on these scattered parcels, particularly if they are situated near urban uses, would not ensure ongoing agricultural use." The

County's General Plan EIR identified several mitigation measures to address conversion of agricultural land though modifications and revisions to General Plan policies. The EIR found that those policy revisions would promote preservation of agricultural lands but "would not prevent the overall net loss of important farmlands within the county associated with future urban and rural development within agricultural areas" and that there were no additional feasible mitigation measures available to reduce the net loss of farmland. Thus, the County's General Plan EIR concluded that implementation of the General Plan would lead to a significant and unavoidable cumulative impact due to loss of agricultural resources and conversion of agricultural land to non-agricultural uses (Merced County 2013b).

The project would result in a cumulatively considerable contribution to the significant cumulative impact identified in both the City and County General Plan EIRs by resulting in the loss of 26.3 acres of Prime Farmland and 2.1 acres of Unique Farmland. This is considered a **significant** impact.

Mitigation Measures

The project would be required to implement Mitigation Measure 3.2a (above), which would offset the project's direct impact to agricultural resources. However, establishing a conservation easement over existing agricultural land does not create new agricultural land and thus does not offset or compensate for cumulative losses of agricultural land, and there are no feasible mitigation measures to offset or compensate for these cumulative losses. Thus, the project's contribution to this cumulative impact is a **significant and unavoidable** impact**.**

3.2.6 References Cited

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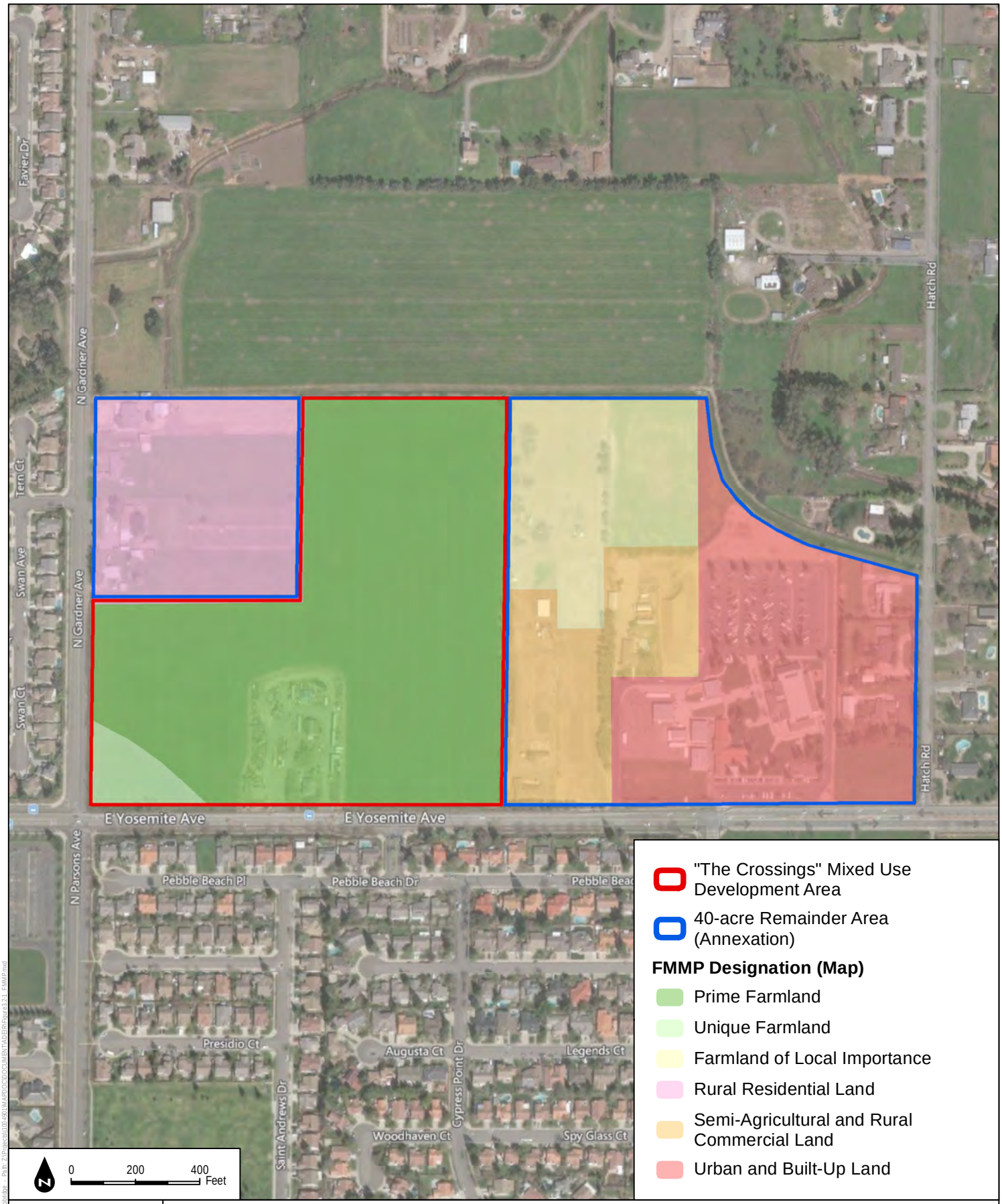
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DUDEK

SOURCE: Bing Maps 2019, CA Department of Conservation 2016

FIGURE 3.2-1

FMMP Designations

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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3.3 Air Quality

3.3.1 Introduction

This section evaluates the potential effects on air quality associated with development and operation of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This section describes the existing air quality conditions around the project site; outlines applicable federal, state, and regional regulations pertaining to air quality; and identifies potential project-specific and cumulative impacts on air quality and measures to minimize these impacts.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. The San Joaquin Valley Air Pollution Control District (SJVAPCD) submitted a comment letter that provides regulatory information but does not identify any project-specific concerns. The NOPs and all comments received in response to them are provided in Appendix A.

Key resources referenced to prepare this section include the Merced Vision 2030 General Plan (City of Merced 2012), the Merced County 2030 General Plan (Merced County 2013), and the SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015a). In addition, Dudek completed modeling of the air pollutant emissions associated with project construction and operation using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017). The CalEEMod modeling is provided in Appendix D.

3.3.2 Environmental Setting

Ambient air quality is generally affected by climatological conditions; the topography of the air basin; the type and amounts of pollutants emitted; and, for some pollutants, sunlight. The project site is located within the San Joaquin Valley Air Basin (SJVAB), which consists of eight counties and is spread across 25,000 square miles of Central California. The SJVAB is bordered on the east by the Sierra Nevada (8,000–14,491 feet in elevation), on the west by the Coast Ranges (averaging 3,000 feet in elevation), and to the south by the Tehachapi Mountains (6,000–7,981 feet in elevation). In the north, it extends to the northern boundary of San Joaquin County (SJVAPCD 2015a).

The San Joaquin Valley comprises the southern half of California's Central Valley, is approximately 250 miles long, and averages 35 miles wide with a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the San Joaquin Valley opens to the San Francisco Bay at the Carquinez Strait. Its northern end in the Sacramento Valley comprises the northern half of California's Central Valley.

The region's topographic features restrict air movement through and out of the SJVAB. As a result, the SJVAB is highly susceptible to pollutant accumulation over time.

Climate and Topography

The San Joaquin Valley is in a Mediterranean Climate Zone, influenced by a subtropical high-pressure cell most of the year and characterized by warm, dry summers and cooler winters. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summertime maximum temperatures in the San Joaquin Valley often exceed 100 degrees Fahrenheit (°F). The SJVAB averages 10.6 inches of precipitation per year (WRCC 2017).

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. A temperature inversion can act like a lid, restricting vertical mixing of air above and below an inversion because of differences in air density and thereby trapping air pollutants below the inversion. The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in air temperature inversions. Most of the surrounding mountains are above the normal height of summer inversions (1,500–3,000 feet). Wintertime high-pressure events can often last many weeks with surface temperatures lowering into 30°F–40°F. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutant to a few hundred feet.

Wind speed and direction play an important role in dispersion and transport of air pollutants. Winds in the San Joaquin Valley most frequently blow from the northwesterly direction, especially in the summer. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the San Joaquin Valley. Marine air can flow into the SJVAB from the Sacramento–San Joaquin River Delta and over Altamont Pass and Pacheco Pass. From there, it can flow through the San Joaquin Valley, over the Tehachapi Pass, and into the Mojave Desert Air Basin. The Coastal Range and the Sierra Nevada are barriers to air movement to the west and east, respectively. A secondary but significant summer wind pattern is from the southeasterly direction and can be associated with nighttime drainage winds, prefrontal conditions, and summer monsoons. During winter, winds can be very weak, which minimizes the transport of pollutants and results in stagnation events.

Two significant diurnal wind cycles that occur frequently in the San Joaquin Valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the San Joaquin Valley. In the mountains during periods of weak synoptic scale winds, winds tend to be upslope during the day and downslope at night.

Nighttime and drainage flows are pronounced during the winter when flow from the easterly direction is enhanced by nighttime cooling in the Sierra Nevada. Eddies can form in the valley wind flow and can recirculate a polluted air mass for an extended period.

Solar radiation and temperature are particularly important in the chemistry of ozone (O_3) formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily O_3) results from the atmospheric ROGs and NO_2 under the influence of sunlight. O_3 concentrations are very dependent on the amount of solar radiation, especially during late spring, summer and early fall. O_3 levels typically peak in the afternoon. After the sun goes down, the chemical reaction between N_2O and O_3 begins to dominate. This reaction tends to reduce O_3 concentrations in the metropolitan areas through the early morning hours. At sunrise, NO_x tends to peak, partly due to low levels of O_3 at this time and also due to the morning commuter vehicle emissions of NO_x.

Reaction rates generally increase with temperature, which results in greater O_3 production at higher temperatures. However, extremely hot temperatures can "lift" or "break" the inversion layer. Typically, if the inversion layer remains intact, O_3 levels peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, O_3 levels peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB. O_3 levels are low during winter periods when there is much less sunlight to drive the photochemical reaction.

Criteria Air Pollutants

Criteria air pollutants are pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive people from discomfort and illness. Pollutants of concern are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}), particulate matter equal to or less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), and lead. These pollutants are discussed below.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving

[1] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's "Criteria Air Pollutants" (EPA 2016), the California Air Resources Board's (CARB) "Glossary of Air Pollution Terms" (CARB 2016a), and CARB's "Fact Sheet: Air Pollution Sources, Effects, and Control" (CARB 2009).

the sun's energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) [2] and reactive organic gas (ROG) (also termed volatile organic compounds). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during late spring, summer, and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer and at the Earth's surface in the troposphere. The O_3 that the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground where people live. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to high O_3 can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, older adults, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_2 and nitric oxide are gases composed of a mixture of nitrogen and oxygen and are part of the group of compounds termed NO_x. NO_x plays a major role, together with ROGs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect terrestrial and aquatic ecosystems. The two major emissions sources of NO_2 are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs and may potentially lower resistance to respiratory infections (EPA 2016).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from

[2] NO_x is a general term pertaining to compounds of nitric oxide (NO), NO_2 and other oxides of nitrogen.

motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that affects the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air that can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides, NO_x, and ROG.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body.

Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, chronic respiratory or cardiovascular disease, and older adults may suffer worsening illness and premature death as a result of breathing particulate matter. Premature mortality has been linked to $PM_{2.5}$ exposure even in otherwise healthy populations. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in $PM_{2.5}$ and PM_{10} (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Before 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and, in severe cases, neuromuscular and neurological dysfunction. Of particular concern is low-level lead exposure during infancy and childhood. Such exposure is associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment and reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor that has been detected near landfills, sewage plants, and hazardous waste sites due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in the air can cause nervous system effects such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$, described above.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. In California, specific air toxics are designated as toxic air contaminants (TACs) through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act (17 CCR 93000). This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. Federal laws use the term hazardous air pollutants (HAPs) to refer to the same types of compounds that are referred to as TACs under state law.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos is a TAC of concern for the proposed project due to the demolition of buildings and structures. Asbestos is a fibrous mineral that is naturally occurring in ultramafic rock (a rock type commonly found in California) and is used as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, it is strictly regulated based on its natural widespread occurrence and its use as a building material. The risk of disease is dependent on the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs, and with time, may be linked to such diseases as asbestosis, lung cancer, and mesothelioma.

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016b). DPM is typically composed of carbon particles (“soot,” also called black carbon) and numerous organic compounds, including more than 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-

butadiene (CARB 2016b). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) as a TAC in August 1998 (17 California Code of Regulations [CCR] 93000). DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars, and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016b). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and older adults, who also often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population, and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The spores can be found in some areas, naturally occurring in soils, can become airborne when the soil is disturbed, and can subsequently be inhaled into the lungs. Valley Fever symptoms occur within two to three weeks of exposure. Approximately 60% of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. The fungus is very prevalent in the soils of California's San Joaquin Valley, including in Merced County. Merced County had more than 15 cases annually of Valley Fever per 100,000 people based on the incidence rates reported from 2008 to 2012 (California Department of Public Health 2017). Coccidioides is thought to grow best in soil after heavy rainfall and then disperse into the air most effectively during hot, dry conditions. New residents to the San Joaquin Valley have usually never been exposed to Valley Fever, and as a result are particularly susceptible to the infection. Many longtime residents of the area have at some time been exposed to the fungus, become infected, and have recovered, and are thus immune.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to an emissions source, or duration of exposure to air pollutants. The San Joaquin Valley Air Pollution Control District (SJVAPCD) considers hospitals, schools, parks, playgrounds, daycare centers, nursing homes, convalescent facilities, and residential areas as sensitive receptor land uses (SJVAPCD 2015b).

As discussed in Chapter 2, Project Description, the proposed project involves annexation of an approximately 68.6-acre site to the City of Merced, changes in General Plan and zoning designations for the site, and development of a mixed-use community called The Crossings on approximately 28.4 acres of the site. The approximately 40.2 acres of the site not included in The Crossings development are referred to in this EIR as the Remainder Area. With respect to The Crossings portion of the project site, the nearest sensitive receptors are the residences within the Remainder Area of the project site as well as the residential land uses located approximately 30 feet north of the project site's northern boundary. There are also residences across Gardner Avenue on the project's western boundary and residences to the south across Yosemite Avenue on the project's southern boundary. With respect to the Remainder Area of the project site, the nearest existing sensitive receptors are the residential land uses on the east side of Hatch Avenue and those north of the project site along Hatch Avenue. Future residents of The Crossings portion of the project would also be sensitive receptors in close proximity to the Remainder Area.

Existing Air Quality

Both the federal and state Clean Air Acts have established standards identifying the maximum allowable concentration of criteria air pollutants. The U.S. EPA and CARB use air quality monitoring data to determine if each air basin or county is in compliance with the applicable standards. If the concentration of a criteria air pollutant is lower than the standard or not monitored in an area, the area is classified as attainment or unclassified (unclassified areas are treated as attainment areas). If an area exceeds the standard, the area is classified as nonattainment for that pollutant.

The EPA has designated the SJVAB as a nonattainment area for the federal 8-hour O_3 standard, and CARB has designated the SJVAB as a nonattainment area for the state 1-hour and 8-hour O_3 standards. The SJVAB has been designated as a nonattainment area for the state 24-hour and annual PM_{10} standards, nonattainment area for the federal 24-hour and annual $PM_{2.5}$ standards, and nonattainment area for the state annual $PM_{2.5}$ standard. The SJVAB is designated as unclassified or attainment for the other criteria air pollutants. The status of the SJVAB with respect to the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air

Quality Standards (CAAQS) are summarized in Table 3.3-1, San Joaquin Valley Air Basin Attainment Status (Merced County.

Table 3.3-1
San Joaquin Valley Air Basin Attainment Status (Merced County)

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1-hour	No federal standard[1]	Nonattainment/severe
Ozone (O_3) – 8-hour	Nonattainment/extreme[2]	Nonattainment
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Respirable particulate matter (PM_{10})	Attainment[3]	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Nonattainment[4]	Nonattainment
Lead (Pb)[5]	Unclassifiable/attainment	Attainment
Sulfates (SO_4)	No federal standard	Attainment
Hydrogen sulfide (H_2S)	No federal standard	Unclassified
Vinyl chloride[5]	No federal standard	No designation
Visibility-reducing particles	No federal standard	Unclassified

Sources: SJVAPCD 2015a; EPA 2016b; CARB 2017a.
Notes: Attainment = meets the standards; Attainment (maintenance) = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or unclassifiable = insufficient data to classify; Unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

1 Effective June 15, 2005, the EPA revoked the federal 1-hour O_3 standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the *2004 Extreme Ozone Attainment Demonstration Plan* (SJVAPCD 2004) on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour O_3 nonattainment areas continue to apply to the SJVAB.

2 Though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour O_3 standard, EPA approved San Joaquin Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

3 On September 25, 2008, EPA re-designated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan.

4 The San Joaquin Valley is designated nonattainment for the 1997 $PM_{2.5}$ NAAQS. EPA designated the San Joaquin Valley as nonattainment for the 2006 $PM_{2.5}$ NAAQS on November 13, 2009 (effective December 14, 2009).

5 CARB has identified Pb and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined.

Under authority and oversight from the EPA pursuant to 40 Code of Federal Regulations (CFR) Part 58, the SJVAPCD and CARB maintain ambient air quality monitoring stations throughout the SJVAB, and the SJVAPCD currently operates 22 monitoring stations. In addition, the SJVAPCD gathers air quality data from a variety of monitoring sites from other contracted agencies (e.g., United States Marine Corps). Air quality monitoring stations usually measure pollutant

concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Not all air pollutants are monitored at each station; thus, data are summarized from the closest representative station that monitors a specific pollutant.

The closest ambient air quality monitoring station to the project site that monitors O_3, NO_x, PM_{10}, and $PM_{2.5}$ is the Coffee Avenue monitoring station, located at 385 South Coffee Avenue, Merced, California 95340, approximately 4 miles to the south of the proposed project. The data collected at this station are considered representative of the air quality experienced in the project vicinity. The closest monitoring station for SO_2 is the First Street monitoring station in Fresno, 52 miles to the south. The closest monitoring station for CO is the monitoring station in Madera, 33 miles to the south. The most recent background ambient air quality data from 2016 to 2018 and the number of days exceeding the ambient air quality standards are presented in Table 3.3-2, Local Ambient Air Quality Data.

Table 3.3-2
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O_3) – Merced									
Maximum 1-hour Concentration	ppm	State	0.09	0.097	0.093	0.104	2	0	4
Maximum 8-hour Concentration	ppm	State	0.070	0.087	0.085	0.0840	29	17	23
		Federal	0.070	0.086	0.084	0.083	28	16	21
Nitrogen Dioxide (NO_2) – Merced									
Maximum 1-hour Concentration	ppm	State	0.18	0.035	0.039	0.046	0	0	0
		Federal	0.100	0.035	0.038	0.045	0	0	0
Annual Concentration	ppm	State	0.030	0.006	0.007	0.007	0	0	0
		Federal	0.053	0.007	0.007	0.007	0	0	0
Carbon Monoxide (CO) – Madera									
Maximum 1-hour Concentration	ppm	State	20	5.1	3.1	1.9	0	0	0
		Federal	35	5.1	3.1	1.9	0	0	0
Maximum 8-hour Concentration	ppm	State	9.0	1.4	1.2	1.2	0	0	0
		Federal	9	1.4	1.2	1.2	0	0	0
Sulfur Dioxide (SO_2) – Fresno									
Maximum 1-hour Concentration	ppm	Federal	0.075	0.008	0.008	0.007	0	0	0

Table 3.3-2
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2016	*2017*	*2018*	*2016*	*2017*	*2018*
Maximum 24-hour Concentration	ppm	State	0.04	0.002	0.002	0.003	0	0	0
	ppm	Federal	0.140	0.002	0.002	0.003	0	0	0
Annual Concentration	ppm	Federal	0.030	0.005	0.06	0.006	0	0	0
Coarse Particulate Matter (PM_{10})[b] – Merced									
Maximum 24-hour Concentration	□g/m^3	State	50	64.5	144.0	142.7	38.9 (6)	76.6 (12)	59.6 (10)
		Federal	150	64.3	146.6	137.0	0	0	0
Annual Concentration	□g/m^3	State	20	29.5	35.8	34.6	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[b] – Merced									
Maximum 24-hour Concentration	□g/m^3	Federal	35	43	69.3	88.2	5.2 (5)	18.7 (18)	21.2 (21)
Annual Concentration	□g/m^3	State	12	11.9	13.2	15.1	—	—	—
		Federal	12.0	11.9	13.2	15.1	—	—	—

Sources: CARB 2018a; EPA 2018a.
Notes: — = not available; μg/m3 = micrograms per cubic meter; ND = insufficient data available to determine the value; ppm = parts per million
Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.
Exceedances of federal and state standards are only shown for O_3, particulate matter, and Carbon Monoxide. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.
[a] Mean does not satisfy minimum data completeness criteria.
[b] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

3.3.3 Regulatory Setting

Federal Regulations

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the

Clean Air Act, including setting the NAAQS for major air pollutants; setting HAP standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary-source emissions standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify national emissions standards for HAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State Regulations

Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB established the CAAQS, which are generally more restrictive than the NAAQS; both are shown in Table 3.3-3, State and National Ambient Air Quality Standards. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3,

CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

Table 3.3-3
State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 μg/m^3)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m^3)	0.070 ppm (137 μg/m^3)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m^3)	0.100 ppm (188 μg/m^3)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m^3)	0.075 ppm (196 μg/m^3)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m^3)
	24 hours	0.04 ppm (105 μg/m^3)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m^3	150 μg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m^3	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Lead[j, k]	30-day Average	1.5 μg/m^3	—	—
	Calendar Quarter	—	1.5 μg/m^3 (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m^3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m^3)	—	—
Sulfates	24 hours	25 μg/m^3	—	—

Table 3.3-3
State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016c.

Acronyms and Notes: μg/m^3 = micrograms per cubic meter; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ppm = parts per million by volume; SO_2 = sulfur dioxide

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m^3 to 12.0 μg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m^3, as was the annual secondary standard of 15 μg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] The CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state's Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants, pursuant to the California Health and Safety Code. Additionally, in accordance with AB 2728, the state list includes the federal HAPs. The State Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) in 1987 to address public concern over the release of TACs into the atmosphere. AB 2588 requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hot spots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment. If specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation (CARB 2012), On-Road Heavy Duty (New) Vehicle Program (CARB 2005), In-Use Off-Road Diesel Vehicle Regulation (CARB 2011), and New Off-Road Compression-Ignition (Diesel) Engines and Equipment program (CARB 2008). These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code, Section 41700

This section of the California Health and Safety Code states that a person cannot discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that

cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

Local Regulations

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SJVAB. The SJVAPCD jurisdiction includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare Counties, and the San Joaquin Valley portion of Kern County.

The SJVAPCD has prepared several air quality attainment plans to achieve the O_3 and particulate matter standards, the most recent of which include the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD 2014b), *2013 Plan for the Revoked 1-Hour Ozone Standard* (SJVAPCD 2013), *2007 PM_{10} Maintenance Plan and Request for Redesignation* (SJVAPCD 2007)*, 2012 $PM_{2.5}$ Plan* (SJVAPCD 2012), and *2015 Plan for the 1997 $PM_{2.5}$ Standard* (SJVAPCD 2015b). The following sections summarize key elements of these and other recent air quality attainment plans.

Ozone Attainment Plans

Extreme 1-Hour Ozone Attainment Demonstration Plan

The *Extreme 1-Hour Ozone Attainment Demonstration Plan*, adopted by the SJVAPCD Governing Board October 8, 2004, sets forth measures and emission-reduction strategies designed to attain the federal 1-hour O_3 standard by November 15, 2010, as well as an emissions inventory, outreach, and rate of progress demonstration. This plan was approved by the EPA on March 8, 2010; however, the EPA's approval was subsequently withdrawn effective November 26, 2012, in response to a decision issued by the U.S. Court of Appeals for the Ninth Circuit (*Sierra Club v. EPA*, 671 F.3d 955) remanding EPA's approval of these State Implementation Plan (SIP) revisions. Concurrent with the EPA's final rule, CARB withdrew the 2004 plan. The SJVAPCD developed a new plan for the 1-hour O_3 standard, the *2013 Plan for the Revoked 1-Hour Ozone Standard*, which it adopted in September 2013.

2007 8-Hour Ozone Plan

The *2007 8-Hour Ozone Plan*, adopted by the Governing Board on April 30, 2007, sets forth measures and a "dual path" strategy to attain the federal 1997 8-hour O_3 standard by 2023 for the SJVAB by reducing emissions of O_3 and particulate matter precursors (SJVAPCD 2007). The plan also includes provisions for improved pollution control technologies for mobile and stationary sources, as well as an increase in state and federal funding for incentive-based measures to

reduce emissions. Local measures would have been adopted by the SJVAPCD before 2012. This plan was approved by the EPA on April 30, 2012. On November 26, 2012, however, the EPA withdrew its determination that the plan satisfied the federal Clean Air Act requirements regarding emissions growth caused by growth in vehicle miles traveled. Other determinations in the EPA's March 1, 2012, rule approving the plan remain unchanged and in effect. The SJVAPCD is currently in the process of developing an O_3 plan to address EPA's 2008 8-hour O_3 standard, with attainment required by 2032.

2009 Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans

On April 16, 2009, the Governing Board adopted the *Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans* (2009 RACT SIP) (SJVAPCD 2009b). In part, the 2009 RACT SIP satisfied the commitment by the SJVAPCD for a new reasonably available control technology analysis for the 1-hour O_3 plan (see discussion of the EPA withdrawal of approval in the *Extreme 1-Hour Ozone Attainment Demonstration Plan* summary above) and was intended to prevent all sanctions that could be imposed by EPA for failure to submit a required SIP revision for the 1-hour O_3 standard. With respect to the 8-hour standard, the plan also assesses the SJVAPCD's rules based on the adjusted major source definition of 10 tons per year (due to the SJVAB's designation as an extreme O_3 nonattainment area), evaluates SJVAPCD rules against new Control Techniques Guidelines promulgated since August 2006, and reviews additional rules and rule amendments that had been adopted by the Governing Board since August 17, 2006, for reasonably available control technology consistency.

2013 Plan for the Revoked 1-Hour Ozone Standard

The SJVAPCD developed a plan for EPA's revoked 1-hour O_3 standard after the EPA withdrew its approval of the 2004 *Extreme 1-Hour Ozone Attainment Demonstration Plan* as a result of litigation. As a result of the litigation, the EPA reinstated previously revoked requirements for 1-hour O_3 attainment plans. The 2013 plan addresses those requirements, including a demonstration of implementation of Reasonably Available Control Measures and a demonstration of a rate of progress averaging 3% annual reductions of ROG or NO_x emissions every 3 years. The *2013 Plan for the Revoked 1-Hour Ozone Standard* was approved by the Governing Board on September 19, 2013 (SJVAPCD 2013). Based on implementation of the ongoing control measures, preliminary modeling had indicated that the SJVAB would attain the 1-hour O_3 standard by 2017, before the final attainment year of 2022 and without relying on long-term measures under the federal Clean Air Act Section 182(e)(5) ("black box reductions"). While the EPA has revoked the 1-hour O_3 standard, the State of California continues to rely on the same numeric standard as the former federal 1-hour O_3 standard, and the SJVAB continues to be in nonattainment for that standard.

2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan

On June 19, 2014, the Governing Board adopted the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD 2014b). This RACT SIP includes a demonstration that the SJVAPCD rules implement RACT. The plan reviews each of the NO_x reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability, and meet or exceed RACT. The plan's analysis of further ROG reductions through modeling and technical analyses demonstrates that added ROG reductions will not advance SJVAB's O_3 attainment. Each ROG (i.e., ROG) rule evaluated in the 2009 RACT SIP, however, has been subsequently approved by the EPA as meeting RACT within the last 2 years. The O_3 attainment strategy, therefore, focuses on further NO_x reductions.

2016 Plan for the 8-Hour Ozone Standard

On June 16, 2016, the Governing Board approved the 2016 Plan for the 2008 8-Hour Ozone Standard. The comprehensive strategy in this plan includes a combination of regulatory actions; incentive programs; technology advancement programs; policy and legislative activities; and public outreach, education, and communication. The plan builds from the regulations adopted under previous District attainment plans for ozone and $PM_{2.5}$ and is projected to reduce NO_X emissions by over 60% to bring the SJVAB into attainment of EPA's 2008 8-hour ozone standard no later than December 31, 2031

Particulate Matter Attainment Plans

2007 PM_{10} Maintenance Plan and Request for Redesignation

On September 20, 2007, the Governing Board approved the *2007 PM_{10} Maintenance Plan and Request for Redesignation* (SJVAPCD 2007). After achieving compliance with the annual and 24-hour NAAQS for PM_{10} during the period from 2003 to 2006,[3] the SJVAPCD prepared the *2007 PM_{10} Maintenance Plan and Request for Redesignation*. The plan includes future emission estimates through 2020 and, based on modeling, projects that SJVAB will continue to attain the PM_{10} NAAQS through 2020. The plan does not call for adoption of new control measures. Measures called for in the *2007 8-Hour Ozone Plan* and *2008 $PM_{2.5}$ Plan* (discussed subsequently) will also produce PM_{10} benefits; however, the plan does include a contingency plan if future PM_{10} levels were to exceed the NAAQS. It also includes a request that the EPA redesignate the SJVAB to attainment status for the PM_{10} NAAQS. On October 25, 2007, CARB approved the SJVAPCD's plan with modifications to the transportation conformity budgets. On

[3] Attainment is achieved if the 3-year annual average PM_{10} concentration is less than or equal to 50 $\mu g/m^3$ and the expected 24-hour exceedance days is less than or equal to 1.0.

September 25, 2008, the EPA redesignated the SJVAB to attainment for the PM_{10} NAAQS and approved the PM_{10} maintenance plan.

2008 $PM_{2.5}$ Plan

The SJVAPCD Governing Board adopted the *2008 $PM_{2.5}$ Plan* on April 30, 2008 (SJVAPCD 2008). This plan is designed to assist the SJVAB in attaining $PM_{2.5}$ standards, including the 1997 federal standards, 2006 federal standards, and state standard, as soon as possible. On July 13, 2011, the EPA issued a proposed rule partially approving and disapproving the *2008 $PM_{2.5}$ Plan*. Subsequently, on November 9, 2011, the EPA issued a final rule approving most of the plan with an effective date of January 9, 2012. However, the EPA disapproved the plan's contingency measures because they would not provide sufficient emission reductions.

2012 $PM_{2.5}$ Plan

Approved by the Governing Board on December 20, 2012, the *2012 $PM_{2.5}$ Plan* addresses attainment of EPA's 24-hour $PM_{2.5}$ standard of 35 micrograms (µg) per cubic meter (m^3), established in 2006. In addition to reducing direct emissions of $PM_{2.5}$, this plan focuses on reducing emissions of NO_x, which is a predominant pollutant in the formation of $PM_{2.5}$ in the SJVAB. The plan relies on a multilevel approach to reducing emissions through SJVAPCD efforts (industry, the general public, employers, and small businesses) and state/federal efforts (passenger vehicles, heavy-duty trucks, and off-road sources), as well as SJVAPCD and state/federal incentive programs to accelerate replacement of on-road and off-road vehicles and equipment. Through compliance with this attainment plan, the SJVAB would achieve attainment of the federal $PM_{2.5}$ standard by the attainment deadline of 2019, with the majority of the SJVAB actually experiencing attainment well before the deadline. The EPA lowered the $PM_{2.5}$ standard again in 2012 and is in the process of completing attainment designations.

2015 Plan for the 1997 $PM_{2.5}$ Standard

The Governing Board adopted the *2015 Plan for the 1997 $PM_{2.5}$ Standard* on April 16, 2015 (SJVAPCD 2015b). This plan addresses the EPA's annual $PM_{2.5}$ standard of 15 µg per m^3 and 24-hour $PM_{2.5}$ standard of 65 µg/m^3 established in 1997. While nearly achieving the 1997 standards, the SJVAB experienced higher $PM_{2.5}$ levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions; thus, the SJVAPCD was unable to meet the attainment date of December 31, 2015. Accordingly, this plan also contains a request for a one-time extension of the attainment deadline for the 24-hour standard to 2018 and the annual standard to 2020. The plan builds on past development and implementation of effective control strategies. Consistent with EPA regulations for $PM_{2.5}$ plans to achieve the 1997 standards, the plan contains most stringent measures, best available control measures, and additional

enforceable commitments for further reductions in emissions and ensures expeditious attainment of the 1997 standard.

Applicable Rules

Because Project construction and non-vehicular operational activities would be located within SJVAB and fall within the jurisdiction of the SJVAPCD, only SJVAPCD regulations are discussed in this section.

The SJVAPCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the SJVAPCD's permit authority and through its review and planning activities. Unlike stationary source projects, which encompass very specific types of equipment, process parameters, throughputs, and controls, air emissions sources from land use development projects are mainly mobile sources (traffic) and area sources (small dispersed stationary and other non-mobile sources), including exempt (i.e., no permit required) sources such as consumer products, landscaping equipment, furnaces, and water heaters. Mixed-use land development projects may include nonexempt sources, including devices such as small to large boilers, stationary internal combustion engines, gas stations, or asphalt batch plants.

Notwithstanding nonexempt stationary sources, which would be permitted on a case-by-case basis, SJVAPCD regulations VIII and IX generally apply to land use development projects and are described as follows:

Regulation IV – Prohibitions

- Rule 4101 – Visible Emissions
- Rule 4102 – Nuisance
- Rule 4601 – Architectural Coatings
- Rule 4902 Residential Water Heaters

Regulation VIII – Fugitive PM_{10} Prohibition

- Rule 8021 Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities
- Rule 8031 Bulk Materials
- Rule 8041 Carryout and Trackout
- Rule 8051 Open Areas
- Rule 8061 Paved And Unpaved Roads

- Rule 8071 Unpaved Vehicle/Equipment Traffic Areas

Pursuant to Rule 8021 Section 6.3, the Project would be required to develop, prepare, submit, obtain approval of and implement a Dust Control Plan.

Regulation IX – Mobile and Indirect Sources

- Rule 9110 General Conformity
- Rule 9120 Transportation Conformity
- Rule 9410 Employer Based Trip Reduction
- Rule 9510 Indirect Source Review (ISR)

Rule 9510 (Indirect Source Review)

The ISR rule, which was adopted December 15, 2005, and went into effect March 1, 2006, requires developers of new residential, commercial, and some industrial projects to reduce NO_x and PM_{10} emissions generated by their projects. Pursuant to Rule 9510, the purpose of the ISR program is to reduce emissions of NO_x and PM_{10} from new land development projects. In general, development contributes to air pollution in the SJVAB increasing the number of vehicles and vehicle miles traveled. ISR applies to development projects that require discretionary approval from the lead agency. The ISR rule also applies to transportation and transit projects whose construction exhaust emissions would equal or exceed 2 tons per year of NO_x or PM_{10}. The ISR rule requires submittal of an Air Impact Assessment application no later than the date on which application is made for a final discretionary approval from the public agency. The Air Impact Assessment contains the information necessary to calculate both construction and operational emissions of a development Project.

Section 6.0 of the ISR rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20% of the total construction NO_x emissions, and 45% of the total construction PM_{10} exhaust emissions. The rule also requires the project to reduce operational NO_x emissions by 33.3% and operational PM_{10} emissions by 50%, as compared to the unmitigated baseline. Section 7.0 of the ISR rule includes fee schedules for construction or operational excess emissions of NO_x or PM_{10}—those emissions above the goals identified in Section 6.0 of the rule. Monies collected from this fee are used by the SJVAPCD to fund emission reduction projects in the SJVAB on behalf of the project.

Rule 9610 State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs

Rule 9610 provides an administrative mechanism for the SJVAPCD to receive credit towards SIP requirements for emission reductions achieved in the SJVAB through incentive programs

administered by the SJVAPCD, United States Department of Agriculture Natural Resources Conservation Service, or CARB. On April 9, 2015, EPA finalized a limited approval and limited disapproval (for a minor administrative error) of Rule 9610 as a revision to the California SIP. Additional documentation regarding the effectiveness of the SJVAPCD's incentive programs can be found in *2015 Annual Demonstration Report SIP Credit for Emission Reductions Generated Through Incentive Programs* (SJVAPCD 2015c).

Merced County Association of Governments

The Merced County Association of Governments (MCAG) is the regional planning agency for Merced County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. MCAG serves as the federally designated metropolitan planning organization (MPO) for Merced County. With respect to air quality planning and other regional issues, MCAG has prepared the *2018 Regional Transportation Plan and Sustainable Communities Strategy* (2018 RTP/SCS) for the region (MCAG 2018). The 2018 RTP/SCS is a problem-solving guidance document that directly responds to what MCAG has learned about Merced County's challenges through the annual State of the Region report card.

In regards to air quality, the 2018 RTP/SCS sets the policy context in which MCAG participates in and responds to the air districts air quality plans and builds off the air districts air quality plans processes that are designed to meet health-based criteria pollutant standards in several ways (MCAG 2018). First, it complements air quality plans by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in air quality plans. Second, the 2018 RTP/SCS emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which is assessed in Section 8. Third, the 2018 RTP/SCS emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

City of Merced General Plan

The project site is currently within the boundaries of Merced County and within the City of Merced Sphere of Influence. The project proposes to annex the site to the City. Thus, only City of Merced General Plan policies are discussed in this section.

The City of Merced General Plan 2030 (General Plan) includes the following policy and strategies to limit air pollution (City of Merced 2012):

Policy SD-1.1 Accurately determine and fairly mitigate the local and regional air quality impacts of Projects proposed in the City of Merced.

Implementing Actions

1.1.a Implement uniform standards, analysis methods and significance thresholds recommended by the SJVAPCD for mitigating air quality impacts resulting from development.

1.1.b Ensure that significant air quality impacts identified during CEQA review are consistently and fairly mitigated.

1.1.c All air quality mitigation measures should be feasible, implementable, and cost effective.

1.1.d Work with the SJVAPCD to identify regional cumulative transportation and air quality impacts

1.1e Reduce the air quality impacts of development projects that may be insignificant by themselves, but cumulatively are significant.

1.1f Encourage innovative measures to reduce air quality impacts by coordination with the SJVAPCD, project applicants and other interested parties

Policy SD-1.2 Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.

Implementing Actions

1.2.b Consult with the SJVACPD during CEQA review for discretionary projects.

1.2e In cooperation with the SVAPCD, examine potential sources of revenue to pay for air quality improvement measures.

Policy SD-1.3 Integrate land use, transportation and air quality planning for the most efficient use of public resources and for a healthier environment.

Implementing Actions

1.3.a The city of Merced will consider air quality when planning the land uses and transportation systems to accommodate the expected growth in this community.

1.3b Transportation improvement should be consistent with the air quality goals and policies of the General Plan.

1.3.d Encourage construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.

1.3.f Provide for installation and maintenance of additional landscaping which helps maintain and improve air quality, by continuing to increase the extent of landscaped areas in the City using street trees, parking lot shading, median islands and landscape buffers.

Policy SD-1.5 Provide Public Facilities and Operations that can serve as a model for the Private Sector in Implementation of Air Quality Programs.

Implementing Actions

1.5.a Continue to support, encourage, and implement to the extent feasible innovative employer based trip reduction programs for their employees.

Policy SD-1.6 To reduce emissions of PM_{10}, $PM_{2.5}$ and other particulates with local control potential

Implementing Actions

1.6.a Work with the SJVAPCD to reduce to the maximum extent feasible particulate emissions from construction, grading and demolition

1.6.c Require all access roads, driveways, and parking areas in new commercial and industrial development to be paved or constructed of other materials that minimize particulate emissions.

3.3.4 Impacts

Methods of Analysis

Construction

Emissions from the construction phase of the proposed project were estimated using CalEEMod Version 2016.3.2 (CAPCOA 2017). Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics were not known.

The proposed project would develop 540 residential units in twenty 3-story buildings with a 13,700 square foot supporting clubhouse building, a mixed use building with 66,000 square feet of ground floor retail and 30 additional residential units on the second floor. The project would also include 1,223 parking spaces. For the purposes of modeling, it was assumed that construction of the proposed project would commence in January 2021[4] and would last approximately 27 months,

[4] The analysis assumes a construction start date of January 2021, which represented the earliest date construction would initiate at the time that the modeling was conducted. Assuming the earliest start

ending in March 2023. The analysis contained herein is based on the following subset area schedule assumptions (duration of phases is approximate)

- Demolition – 1.5 months (January 2021 – February 2021)
- Site Preparation – 1 month (February – March 2021)
- Grading – 2 months (March 2021 – May 2021)
- Building Construction – 20 months (June 2021 – January 2023)
- Architectural Coating 1 – 1.5 months (December – January 2021)
- Architectural Coating 2 – 1.5 months (July 2022 – August 2021)
- Paving – 1.5 months (February 2023 – March 2023)
- Architectural Coating – 1.5 months (March 2023 – May 2023)

The estimated construction duration provided was based on CalEEMod defaults. Detailed construction equipment modeling assumptions are provided in Appendix D, CalEEMod Outputs. Construction-worker and vendor trip estimates by construction phase were based on CalEEMod default data. CalEEMod default trip length values were used for the distances for all construction-related trips. The construction equipment mix used for estimating the construction emissions of the proposed project is based on information provided by the project applicant and is shown in Table 3.3-4, Construction Scenario Assumptions.

Table 3.3-4
Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Site Preparation	8	0	0	Graders	1	8
				Scrapers	1	8
				Tractors/Loaders/ Backhoes	1	8

date for construction represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years. Thus, the fact that construction would occur later than the dates used for modeling does not invalidate the modeling results. Impacts would be the same or less than those identified herein.

Table 3.3-4
Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Grading	14	0	110	Rubber-Tired Dozers	1	8
				Graders	1	8
				Crawler Tractors	1	8
				Tractors/Loaders/ Backhoes	2	7
Building Construction	50	20	0	Cranes	1	8
				Forklifts	2	7
				Generator Sets	1	8
				Tractors/Loaders/ Backhoes	1	6
				Welders	3	8
Trenching	14	0	0	Excavators	2	8
				Tractors/Loaders/ Backhoes	2	8
				Trenchers	1	8
Paving	14	0	0	Pavers	1	8
				Paving Equipment	1	8
				Tractors/Loaders/ Backhoes	1	8
				Rollers	2	8
Architectural Coating	14	0	0	Air Compressors	1	6

Source: Appendix D

For the analysis, it was assumed that heavy construction equipment would be operating five days per week (22 days per month) during construction. Construction worker and vendor trips were based on CalEEMod default assumptions and rounded up to the nearest whole number to account for whole round trips.

Operation

Emissions from the operational phase of the proposed project were estimated using CalEEMod. Operational year 2024 was assumed as it would be the earliest potential first full year of operation following completion of construction.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as described in the following text.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2017). Consumer product VOC emissions for the buildings are estimated in CalEEMod based on the floor area of buildings and on the default factor of pounds of VOC per building square foot per day. Consumer products associated with the parking lot and other asphalt surfaces include degreasers, which were estimated based on the square footage of the parking lot and the default factor of pounds of VOC per square foot per day. The CalEEMod default values for consumer products were assumed.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, such as in paints and primers used during building maintenance. CalEEMod calculates the VOC evaporative emissions from the application of surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emissions factor is based on the VOC content of the surface coatings, and SJVACPD Rule 4601 (Architectural Coatings) governs the VOC content for interior and exterior coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories. The proposed project would use architectural coatings that would not exceed 100 grams per liter for interior applications and 150 grams per liter for exterior applications consistent with SJVACDP RULE 4601. The model default reapplication rate of 10 percent of area per year is assumed. Consistent with CalEEMod defaults, it is assumed that the surface area for painting equals 2.7 times the floor square footage, with 75 percent assumed for interior coating and 25 percent assumed for exterior surface coating (CAPCOA 2017).

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

Mobile Sources

Following the completion of construction activities, the proposed project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of the residents and patrons at the commercial uses of the proposed project. The maximum weekday trip rates were taken from the Traffic Impact Study for University Village (Appendix M). The weekend trip rates were adjusted based on CalEEMod default trip rates. CalEEMod default data, including trip characteristics and emissions factors, were used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within the CalEEMod. Emission factors representing the vehicle mix and emissions for 2024 were used to estimate emissions associated with vehicular sources.

Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this air quality analysis, a significant impact would occur if the project would (14 CCR 15000 et seq.):

- Conflict with or obstruct implementation of the applicable air quality plan.
- 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.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

San Joaquin Valley Air Pollution Control District

Table 3.3-5, San Joaquin Valley Air Pollution Control District Significance Thresholds for Criteria Pollutants, presents the emissions-based thresholds developed in the SJVAPCD *GAMAQI* (SJVAPCD 2015a). These include significance thresholds for construction emissions and operational permitted and non-permitted equipment and activities. The GAMAQI recommends evaluating impact significance for these categories separately. These thresholds of significance are based on a calendar-year basis, although construction emissions are assessed on a rolling 12-month period.

Table 3.3-5
San Joaquin Valley Air Pollution Control District Significance Thresholds for Criteria Pollutants

Pollutant	Construction Emissions (tons per year)	Operational Emissions (tons per year)	
		Permitted Equipment and Activities	*Non-Permitted Equipment and Activities*
ROG	10	10	10
NO_x	10	10	10
CO	100	100	100
SO_x	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: SJVAPCD 2015a

In addition to the annual emissions mass thresholds described in Table 3.3-5, the SJVAPCD has also established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections (SJVAPCD 2015a). If neither of the following criteria are met at any of the intersections affected by the project, the project would result in no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the LOS on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F.
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

Toxic Air Contaminants

The SJVAPCD has established thresholds of significance for combined TAC emissions from the operations of both permitted and non-permitted sources (SJVAPCD 2015a). Projects that have

the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the maximally exposed individual equals or exceeds 20 in 1 million people.[5]
- Hazard Index[6] for acute and chronic noncarcinogenic TACs equals or exceeds 1 for the maximally exposed individual.

Odors

As described in the GAMAQI, due to the subjective nature of odor impacts, there are no quantitative thresholds to determine if potential odors would have a significant impact (SJVAPCD 2015a). Projects must be assessed for odor impacts on a case-by-case basis for the following two situations:

- **Generators:** Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
- **Receivers:** Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

Table 3.3-6, Screening Distances for Potential Odor Sources, presents the common types of facilities that have been known to produce substantial odors, as well as screening distances between these odor sources and receptors, as identified in the GAMAQI.

Table 3.3-6
Screening Distances for Potential Odor Sources

Type of Facility	Screening Distance (miles)
Wastewater treatment facility	2
Sanitary landfill	1
Transfer station	1
Composting facility	1
Petroleum facility	2
Asphalt batch plant	1
Chemical manufacturing	1

[5] The cancer risk threshold was increased from 10 to 20 in 1 million with approval of APR 1906 (Framework for Performing Health Risk Assessments) on June 30, 2015.

[6] Non-cancer adverse health impact, both for acute (short-term) and chronic (long-term) health effects, is measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentration from the project to a published reference exposure level that could cause adverse health effects as established by the Office of Environmental Health Hazard Assessment. The ratio (referred to as the hazard quotient) of each noncarcinogenic substance that affects a certain organ system is added together to produce an overall hazard index for that organ system.

Table 3.3-6
Screening Distances for Potential Odor Sources

Type of Facility	Screening Distance (miles)
Fiberglass manufacturing	1
Painting/coating (i.e., auto body shop)	1
Food processing facility	1
Feed lot / dairy	1
Rendering plant	1

Source: SJVAPCD 2015a

If the project would result in an odor source and sensitive receptors being located within these screening distances, additional analysis would be required. For projects involving new receptors locating near an existing odor source where there is currently no nearby development and for new odor sources locating near existing receptors, the SJVAPCD recommends the analysis be based on a review of odor complaints for similar facilities, with consideration also given to local meteorological conditions, particularly the intensity and direction of prevailing winds. Regarding the complaint record of the odor source facility (or similar facility), the facility would be considered to result in significant odors if there has been:

- More than one confirmed complaint per year averaged over a 3-year period, or
- Three unconfirmed complaints[7] per year averaged over a 3-year period.

Impacts and Mitigation Measures

Impact 3.3-1: Implementation of the proposed project would not conflict with or obstruct the implementation of applicable air quality plans. This impact would be less-than-significant impact.

The Crossings and Remainder Area

A project is non-conforming with an air quality plan if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable SJVAPCD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit

[7] An unconfirmed complaint means that either the odor/air contaminant release could not be detected or the source/facility cannot be determined (SJVAPCD 2015a).

density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to comply with the applicable air quality plan (SJVAPCD 2015a).

The project would comply with applicable SJVAPCD rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and IX (Mobile and Indirect Sources), as discussed in Impact 3.3-2. The project site is currently designated as Rural Residential Center in the Merced County City Planning Area-Merced land use map (Merced County 2011). The project site is located within the City's Sphere of Influence and designated Rural Residential in the City's *Merced Vision 2030 General Plan*. The current County land use designation for the project site is Agricultural-Residential (A-R) and the zoning for the project site is Rural Residential (R-R), which provides areas for rural residential development. The proposed project includes a request to change the General Plan land use designation from the County's RR to City of Merced Neighborhood Commercial (CN) and High-Medium Density Residential (HMD). The project proposes to rezone The Crossings portion of the site to Planned Development and to pre-zone the Remainder Area, with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new residential units on that portion of the site. The proposed change in the land use designation for the project site requires an analysis of the project's anticipated population growth compared to the MCAG's growth forecasts in their 2018 RTP/SCS, which are presented in Table 3.3-7, Projected Population and Employment in Merced County.

Table 3.3-7
Projected Population and Employment in Merced County

Metric	Jurisdiction	2010	2015	2020	2025	2030	2040
Population	Merced County	256,800	272,718	291,056	310,572	334,443	388,939
	City of Merced	77,080	84,125	89,719	95,670	102,952	116,864
Households	Merced County	--	81,457	88,526	94,950	102,791	117,648
	City of Merced	--	26,790	29,090	31,178	33,729	38,561
Employment	Merced County	--	72,864	82,017	85,055	92,099	103,290
	City of Merced	--	26,693	32,720	35,049	37,817	43,927

Source: MCAG 2018

U.S. Census data provides an estimate County's population in 2020 of 277,680 persons (U.S. Census 2020). This is below the MCAG 2018 RTP/SCS 2020 population forecast of 291,056 persons. Since the MCAG 2018 RTP/SCS did not have a projection for 2024 (project buildout), 2025 data was used because it is the closest available year with applicable data. The 2025 forecast projects the County's population to be 310,572 in 2025, or 23,641 greater than the 2019 population per census data. This reflects an increase of 3,941 people per year between 2019 and 2025. Per the Census data, there were an average of 3.32 persons per household in Merced County between 2015 and 2019 (U.S. Census 2020). The project would add 552 dwelling units with The Crossings component of the project (not including the 18 extended stay units which are not intended as permanent housing). It is estimated that the project could accommodate between 1,123 and 1,834 residents, based on household size data in the City's Public Facility Impact Fees program for the lower end of this range and the City's average household size as estimated by the California Department of Finance (DOF) (DOF 2021). While no development is proposed within the Remainder Area at this time, additional residential development would be possible under the proposed General Plan and zoning designations. If all of the approximately 20.8-acre eastern portion of the Remainder Area that is proposed to be zoned R-1-10 were redeveloped, it could support up to 90 dwelling units. There are four existing homes in that portion of the site, thus the project could accommodate a net increase of 86 dwelling units, which would accommodate an additional 286 residents. If new residential development were to occur only on vacant land within this portion of the Remainder Area, it could support approximately 29 new single-family residences, generating a new population within the City of 93 people.

In total, the proposed project could accommodate a maximum new population of up to 2,120 people. This is substantially below the projected population growth for the County of 23,641 additional people in 2025 (MCAG 2018) and the proposed project would not result in an increase in the forecast population growth. Therefore, the project would be consistent with the 2018 RTP/SCS and the population growth assumptions in the Attainment Plans.

Emissions from criteria pollutants during construction would not exceed the SJVAPCD significance thresholds as discussed in Impact 3.3-2. During the long-term operational phase, the project would result in a net increase in emissions although, as discussed in Impact 3.3-2, the increase in emissions would not exceed any significance threshold or violate any SJVAPCD rule or regulation.

In summary the project would not exceed the growth forecast in MCAG's 2018 RTP/SCS and air pollutant emissions resulting from construction and operation of the project would not exceed SJVAPCD thresholds. Therefore, the project would not conflict with the SJVAPCD's air quality plans and impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.3-2: Implementation of the proposed project would increase the emissions of criteria pollutants in the SJVAB, which is non-attainment under the NAAQS and CAAQS, but would not exceed SJVAPCD significance thresholds and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment. This would be a less-than-significant impact.

The Crossings

Construction Emissions

Construction of the project would result in the temporary addition of pollutants caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and ROG off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

Criteria air pollutant emissions associated with construction activity were quantified using CalEEMod. Default values provided by the program were used where detailed proposed project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in the Methods of Analysis sub-section above. The information contained in Appendix D was used as CalEEMod inputs.

Implementation of the project would generate air pollutant emissions from entrained dust, off-road equipment, and vehicle emissions. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Table 3.3-8 presents the estimated maximum annual construction emissions generated during construction of the project. Details of the emission calculations are provided in Appendix A.

Table 3.3-8
Estimated Maximum Annual Construction Criteria Air Pollutant Emissions

Year[1]	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Tons per year					
2021	1.23	4.80	4.21	0.01	1.05	0.48
2022	3.45	4.37	4.68	0.02	0.95	0.34
2023	1.82	0.51	0.69	<0.01	0.11	0.04
Total Annual Emissions[1]						
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	No	No	No	No	No	No

Source: Appendix D
Acronyms and Note: CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides; ROG = reactive organic gases
[1] Total emissions reflect a rolling twelve month total.

Maximum annual emissions of ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions would occur during construction in 2022 as a result of off-road equipment operation and on-road vendor trucks. As shown in Table 3.3-8, annual construction emissions would not exceed the SJVAPCD annual significance thresholds for ROG NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction. Therefore, construction emissions for the project would be **less than significant.**

The project would comply with SJVAPCD Rule 8021 to control fugitive dust emissions generated during grading activities, which would be required as a condition of approval. Standard construction practices that would be employed to reduce fugitive dust emissions include:

- Develop a dust control plan to outline how the project will comply with Rule 8021 and minimize fugitive dust during construction,
- Minimize and cleanup trackout onto paved roads,
- Cover haul trucks,
- Rapid cleanup of project-related trackout or spills on paved roads,
- Minimize grading and soil movement when winds exceed 30 miles per hour, and
- Implement a speed limit of 15 miles per hour during all construction phases for vehicles travelling on un-paved roads.
- Construction Ambient Air Quality Impact Assessment

As recommended by the GAMAQI (SJVAPCD 2015a), an ambient air quality impacts assessment is not required for this project because construction would not generate on-site emissions of more than 100 pound per day for any pollutant, as shown in Table 3.3-9, Estimated Maximum Daily On-

site Construction Criteria Air Pollutant Emissions. Summary tables of annual and daily emissions associated with construction are included in Appendix D.

Table 3.3-9
Estimated Maximum Daily On-site Construction Criteria Air Pollutant Emissions

Year[1]	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
2021	93.41	46.45	44.99	0.14	10.32	6.39
2022	92.91	34.56	42.49	0.14	8.37	2.91
2023	88.06	27.92	34.91	0.12	7.08	2.40
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

Source: Appendix D
Acronyms: CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides; ROG = reactive organic gases

Operational Emissions

The project involves development of a mixed use commercial and residential project with 552 residential apartments, 18 extended-stay suites, and 66,000 square feet of commercial space. SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicle trips), area sources (consumer products, landscape maintenance equipment), and energy sources. Although the extended-stay units are not intended to function as permanent housing, they are considered residential units for the purposes of the air pollution emissions modeling. As discussed in Methods of Analysis under Operation, pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated based on project-specific trip rates.

Table 3.3-10 presents the maximum annual area, energy, and mobile source emissions associated with operation (Year 2024) of the project and demonstrates that the combined annual area, energy, and mobile source emissions would not exceed the SJVAPCD operational thresholds for ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$.

The values shown are the annual emissions from the operation of the project. Details of the emission calculations are provided in Appendix D.

Table 3.3-10
Estimated Annual Operational Criteria Air Pollutant Emissions

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Tons per Year					
Area	5.67	0.29	6.38	<0.01	0.32	0.32
Energy	0.05	0.42	0.20	<0.01	0.03	0.03
Mobile	2.79	4.61	24.30	0.06	532	1.46
Total Annual Emissions	**8.51**	**5.32**	**30.88**	**0.06**	**5.67**	**1.81**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	No	No	No	No	No	No

Source: Appendix D

Acronyms: PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides; ROG = reactive organic gases

For purposes of this air quality analysis and consistent with SJVAPCD guidance documents, actions that exceed criteria pollutant NAAQS (i.e., primary standards designed to safeguard the health of people considered to be sensitive receptors while outdoors and secondary standards designed to safeguard human welfare) or the EPA's Prevention of Significant Deterioration (PSD) Significant Impact Levels would result in significant impacts. Additionally, actions that violate CAAQS developed by CARB are considered significant.

Determination of whether project emissions would violate any ambient air quality standard is largely a function of air quality dispersion modeling. The SJVAPCD recommends that an ambient air quality analysis be performed when emissions of any criteria pollutant would equal or exceed any applicable threshold of significance for criteria pollutants or 100 lbs/day of any criteria pollutant. If the impacts resulting from a project's emissions would not exceed the CAAQS and NAAQS at the project's property boundaries, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation (SJVAPCD 2015a). The CAAQS and NAAQS are shown in Table 3.3-3. The CalEEmod modeling shows that project construction is not expected to generate air pollutant emissions that exceed 100 lbs/day; therefore, an air quality dispersion modeling assessment is not required and the AAQS would not be exceeded as a result of project construction.

The SJVAB is a nonattainment area for O_3 and $PM_{2.5}$ under the NAAQS and/or CAAQS and nonattainment for PM_{10} under CAAQS. The poor air quality in the SJVAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (i.e., ROG and NO_x for O_3) potentially contribute to poor air quality. However, because the annual construction emissions associated with the project would not exceed the SJVAPCD significance thresholds for criteria pollutants, the project would result in a **less-than-significant** increase in

emissions of nonattainment criteria pollutants, and thus the construction emissions would not be cumulatively considerable. Furthermore, the project would not conflict with the SJVAPCD Ozone Attainment Plans, or the PM_{10} or $PM_{2.5}$ Attainment Plan, which address the cumulative emissions in the SJVAB and account for emissions associated with construction activity in the SJVAB. Based on these considerations, the project would not result in a cumulatively considerable increase in emissions of nonattainment criteria pollutants. Impacts would be **less than significant.**

Remainder Area

While no development is proposed within the Remainder Area at this time, under the proposed General Plan and zoning designations, the eastern portion of the Remainder Area could support development of up to 90 dwelling units. The northwest corner of the site and a portion of the eastern side of the project site would be zoned Urban Transition, which allows development of agricultural uses but does not allow development of new residential, commercial, or industrial uses. Thus, no additional construction is expected to occur on those portions of the project site without further changes in the zoning designations. Development of up to 90 dwelling units within the eastern-most portion of the Remainder Area would generate air pollutant emissions during construction and operation. These emissions are expected to be substantially less than those of The Crossings component of the project because the future development would be approximately 16% of the residential uses included in The Crossings. Thus, it is expected that future development within the Remainder Area would result in **less-than-significant** emissions of nonattainment criteria pollutants during construction and operation and would not conflict with the SJVAPCD Ozone Attainment Plans, or the PM_{10} or $PM_{2.5}$ Attainment Plan. Based on these considerations, the project would not result in a cumulatively considerable increase in emissions of nonattainment criteria pollutants. Impacts would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.3-3: Implementation of the proposed project may expose sensitive receptors to pollutants including criteria air pollutants and TACs. For most pollutants and TACs the project would not create a substantial concentration of pollutants and impacts would remain less than significant. However, potential exposure to the *Coccidioides immitis* fungus would result in a potentially significant impact.

The Crossings and Remainder Area

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality

problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases; however, for the purposes of this analysis, residents are also considered sensitive receptors. As such, sensitive receptors include residences, schools, playgrounds, child-care centers, athletic facilities, long-term health-care facilities, rehabilitation centers, convalescent centers, and retirement homes. The closest off-site sensitive receptors to the project are residential land uses located approximately 30 feet north of the project site boundary.

Valley Fever Exposure

As previously discussed in Regulatory Section, the proposed project would comply with SJVAPCD Rule 8021, which requires applicants to develop, prepare, submit, obtain approval of, and implement a Dust Control Plan. The Dust Control Plan would reduce fugitive dust impacts to less than significant for all construction phases of the project and would also limit the release of the *Coccidioides immitis (C. immitis)* fungus from construction activities. However, the Dust Control Plan would not be sufficient to avoid potential release of *C. immitis,* and the impact would be **potentially significant.** Mitigation Measure 3.3a would be required to be implemented during all construction phases of the project, including any future development within the Remainder Area, to reduce this impact to a less-than-significant level.

Health Impacts of Toxic Air Contaminants

In addition to impacts from exposure to substantial pollutant concentrations, certain projects may include emissions of pollutants identified by the state and federal government as TACs or HAPs. State law has established the framework for California's TAC identification and control project, which is generally more stringent than the federal project, and is aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal HAPs, and is adopting appropriate control measures for sources of these TACs.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SJVAPCD recommends a carcinogenic (cancer) risk threshold of 20 in a million. The cancer burden is determined for the population located within the zone of impact, defined as the area within the one in one million cancer risk isopleth for a 70-year exposure. The furthest sensitive receptor from the project site was used as the basis for the radius of the zone of impact to determine cancer burden. In addition, some TACs have non-carcinogenic effects. The SJVAPCD

recommends a HIC significance threshold of 1.0 (project increment) and an acute hazard index (HIA) of 1.0. The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long term chronic health hazard impacts. No short term, acute relative exposure values are established and regulated and are therefore not addressed in this assessment.

Construction of project components would require use of heavy-duty construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions, and would involve use of diesel trucks, which are also subject to an Airborne Toxics Control Measure. According to the SJVAPCD, health risk assessments (which determine the exposure of sensitive receptors to toxic emissions) should be based on a 70-year exposure period for the maximally exposed individual resident. However, such assessments should also be limited to the period/duration of activities associated with the project. The duration of the proposed construction activities would constitute a small percentage of the total 30-year exposure period. The construction period for project would be approximately 28 months, after which construction-related TAC emissions would cease. Due to this relatively short period of exposure and minimal particulate emissions on site, TACs generated during construction would not be expected to result in concentrations causing significant health risks.

After construction is completed, there would be no long-term source of TAC emissions during operation. No residual TAC emissions and corresponding cancer risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the project. Implementation of the project would not expose sensitive receptors to substantial TAC concentrations and impacts would be less than significant.

For the reasons described above, the project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the proposed project, and impacts would be **less than significant**.

Health Impacts of Carbon Monoxide

As described previously, exposure to high concentrations of CO can result in dizziness, fatigue, chest pain, headaches, and impairment of central nervous system functions. Mobile-source impacts, including those related to CO, occur essentially on two scales of motion. Regionally, project-related construction travel would add to regional trip generation and increase the vehicles miles traveled (VMT) within the local airshed and the SJVAB. Locally, construction traffic would be added to the roadway system in the vicinity of the project site. Although the SJVAB is currently an attainment area for CO, there is a potential for the formation of microscale CO “hotspots” to occur immediately around points of congested traffic. Hotspots can form if such traffic occurs

during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and/or is operating on roadways crowded with non-project traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SJVAB is steadily decreasing.

The SJVAPCD GAMAQI states that a quantitative CO hotspots analysis be performed if either of the following two conditions exist: a traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or a traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

The University Village Merced Traffic Impact Study (DKS 2021, Appendix M) includes analysis of how the project would affect intersection LOS in the project area. The results with mitigation showed that the LOS would be D or better during AM and PM peak hours at all 22 study area intersections. Therefore, the SJVAPCD screening threshold would not be exceeded and the project would not result in a CO hotspot or the potential to result in CO emissions that when totalled with the ambient concentrations would exceed a 1-hour concentration of 20 parts per million or an 8-hour average of 9 parts per million. The impact would be **less than significant.**

Health Impacts of Other Criteria Air Pollutants

Neither construction nor operation of the project would result in emissions that exceed the SJVAPCD's emission thresholds for any criteria air pollutants, including ROGs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Construction of the project would not exceed the SJVAPCD threshold for ROGs. Specific ROGs may be TACs; however, ROGs are not expected to present risk of health impacts even if the specific ROGs associated with project construction aren't entirely known. Some ROGs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would not result in the exceedances of the SJVAPCD's threshold as shown in Tables 3.3-7 and 3.3-9. Generally, the ROGs in architectural coatings are of relatively low toxicity. Additionally, SJVAPCD Rule 4601 restricts the ROG content of coatings for both construction and operational applications.

In addition, ROGs and NO_x are precursors to O_3, for which the SJVAB is designated as nonattainment with respect to the NAAQS and CAAQS (the SJVAB is designated by the EPA as a nonattainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard). The health effects associated with O_3, as discussed previously in the State Regulations portion of the Regulatory Setting section, are generally associated with reduced lung function. The contribution of ROGs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SJVAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions

to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the ROG emissions would occur because exceedances of the O_3 ambient air quality standards tend to occur between April and October, when solar radiation is highest.

The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the ROG and NO_x emissions associated with project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. As described in the previously in the Environmental Setting section, O_3 health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. The project would not exceed the SJVAPCD threshold for O_3 precursor NO_x during construction or operation thus impacts would be less-than-significant. Additionally, construction would be short-term in duration, lasting only 28 months, and the long-term operational emissions would not exceed any significance thresholds for O_3 precursors.

Construction of the project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. Health effects that result from NO_2 and NO_x include respiratory irritation, which could be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. Project construction would be relatively short-term, and off-road construction equipment would be operating at various portions of the site and would not be concentrated in one portion of the site at any one time. In addition, existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Operation of the project would not require use of any stationary sources (e.g., diesel generators and boilers) that would create substantial, localized NO_x impacts.

CO tends to be a localized impact associated with congested intersections. The associated potential for CO hotspots was discussed previously and is determined to be a less-than-significant impact. Thus, the project's CO emissions would not contribute to significant health effects associated with this pollutant.

Construction and operation of the project would also not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter or obstruct the SDAB from coming into attainment for these pollutants. The proposed project would also not result in substantial DPM emissions during construction and operation, and therefore would not result in significant health effects related to DPM exposure. Additionally, the proposed project would implement dust control strategies and be required to comply with SJVAPCD Rule 8021, which limits the amount of fugitive dust generated during construction. Due to the minimal contribution of particulate matter during construction and operation, the project is not anticipated to result in exposure of sensitive receptors to substantial pollutant concentrations that would result in health effects associated with PM_{10} or $PM_{2.5}$.

Conclusion

In summary, construction of the project would not result in exceedances of the SJVAPCD significance thresholds and would not expose sensitive receptors to substantial concentration of pollutants or potential health effects associated with criteria air pollutants, and the impacts due to exposure to TACs and substantial concentrations of criteria air pollutants would be **less than significant**. However, potential exposure to the *C. immitis* fungus would result in a **potentially significant** impact before implementation of mitigation.

Mitigation Measures

Mitigation Measure 3.3a would be required to be implemented during all construction phases of the project, including any future development within the Remainder Area, to ensure that potential exposure to the *C. immitis* fungus and associated risk of contracting Valley Fever is minimized to the extent feasible and thus would reduce this impact to **less-than-significant**.

3.3a Prior to issuance of demolition permits and/or grading permits for The Crossings and any future construction within the Remainder Area, the City shall ensure that construction contracts include implementation of the following measures to reduce short-term fugitive dust impacts to workers and nearby sensitive receptors:

- Develop a Valley Fever Management Plan that addresses exposure to the *Coccidioides immitis (C. immitis)* fungus. The Plan shall be submitted to the City for review and approval prior to issuance of demolition permits and/or grading permits. The Plan shall include a program to limit the potential for exposure to *C. immitis* from construction activities and to identify appropriate worker training, dust management and safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to *C. immitis*.
- Prior to commencement of any construction activities, the construction contractor shall train all workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor.
- Throughout all ground-disturbance activities, the construction contractor shall audit and enforce compliance with relevant Cal OSHA health and safety standards on the jobsite – including injury and illness reporting requirements.
- Throughout all ground-disturbance activities, the construction contractor shall conduct job hazard assessments (JHAs) as defined under 8 CCR 1509 and/or 3380 for all job classifications employed on site. The hazard assessments will comprehend the potential for exposure to the Coccidioides spore relative to

work activity proximity to other forms of work activity, weather conditions and other relevant variables and will identify appropriate personal protective equipment based on current working conditions.

- If determined to be necessary by the JHA performed for the specific work task, affected employees should be provided a National Institute for Occupational Safety and Health (NIOSH) approved respiratory protection to reduce exposure to pollutants and the *C. immitis* fungus.
- Throughout all ground-disturbance activities, the construction contractor shall provide all construction personnel and visitors to the project site with information regarding Valley Fever. This would facilitate recognition of symptoms of Valley Fever and earlier treatment.

Impact 3.3-4: Implementation of the proposed project may result in other emissions, including those leading to odors. This would be a less-than-significant impact.

The Crossings and Remainder Area

Section 41700 of the California Health and Safety Code and SJVAPCD Rule 4102 (Public Nuisance), prohibit emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SJVAPCD are evaluated by SJVAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SJVACPD Rule 4102 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative and will focus on the existing and potential surrounding uses and location of sensitive receptors.

The occurrence and severity of potential odor impacts depends on numerous factors: the nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during proposed construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be **less than significant.**

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities. The project entails a residential and retail buildings and would not result in the creation of a land use that is commonly associated with odors. Therefore, project operations would not result in odor emissions, and the project impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.3.5 Cumulative Impacts

The geographic scope for consideration of cumulative air quality impacts is defined as the entire SJVAB because air quality is monitored and regulated based on air basin boundaries. Further, air quality impacts are generally considered to be a cumulative impact because individual land development projects are typically not large enough to create a significant impact independent of the existing air quality conditions and other sources of air pollutant emissions in the region. This is recognized in the SJVAPCD GAMAQI, which states:

> By its very nature, air pollution has a cumulative impact. The District's nonattainment status is a result of past and present development within the San Joaquin Valley Air Basin (SJVAB). Furthermore, attainment of ambient air quality standards can be jeopardized by increasing emissions-generating activities in the region. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the San Joaquin Valley Air Basin.

Additionally, the Sacramento Metropolitan Air Quality Management District (SMAQMD) Guide to Air Quality Assessment describes cumulative air quality issues as follows (SMAQMD 2020):

Ambient air quality standards are violated or approach nonattainment levels due to past development that has formed the urban fabric, and attainment of standards can be jeopardized by increasing emissions-generating activity in the region. The nonattainment status of regional pollutants is a result of past and present development within the SVAB. Thus, this regional impact is a cumulative impact, and projects would contribute to this impact only on a cumulative basis. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

Impact 3.3-5: Ongoing development in the City of Merced would result in increased emissions of criteria pollutants in the SJVAB, which is a significant cumulative impact. However, the proposed project would not generate emissions that exceed SJVAPCD significance thresholds and therefore would not result in a cumulatively considerable net increase of criteria pollutants. The project's impact would remain less than significant.

As discussed in the Environmental Setting section and Impact 3.3-2, the SJVAB is in nonattainment status for various criteria air pollutants. This nonattainment status is a result of past and present development. The City's General Plan EIR recognized that ongoing development within the City would generate new construction and operational emissions of ROGs, NOx, CO, PM_{10} and $PM_{2.5}$, and found that due to the SJVAB non-attainment status, these ongoing and future emissions constitute a significant cumulative impact because they would adversely affect the ability of the region to achieve attainment with applicable air quality standards. However, as discussed in Impact 3.3-2, the proposed project would not generate substantial construction or operational emissions. The project would not impede implementation of the SJVAPCD Attainment Plans and would not exceed the SJVAPCD adopted significance thresholds. There are other approved and under construction development projects in the northern portion of the City, including residential development to the east and commercial development to the west. However each of these projects is of a scale that would also not generate substantial pollutant emissions during construction and none of these projects are in close enough proximity to the project site to create a potential for significant increases in the localized concentration of pollutants. Therefore, the proposed project would not result in a cumulatively considerable contribution to the significant cumulative impact identified in the City's General Plan EIR, and the project's impact would remain **less than significant**.

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3.4 Biological Resources

3.4.1 Introduction

This section evaluates the potential effects on biological resources associated with development and operation of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This section describes the biological resources present within the project site; identifies special-status plant and wildlife species known to occur or potentially occur within the project site; outlines applicable federal, state, and regional regulations pertaining to protection of plant and wildlife species; and identifies potential project-specific and cumulative impacts on biological resources and measures to minimize these impacts. This section also addresses potential impacts to biological resources associated with proposed off-site improvements. Based on the analysis provided in the Biological Resources Assessment prepared for the project (which is provided in Appendix E), the Initial Study, included in Appendix B, concluded that because the project site is a non-linear feature and bound by existing roads, development, and agricultural production, it has little value as a potential wildlife corridor, habitat linkage or, native wildlife nursery site. Therefore, implementation of the proposed project would result in a less-than-significant impact on wildlife movement and this issue is not further evaluated in this Environmental Impact Report (EIR). In addition, the Initial Study noted that the project site is not located within or adjacent to any preserve or conservation area, nor would it conflict with any adopted Habitat Conservation Plan or Natural Community Conservation Plan because there are no adopted conservation plans that include the project site. Therefore, this issue is also not further evaluated in this EIR.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this EIR was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. A comment letter from the California Department of Fish and Wildlife (CDFW) received in response to the 2020 NOP addressed potential impacts to special status wildlife, particularly Swainson's hawk, California tiger salamander, burrowing owl, and nesting birds (CDFW 2020). Both NOPs and the comments received in response to them are included in Appendix A.

Primary resources referenced to prepare this section include the Biological Resources Assessment (Appendix E), the City of Merced Vision 2030 General Plan (City of Merced 2012a) and the Merced County 2030 General Plan (Merced County 2013). The Biological Resources Assessment was prepared based on a literature review and site survey conducted in 2016. A review of multiple aerial images taken between 2016 and 2019 suggests that the environmental setting has not changed since the initial field survey. The literature review was updated in 2019 to account for any changes in species protection status and data regarding known occurrences of special-status species (CDFW 2019b).

3.4.2 Environmental Setting

This section describes the existing conditions on the approximately 68.6-acre project site and identifies biological resources that could be affected by development of the proposed project. The proposed project includes the approximately 28.4-acre The Crossings component, and the 40.2-acre Remainder Area where no development is proposed at this time. As shown in Figure 2-2, The Crossings is proposed to be developed within an L-shaped portion of the site that includes the majority of the western half of the site, excluding an approximately 9.4-acre area in the northwest corner. This 9.4-acre area is included in the Remainder Area, along with the approximately 30.8 acres in the eastern portion of the project site.

Existing Site Conditions and Habitat Types

Merced County is located within the Central Valley bioregion of California. This bioregion extends from the Sacramento Valley to the San Joaquin Valley and the predominant landscape feature of the Central Valley bioregion is agricultural croplands. The project site is defined by extensive farmland and long, hot, dry summers and cool, wet winters. About half of the Central Valley is farmed and 75% of that farmland is irrigated. The Crossings portion of the project site and the area immediately adjacent to the northern boundary have been farmed extensively and thus contain very few native/natural plant communities (Appendix E).

Currently, a majority of The Crossings component of the project site is used for cultivating irrigated row crops, as described below. The remaining 40.2 acres is comprised of rural residences and agricultural land, along with Yosemite Church and Stoneridge Christian School, which are located in the southwestern corner of the Remainder Area. The project site is located in an unincorporated area of Merced County adjacent to developed areas of the City of Merced (City) to the south and west. Land under active agricultural use is located to the north and a mix of rural residential uses are located to the east, across Hatch Road. The project site is relatively flat and located at an elevation of approximately 185 feet above mean sea level (AMSL).

Agricultural Lands

The Crossings portion of the project site is characterized by previously graded agricultural lands currently used for growing row crops. Other than row crops, the site is largely devoid of vegetation except for disturbed areas along the periphery of the site and an approximately 3-acre piece of land in the south-central portion of the Crossings component that is developed with a residence, barn, and other smaller sheds. These areas support non-native, ruderal plant species such as telegraphweed (*Heterotheca grandiflora*), horseweed (*Erigeron* spp.), wild oat (*Avena* spp.), mustard (*Brassica* spp.) and yellow star thistle (*Centaurea solstitialis*). Several mature trees exist within the

developed portion near the residence located in the south-central area of The Crossings portion of the project site (Appendix E).

The Remainder Area includes several developed parcels that support single-family residences, Yosemite Church, and Stoneridge Christian School, and includes approximately 10 acres of agricultural land. A row of mature olive (*Olea europaea*) trees exists along the boundary between the Crossings component and the eastern portion of the Remainder Area and a second row of mature olive trees appears to be present between the approximately 10-acre agricultural parcel and Stoneridge Christian School.

Hydrology

The project site is located within the Middle San Joaquin-Lower Chowchilla Sub-Basin (HUC 18040001) of the San Joaquin Watershed (HUC 1804) (USDA 2019).

A drainage ditch that is potentially within the jurisdiction of CDFW and the Regional Water Quality Control Board (RWQCB) occurs along East Yosemite Avenue on the southern boundary of the project site that terminates underground at Gardner Avenue to the west and at Yosemite Church to the east, as shown on Figure 3.4-1, Soil Types and Potential Jurisdictional Resources. This drainage appears to have been constructed in upland habitat to collect runoff from East Yosemite Avenue and the adjacent agricultural land. No hydrophitic vegetation was observed within the drainage. An extension of the Yosemite Lateral irrigation canal is present along the northern boundary of the project site. Agricultural ditches are not considered jurisdictional waters of the U.S. [33 CFR 328.3(b)(3)] because these features are human-made structures excavated in uplands and are primarily used for irrigation purposes (Appendix E), however this ditch may be within the jurisdiction of CDFW and the RWQCB. The section of the canal adjacent to The Crossings development would be required to be piped during project construction. These drainages are discussed further in the Jurisdictional Aquatic Resources section below.

Topography and Soils

The project site is generally flat due to past levelling and grading and is situated at approximately 185 feet AMSL (Appendix E).

According to the Natural Resources Conservation Service (USDA 2019) and as shown on Figure 3.4-1, the following three soil types are mapped within the approximately 68.6-acre project site: Ryer clay loam, 0-2% slopes; Wyman clay loam (deep over hardpan), 0-1% slopes; and Yokohl clay loam, 0-3% slopes. Ryer clay loam and Wyman clay loam are well-drained alluvium soils derived from igneous rock. Yokohl clay loam is well-drained, non-saline to very slightly saline alluvium derived from igneous rock.

Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large areas or patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small areas or patches of land that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that essentially function as 'stepping stones' for wildlife dispersal.

The approximately 68.6-acre project site is a non-linear feature and bounded by existing roads and development. The site has little value as a potential wildlife corridor or habitat linkage, although common urban wildlife species such as raccoon (*Procyon lotor*), coyote (*Canis latrans*) and Virginia opossum (*Didelphis virginiana*) would likely move through the project area on a regular basis in search of food and cover habitat (Appendix E).

Jurisdictional Aquatic Resources

A jurisdictional delineation was not performed for wetlands that may be present within the project site, however The Crossings component of the site was assessed for potential jurisdictional features during the December 2016 field survey. During this survey, no features that are within the jurisdiction of the U.S. Army Corps of Engineers (ACOE), such as vernal pools and wetlands, were identified within The Crossings portion of the project site because there are no features that were found to support or contain all three characteristics of waters of the U.S. – these characteristics are hydric soils, surface hydrology/downstream water connectivity, and hydrophytic vegetation.

Under the state Porter-Cologne Act, the RWQCB jurisdiction includes features that are regulated by the ACOE and also extends to isolated features that have evidence of surface water inundation. These areas generally support at least one of the three ACOE wetlands indicators listed above but are considered isolated through the lack of connectivity to downstream waterways. The extent of CDFW-regulated areas typically include areas supporting a predominance of hydrophytic vegetation (i.e., 50% cover or greater) where associated with a stream channel that has a defined bed and bank. As noted previously, there are two drainages adjacent to the project site that could potentially be under the regulation of the RWQCB and CDFW. Pursuant to Section 1600 of the state Fish and Game Code and the state Porter-Cologne Act, future development affecting these drainages would need to be addressed through a Streambed Alteration Agreement from CDFW and a Waste Discharge Requirement or Certification of Waste Discharge Requirement from the RWQCB. The areas that could be potential jurisdictional resources are shown on Figure 3.4-1.

As described further below, both drainages are human-made structures excavated in uplands; one is an agricultural ditch, the other functions as both a roadside (stormwater) and agricultural ditch. These are not considered jurisdictional waters of the U.S. [33 CFR 328.3(b)(3)] because they are human-made structures and their hydrology is solely reliant on artificial inputs and therefore, would revert to dry land if artificial inputs ceased. In accordance with *Regulatory Guidance Letter No. 07-02 - Exemptions for Construction or Maintenance of Irrigation Ditches and Maintenance of Drainage Ditches under Section 404 of Clean Water Act (CWA)*, even if the ditches were determined to be waters of the U.S., they would be exempt from regulation under Section 404 of the CWA.

Drainage 1. There is one drainage located along East Yosemite Avenue on the southern boundary of the project site that terminates underground at Gardner Avenue to the west and at Yosemite Church to the east. This drainage functions as a roadside and agricultural ditch, constructed in an upland to collect runoff from East Yosemite Avenue and the adjacent agricultural land.

Drainage 2. There is one drainage located along the northern boundary of the project site. This drainage is an extension of the Yosemite Lateral irrigation canal. It is an open air, earthen ditch approximately 16 feet wide and 5.8 feet deep. It enters the project site from the east, continues along most of the northern boundary of the site, then heads north before turning west again and passing under Gardner Avenue. This drainage functions as an agricultural ditch, constructed in an upland to collect runoff from the adjacent agricultural land.

Based on a review of aerial imagery, there may be potential wetlands or other waters present in the Remainder Area however, this area could not be accessed during the field survey. Specifically, there are aerial signatures indicating seasonally wet areas visible on the four residential parcels in the northwest corner of the project site, as well as in the undeveloped parcel at the western side of the eastern portion of the Remainder Area, west of the Yosemite Church property.

In addition, there are three agricultural ditches northwest of the site. However, these features are outside of the project site boundaries and no off-site improvements are included in the proposed project.

Critical Habitat

No federally designated critical habitat for threatened or endangered species occurs within or adjacent to the project area.

Special-Status Plant and Wildlife Species

For the purpose of this EIR, special-status plant and wildlife species are defined as those that fall into one or more of the following categories:

- Officially listed or proposed for listing under the state and/or federal Endangered Species Acts.
- State or federal candidate species proposed for listing under the state and/or federal Endangered Species Acts.
- Species meeting the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines.
- Species protected under the Federal Migratory Bird Treaty Act and/or Bald and Golden Eagle Protection Act.
- Species considered by the CDFW to be a "Species of Special Concern."

Special-status biological resources present or potentially present within the approximately 68.6-acre project site were identified through an online literature search using the following sources: USFWS Information, Planning and Conservation (IPaC) Trust Resource Report; CDFW California Natural Diversity Database (CNDDB); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. The database searches for the CNDDB and CNPS included Merced and the surrounding eight USGS 7.5 minute quadrangles. The IPaC search included the project site and all lands within a five-mile radius of the site. California Rare Plant Rank (CRPR) 1 and 2 plant species were included in the CNPS search. The initial literature search was conducted for the project in December 2016. As noted previously, an updated literature search of the above resources was conducted in September 2019 to account for any changes in species protection status or occurrence data (CDFW 2019b). Results of the updated literature searches are incorporated into the Biological Resources Assessment (Appendix E).

Following review of these resources, Dudek determined the potential for each species to occur within or adjacent to The Crossings component of the project site based on a review of vegetation communities and available land cover types, habitat types, soils, and elevation preferences, as well as the known geographic range of each species. Table 3.4-1 describes special-status plant and wildlife species that have a potential to occur within or adjacent to The Crossings portion of the project site and those that have a potential to occur within the Remainder Area. The determination of potential to occur was based on the habitat requirements of each species relative to the existing conditions observed during the December 1, 2016 field survey as well as review of aerial photographs and soil data.

The Remainder Area was not surveyed because no development is currently proposed for that portion of the project site. Data regarding the biological resources that are or may be present within the Remainder Area were obtained primarily through literature review, although some field reconnaissance of the annexation area was possible using binoculars from the survey area and perimeter roadways.

Additionally, an aerial photograph (Google Earth 2016) with an overlay of the full project site, and surrounding area was utilized to map vegetation communities and land cover types present, as well as record any special-status or sensitive biological resources while in the field. As noted previously, an additional review of multiple aerial images taken between 2016 and 2019 was completed which indicated that there have not been any changes in the environmental setting of the project site.

Four wildlife species, specifically birds, were observed within The Crossings component of the project site: American kestrel (*Falco sparverius*), mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), and California scrub-jay (*Aphelocoma californica*). Due to limited observations of the Remainder Area, only one wildlife species was detected there during the field survey: white-crowned sparrow (*Zonotrichia leucophrys*).

Plants

Based on the literature and database review, 25 special-status plant species are known to occur within the USGS quadrangles included in the database search.

All of these species were determined unlikely to occur within The Crossings component of the project site due to lack of suitable habitat (Appendix E). Specifically, of the 25 species, 14 require mesic habitat types that are not present within The Crossings component of the project site, such as vernal pools, marshes, and seeps; 4 occur only in habitat types that are not present on the project site, such as cismontane woodland, valley and foothill grassland, and/or chenopod scrub; and 7 require particular soil types that are not present on the project site, such as alkaline, rocky, and serpentine soils. Further, no special-status plants were observed within The Crossings portion of the project site during the field survey, although focused rare plant surveys were not performed and the field survey occurred outside of the blooming period for several special-status plant species. However, because the majority of The Crossings portion of the site is disked on an annual basis and used for growing row crops, and because the project site supports a dominance of non-native and/or ruderal species common to disturbed sites, the likelihood of special-status plant species occurring within this area is low.

Within the Remainder Area, 13 of the special-status plant species were determined not to have potential to occur due to lack of suitable habitat or the site being outside the species known range.

Specifically, one requires a marsh/swamp habitat type not present on the project site, six require particular soil types not present on the project site, such as alkaline, rocky, and serpentine soils, four species only occur in natural habitat types, such as cismontane woodland, valley and foothill grassland, and/or chenopod scrub, and the two remaining species would be outside of their known elevation ranges at the project site.

Aerial imagery of the site indicates there is the potential for wetlands and vernal pools in the Remainder Area, which may provide habitat for 12 of the 25 special-status plant species known to occur within the USGS quadrangles included in the database search. As identified in Table 3.4-1, Special Status Plant Species with Potential to Occur within the Remainder Area, these include vernal pool smallscale (*Atriplex persistens)*, succulent owl's clover (*Castilleja campestris* var. *succulenta)*, dwarf downingia (*Downingia pusilla),* Boggs Lake hedge-hyssop (*Gratiola heterosepala),* pincushion navarretia (*Navarretia myersii* ssp*. Myersii),* shining navarretia (*Navarretia nigelliformis* ssp*. radians),* Colusa grass (*Neostapfia colusana),* San Joaquin Valley Orcutt grass (*Orcuttia inaequalis),* hairy Orcutt grass (*Orcuttia Pilosa),* California alkali grass (*Puccinellia simplex),* Sanford's arrowhead (*Sagittaria sanfordii),* and Greene's tuctoria (*Tuctoria greenei).*

Table 3.4-1

Special Status Plant Species with Potential to Occur within the Remainder Area

Common Name	Scientific Name	Federal/State/ CRPR Status	Primary Habitat Associations; Life Form; Blooming Period; Elevation Range (feet)
Vernal pool smallscale	*Atriplex persistens*	None/None/1B.2	Vernal pools (alkaline); annual herb; June, Aug, Sep, Oct; 30–375
Succulent owl's-clover	Castilleja campestris var. succulenta	FT/SE/1B.2	Vernal pools (often acidic); annual herb (hemiparasitic); (Mar)Apr–May; 160–2460
Dwarf downingia	Downingia pusilla	None/None/2B.2	Valley and foothill grassland (mesic), Vernal pools; annual herb; Mar–May; 0–1460
Boggs Lake hedge-hyssop	Gratiola heterosepala	None/SE/1B.2	Marshes and swamps (lake margins), Vernal pools; clay; annual herb; Apr–Aug; 30–7790
Pincushion navarretia	Navarretia myersii ssp. Myersii	None/None/1B.1	Vernal pools; often acidic; annual herb; Apr–May; 65–1085

Table 3.4-1

Special Status Plant Species with Potential to Occur within the Remainder Area

Common Name	Scientific Name	Federal/State/ CRPR Status	Primary Habitat Associations; Life Form; Blooming Period; Elevation Range (feet)
Shining navarretia	Navarretia nigelliformis ssp. Radians	None/None/1B.2	Cismontane woodland, Valley and foothill grassland, Vernal pools; sometimes clay; annual herb; (Mar)Apr–July; 210–3280
Colusa grass	Neostapfia colusana	FT/SE/1B.1	Vernal pools (adobe, large); annual herb; May–Aug; 15–655
Orcutt grass	Orcuttia inaequalis	FT/SE/1B.1	Vernal pools; annual herb; Apr–Sep; 30–2475
Hairy Orcutt grass	Orcuttia pilosa	FE/SE/1B.1	Vernal pools; annual herb; May–Sep; 150–655
California alkali grass	Puccinellia simplex	None/None/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools; alkaline, vernally mesic; sinks, flats, and lake margins; annual herb; Mar–May; 5–3050
Sanford's arrowhead	Sagittaria sanfordii	None/None/1B.2	Marshes and swamps (assorted shallow freshwater; perennial rhizomatous herb (emergent); May–Oct(Nov); 0–2135
Greene's tuctoria	Tuctoria greenei	FE/SR/1B.1	Vernal pools; annual herb; May–July(Sep); 95–3510

Status Abbreviations:

FE: Federally Endangered

FT: Federally Threatened

SE: State Endangered

ST: State Threatened

SR: State Rare

CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere

CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Source: Appendix E

Wildlife

Results of the CNDDB and USFWS searches revealed 27 special-status wildlife species listed or proposed for listing as rare, threatened, or endangered by either the CDFW or the USFWS within a five-mile radius of the project site, although no occurrences have been recorded on the 68.6-acre project site. Of these, 13 were removed from consideration to occur within the entire project site based on lack of suitable habitat or because the site is outside of the known geographic or elevation range for the species and an additional 5 species were removed from consideration to occur within The Crossings component of the project (Appendix E). Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiense*), and western spadefoot toad (*Spea hammondii*), are considered to have potential to occur within the Remainder Area. Burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), pallid bat (*Antrozous pallidus*), Townsend's big eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillii*), western mastiff bat (*Eumops perotis californicus*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*) have a low to moderate potential to occur in the vicinity of the project site. These species are discussed in further detail below.

Only those species with the potential to occur within or adjacent to the project site are discussed further in this document (Table 3.4-2). For a full list of species identified during the literature and database review, please see Appendix E.

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
Invertebrates				
Conservancy fairy shrimp	Branchienecta conservatio	Federal: Endangered State: None	The conservancy fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools, seasonal wetlands that fill with water	**The Crossings:** Not expected due to lack of vernal pools and seasonal wetlands. **Remainder Area:** Potential to occur due to likelihood of vernal pools or

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			during fall and winter rains and dry up in spring and summer. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	seasonal wetlands in the northwestern and central portions of the project site.
Vernal pool fairy shrimp	Branchinecta lynchi	Federal: Threatened State: None	Vernal pool fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	**The Crossings:** Not expected due to lack of vernal pools and seasonal wetlands. **Remainder Area:** Potential to occur due to likelihood of vernal pools or seasonal wetlands in the northwestern and central portions of the project site.
Vernal pool tadpole shrimp	Lepidurus packardi	Federal: Endangered State: None	Vernal pool tadpole shrimp is associated with low-alkalinity seasonal pools in unplowed grasslands. The vernal pool tadpole shrimp is found only in ephemeral	**The Crossings:** Not expected due to lack of vernal pools and seasonal wetlands. **Remainder Area:** Potential to occur due to likelihood of vernal pools or

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California. Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone.	seasonal wetlands in the northwestern and central portions of the project site.
Amphibians				
California tiger salamander	Ambystoma californiense	Federal: Threatened State: Threatened, California Watch List Species	Found in riparian and wet meadow habitats, but is more common in grasslands. Most of their life cycle is spent underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Breeding takes place following the first heavy winter rains. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development. They	**The Crossings:** Not expected due to lack of vernal pools and seasonal wetlands. **Remainder Area:** Potential to occur due to likelihood of vernal pools or seasonal wetlands in the northwestern and central portions of the project site.

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			appear to be absent in waters containing predatory game fish.	
Western spadefoot toad	Spea hammondii	Federal: None State: SSC	Inhabits areas with slightly moist, friable soils in mostly treeless habitats. Usually absent from narrow canyons and highly mesic habitats. Requires rain pools for spawning with little to no vegetation.	**The Crossings:** Not expected due to lack of vernal pools and seasonal wetlands. **Remainder Area:** Potential to occur due to likelihood of vernal pools or seasonal wetlands in the northwestern and central portions of the project site.
Birds				
burrowing owl	Athene cunicularia	Federal: None State: SSC	The burrowing owl utilizes abandoned ground squirrel burrows in open habitats and grasslands, also disturbed areas. Diet consists of insects, small mammals, reptiles and amphibians. Commonly uses burrows on levees or mounds where there are unobstructed views of possible predators such as raptors or foxes.	**The Crossings:** Low potential to occur. Suitable nesting and foraging habitat exists within the project area; however, no California ground squirrels (*Otospermophilis beechyi*) or associated burrows were observed during the field survey that could be used for nesting or overwintering by burrowing owl.

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
				Remainder Area: Moderate potential to occur. Suitable nesting and foraging habitat exists within the project area; no field survey was conducted to identify presence or absence of California ground squirrels or associated burrows.
loggerhead shrike	Lanius ludovicianus	Federal: None State: SSC	Loggerhead shrike is a year-round resident in most areas of California that contain grasslands, open areas, orchards and areas with scattered trees, shrubs, fences, and other perching options. Highest densities are found in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Feeds on small vertebrates	**The Crossings and Remainder Area:** Low potential to occur. The site provides poor quality nesting habitat due to frequent disturbance by disking activities and residential dwellings, and lacks scattered perching options.

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			and invertebrates, impales prey on thorns or barbed wire.	
Swainson's hawk	Buteo swainsoni	Federal: None State: Threatened	Swainson's hawk spends the breeding season in the Central Valley of California and is commonly found in agricultural areas or open grasslands containing solitary trees for nesting. Diet consists of small mammals and reptiles.	**The Crossings and Remainder Area:** Moderate potential to occur. Potential nesting and foraging is present and there are five documented occurrences of this species within 5 miles of the project site.
Mammals				
American badger	Taxidea taxus	Federal: None State: SSC	This species utilizes dry, open, treeless areas, such as grasslands, coastal scrub, agriculture, and pastures, especially with friable soils. Preferred prey items include rodents and small mammals.	**The Crossings and Remainder Area:** Low potential to occur. The project site provides marginal habitat due to the level of existing disturbance, including regular disking. No potential dens were observed within The Crossings component during the field survey.
San Joaquin kit fox	Vulpes macrotis mutica	Federal: Endangered State: Threatened	San Joaquin kit fox occurs in grasslands and agricultural areas	**The Crossings and Remainder Area:** Low potential to occur

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			along the edges of the San Joaquin Valley. It uses dens created by other mammals, as well as larger pipes and culverts for cover. It is primarily a nocturnal species and feeds on small mammals, birds and reptiles.	within the project area. The project site provides marginal habitat due to the lack of open, native habitat and movement corridors onsite. No potential dens were observed onsite during the field survey.
pallid bat	Antrozous pallidus	Federal: None State: SSC	Pallid bat occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. Roosts in caves, mines, crevices and occasionally hollow trees or buildings. Prefers open habitats for foraging. Highly sensitive to disturbance.	**The Crossings and Remainder Area:** Low potential to occur. Potential foraging and roosting habitat is present, however frequent human disturbance onsite likely precludes this species from utilizing the site.
Townsend's big-eared bat	Corynorhinus townsendii	Federal: None State: Candidate Threatened, SSC	Occupies mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava	**The Crossings and Remainder Area:** Low potential to occur. Potential foraging and roosting habitat is present; however, frequent human disturbance

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			tubes, man-made structures, and tunnels. Highly sensitive to disturbance.	onsite likely precludes this species from utilizing the site.
western mastiff bat	Eumops perotis californicus	Federal: None State: SSC	Western mastiff bat occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, desert scrub, and urban. Suitable habitat consists of extensive open areas with abundant roost locations. Primarily roosts in rock crevices and shallow caves on cliff sides, but occasionally roosts in buildings. When roosting in rock crevices, needs vertical faces to drop off to take flight.	**The Crossings and Remainder Area:** Low potential to occur. Potential foraging and roosting habitat is present; however, roosting opportunities within the project site are few and limited to non-riparian areas .
Western red bat	Lasiurus blossevillii	Federal: None State: SSC	In California, habitat includes forests and woodlands from sea level up through mixed conifer	**The Crossings and Remainder Area:** Low potential to occur. Potential roosting

Table 3.4-2

Special Status Wildlife Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Federal and State Status	Habitat Associations	Potential to Occur in each component of the Project Area
			forests. Strongly associated with riparian habitats in the Central Valley and lower reaches of Sierra Nevada streams. Roosts primarily in trees. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Not found in desert areas.	and foraging habitat is present, but roosting opportunities are few and limited to occupied residential and institutional buildings. There are no riparian areas onsite.

Status Code:

SSC - CDFW Species of Concern

American badger

American badger is a CDFW Species of Special Concern (CDFW 2019a) with a low potential to occur on the project site. This species utilizes dry, open, treeless areas, such as grasslands, coastal scrub, agriculture, and pastures, especially with friable soils (CDFW 2019c). The project site provides marginal habitat due to the level of existing disturbance, including regular disking. No potential dens were observed onsite during the field survey (Appendix E). The nearest documented occurrence is 6 to 11 badgers detected at or near an active den site in 2016, 2017, and 2018, approximately 10.5 miles south-southeast of the site (CDFW 2019b).

Burrowing owl

Burrowing owl is a raptor that is designated by CDFW as a species of special concern (CDFW 2019a). These owls typically inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. Burrowing owls utilize small mammal burrows, most notably

the California ground squirrel (*Otospermophilus beechyi*), year-round for nesting and cover. The breeding season in California generally extends from February 1 through September 30 (CDFW 2019c).

Although no California ground squirrels or associated burrows were observed during the field survey, the project site contains potential nesting and foraging habitat for this species (Appendix E). The nearest documented occurrence is for burrowing owls and occupied burrows observed in grazed grassland, vernal pool habitat, approximately 2 miles north-northeast of the project site (CDFW 2019b).

California tiger salamander

The California tiger salamander is listed as threatened at both the federal and state level, and is a CDFW Watch List Species with a potential to occur in the northwestern and central portions of the site (CDFW 2019a.) California tiger salamanders are found in riparian and wet meadow habitats, as well as in grasslands. Most of their life cycle is spent underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development (CDFW 201c).

This species is not expected to occur within The Crossings component of the project site due to lack of vernal pools and seasonal wetlands but has potential to occur within the Remainder Area because aerial photography shows a likelihood that vernal pools and/or seasonal wetlands to be present in the northwestern and central portions of the site (Appendix E).

Conservancy fairy shrimp

Conservancy fairy shrimp is federally listed as endangered with the potential to occur in the northwestern and central portions of the site (CDFW 2019a). This species is adapted to seasonally inundated features and primarily occurs in vernal pools and seasonal wetlands (CDFW 2019c).

This species is not expected to occur within The Crossings component of the project site due to lack of vernal pools and seasonal wetlands but has potential to occur within the Remainder Area because aerial photography shows a likelihood that vernal pools and/or seasonal wetlands to be present in the northwestern and central portions of the site (Appendix E).

Loggerhead shrike

Loggerhead shrike is a CDFW Species of Special Concern (CDFW 2019a) with a low potential to occur on the project site. This species occurs in grasslands, open areas, orchards and areas

with scattered trees, shrubs, fences, and other perching options. The highest densities are found in more complex habitat types, such as open-canopied valley foothill hardwood, valley foothill hardwood-conifer, and valley foothill riparian (CDFW 2019c).

The project site provides poor quality nesting habitat because the Crossings component of the project site is frequently disturbed by disking activities; the existing church, school, and residential dwellings in the Remainder Area limit available nesting and foraging habitat; and the site lacks scattered perching options (Appendix E). There are no documented occurrences of this species with 25 miles of the project site (CDFW 2019b).

Pallid bat

Pallid bat is designated by CDFW as a Species of Special Concern (CDFW 2019a). Pallid bat occupies a variety of habitats including grassland, shrub land, woodland and forests. This species primarily roosts in caves, mines, and crevices, but may also utilize hollow trees or buildings for roosting. Foraging generally occurs in open habitats. Pallid bat are extremely sensitive to their roosting sites and highly sensitive to disturbance (CDFW 2019c). Although the project site provides potential foraging and roosting habitat, the level of existing human disturbance onsite likely precludes this species from utilizing the site (Appendix E). The nearest documented occurrence is for bats detected near the Merced River in 1999, approximately 9.6 miles north-northwest of the site (CDFW 2019b).

San Joaquin kit fox

San Joaquin kit fox is a federal and state listed species (CDFW 2019a) with a low potential to occur on the project site. This species historically inhabited grasslands and scrublands, much of which has been extensively modified in recent years. This species now typically occurs in grassland and agricultural areas. Dens are scarce in areas with shallow soils, because of either proximity to bedrock, high water tables, or impenetrable hardpan layers (CDFW 2019c). The project site provides marginal habitat due to the lack of open, native habitat and movement corridors onsite. No potential dens were observed onsite during the field survey (Appendix E). The nearest documented occurrence is for one adult kit fox observed approximately 3.7 miles east-northeast of the site (CDFW 2019b).

Swainson's hawk

Swainson's hawk is a state-listed threatened species (CDFW 2019a) with a moderate potential to occur on the project site. This species typically nests in isolated large trees located in open woodland, savanna, or riparian habitats, and foraging occurs in nearby grasslands and agricultural areas (CDFW 2019c). Within the project site, large trees provide potential nesting habitat and open agricultural areas provide potential foraging habitat for Swainson's hawk

(Appendix E). There are at least five documented occurrences of this species within 5 miles of the project site (CDFW 2019b).

Townsend's big-eared bat

Townsend's big-eared bat is a CDFW Species of Special Concern (CDFW 2019a). It primarily roosts in limestone caves and lava tubes, man-made structures, and tunnels located in mesic habitat types Townsend's big-eared bat generally forages along habitat edges. This species is extremely sensitive to their roosting sites (CDFW 2019c). The nearest documented occurrence is for one bat observed near Merced Falls Diversion Dam, approximately 14.4 miles northeast of the site (CDFW 2019b).

Buildings on and adjacent to the project site could provide roosting habitat for Townsend's big-eared bat, and the project site could be used for foraging; however, this species is highly sensitive to disturbance and regular use of the buildings on and around the developed portion of the project site results in low-quality roosting and foraging habitat for Townsend's big-eared bat (Appendix E).

Vernal pool fairy shrimp

Vernal pool fairy shrimp is federally listed as threatened with the potential to occur in the northwestern and central portions of the site (CDFW 2019a.) Vernal pool fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools and seasonal wetlands (CDFW 2019c).

This species is not expected to occur within The Crossings component of the project site due to lack of vernal pools and seasonal wetlands but has potential to occur within the Remainder Area because aerial photography shows a likelihood that vernal pools and/or seasonal wetlands to be present in the northwestern and central portions of the site (Appendix E).

Vernal pool tadpole shrimp

Vernal pool tadpole shrimp is federally listed as endangered with the potential to occur in the northwestern and central portions of the site (CDFW 2019a.) This species is associated with seasonal pools in unplowed grasslands. The vernal pool tadpole shrimp is found only in ephemeral freshwater habitats, including vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California (CDFW 2019c).

This species is not expected to occur within The Crossings component of the project site due to lack of vernal pools and seasonal wetlands but has potential to occur within the Remainder Area

because aerial photography shows a likelihood that vernal pools and/or seasonal wetlands to be present in the northwestern and central portions of the site (Appendix E).

Western mastiff bat

Western mastiff bat is a CDFW Species of Special Concern (CDFW 2019a). This species occurs in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, desert scrub, and urban. Suitable habitat consists of extensive open areas with abundant roost locations. It primarily roosts in rock crevices and shallow caves on cliff sides, but occasionally roosts in buildings. When roosting in rock crevices, needs vertical faces to drop off to take flight (CDFW 2019c). The nearest documented occurrence is for bats detected along the Merced River, approximately 9.5 miles north-northwest of the site (CDFW 2019b).

Although the project site provides potential foraging and roosting habitat, roosting opportunities within the project site are few and limited to non-riparian areas (Appendix E).

Western red bat

Western red bat is a state listed Species of Special Concern (CDFW 2019a) that primarily roosts in rock crevices and shallow caves on cliff sides but may occasionally roost in buildings. Their preferred habitat contains abundant roost sites in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, and urban (CDFW 2019c). The nearest documented occurrence, based on a 1991 collection, is mapped as in the vicinity of Merced, approximately 1.3 miles southwest of the site (CDFW 2019b).

Although the project site provides potential foraging and roosting habitat, roosting opportunities within the project site are few and limited to occupied residential and institutional dwellings (Appendix E).

Western spadefoot toad

The western spadefoot toad is a CDFW Species of Special Concern (CDFW 2019a) with the potential to occur in the northwestern and central portions of the site. This species inhabits areas with slightly moist, friable soils in mostly treeless habitats, and requires rain pools for spawning with little to no vegetation (CDFW 2019c).

This species is not expected to occur within The Crossings component of the project site due to lack of vernal pools and seasonal wetlands but has potential to occur within the Remainder Area because aerial photography shows a likelihood that vernal pools and/or seasonal wetlands to be present in the northwestern and central portions of the site (Appendix E).

3.4.3 Regulatory Setting

Federal Regulations

Federal Endangered Species Act

The federal Endangered Species Act (FESA) (16 U.S.C. 1533) gives joint authority to list a species as threatened or endangered to the Secretary of the Interior (represented by the USFWS) and the Secretary of Commerce (represented by the National Marine Fisheries Service [NMFS]). FESA prohibits the "take" of endangered or threatened fish, wildlife, or plant species or adverse modifications to critical habitat, in areas under federal jurisdiction. Under the Act "take" is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The USFWS and NMFS have interpreted the definition of "harm" to include significant habitat modification that could result in take of a species.

Projects that would result in "take" of any federally listed threatened or endangered species are required to obtain authorization from the NMFS and/or USFWS through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project.

FESA requires the federal government to designate "critical habitat" for any listed species, which is defined as specific areas within the geographical area occupied by the species at the time of listing if they contain physical or biological features essential to the species conservation, and those features that may require special management considerations or protection. Additionally, it includes specific areas outside the geographical area occupied by the species if the regulatory agency determines that the area itself is essential for conservation.

USFWS and/or NMFS must authorize projects where a federally listed species is present and likely to be affected by an existing or proposed project. Generally, terrestrial and freshwater fish species are under the jurisdiction of USFWS, while marine and anadromous fish species are under the jurisdiction of NMFS. Project authorization may involve a letter of concurrence that the project is not likely to adversely affect a listed species, or a Biological Opinion that describes what measures must be undertaken to minimize the likelihood of an incidental take. Projects determined by USFWS and NMFS to jeopardize the continued existence of a species cannot be approved under a Biological Opinion. Take that is incidental to the lawful operation of a project is permitted under Section 10(a) through approval of a habitat conservation plan, where a federal agency is not authorizing, funding, or carrying out the project.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species, including raptors, as listed in Title 50, Section 10.13 of the Code of Federal Regulations. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country. It is enforced in the United States by the USFWS. .

Clean Water Act

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Under Section 404 of the CWA, the ACOE has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. The ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

The State Water Resources Control Board has authority over wetlands through Section 401 of the CWA, as well as the Porter–Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine regional boards. The Central Valley RWQCB has authority for Section 401 compliance in the project area. A request for certification is submitted to the RWQCB at the same time that an application is filed with the ACOE.

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) and Section 2081 of the California Fish and Game Code identifies measures to ensure state-listed species and their habitats are conserved, protected, restored, and enhanced. The Act requires permits from the CDFW for activities that could result in take of a state-listed threatened or endangered species. "Take" is defined as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (Fish and Game Code Section 86). Section 2080 of the Fish and Game Code prohibits take of state-listed plants and animals unless otherwise permitted under Sections 2080.1, 2081, and 2835. Section 20814(b) affords CDFW the authority to issue permits for incidental take for otherwise lawful

activities. To authorize an incidental take, the impacts of the take must be minimized and fully mitigated such that the continued existence of a state-listed species is not jeopardized.

The California Fish and Wildlife Commission maintains a list of threatened and endangered species (Fish and Game Code Section 2070). The California Fish and Wildlife Commission maintains two additional lists: a Candidate species list, which identifies species under review for addition to either the endangered or threatened species list, and a Species of Special Concern list, which includes species, subspecies, or distinct populations of an animal native to California that currently satisfies one or more of the following criteria (which are not necessarily mutually exclusive):

- Is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role
- Is listed as threatened or endangered federally, but not by the state
- Meets the state definition of threatened or endangered, but has not formally been listed
- Is experiencing, or formerly experienced, serious noncyclical population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for threatened or endangered status by the state
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for threatened or endangered status by the state

The Species of Special Concern classification is intended to elicit special consideration for these animals by the CDFW, land managers, consulting biologists, and others; and to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them.

California Fully Protected Species

The classification of “fully protected” was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. California Fish and Game Code sections (fish at Section 5515, amphibians and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with “fully protected” species state that these species may not be taken or possessed at any time, and no provisions in this code or any other law shall be construed to authorize permits for take of fully protected species.

California Department of Fish and Wildlife Wetlands Protection Regulations

CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes Sections 1600 through 1616 of the Fish and Game Code (lake and streambed

alteration agreements, discussed below), the California Endangered Species Act (protection of state-listed species and their habitats, which could include wetlands, discussed above), and the Keene–Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, the CDFW asserts authority over wetlands within the state through any of the following: review and comment on ACOE Section 404 permits, review and comment on California Environmental Quality Act (CEQA) documents, preservation of state-listed species, or through lake and streambed alteration agreements.

California Fish and Game Code Sections 1600–1616 – Lake and Streambed Alteration Agreement

Under Sections 1600 through 1616 of the California Fish and Game Code, CDFW regulates activities that would substantially alter the flow, bed, channel, or bank of streams and lakes. Such activities require a 1602 Lake and Streambed Alteration Agreement from CDFW. The California Code of Regulations defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" includes rivers, creeks, ephemeral streams, dry washes, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Removal of riparian vegetation also requires a Section 1602 Lake and Stream Alteration Agreement from CDFW.

Fish and Game Code Section 1940 – Sensitive Natural Communities

Section 1940 of the California Fish and Game Code requires CDFW to develop and maintain a vegetation mapping standard for the state. More than half of the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program.

Natural vegetation communities are evaluated by CDFW and are assigned global (G) and state (S) ranks based on rarity of and threats to these vegetation communities in California. Natural communities with ranks of S1 through S3 are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents. Additionally, all vegetation associations within the alliances with ranks of S1 through S3 are considered sensitive habitats. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible.

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain

special-status species or their habitats. For purposes of this assessment, sensitive natural communities are considered to include vegetation communities listed in CDFW's CNDDB and communities listed in the Natural Communities List with a rarity rank of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable).

California Fish and Game Code Sections 3503, 3511, 3513

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

California Fish and Game Code Section 4150

California Fish and Game Code Section 4150 states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take as stated in California Fish and Game Code Section 4150.

California Native Plant Protection Act

The California Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) and the Natural Communities Conservation Planning Act provide guidance on the preservation of plant resources. Vascular plants which have no designated status or protection under state or federal endangered species legislation, but are listed as rare or endangered by the CNPS, are defined as follows:

Rank 1A:	Plants presumed extinct
Rank 1B:	Plants rare, threatened or endangered in California and elsewhere
Rank 2:	Plants rare, threatened, or endangered in California, but more numerous elsewhere
Rank 3:	Plants about which more information is needed – a review list
Rank 4:	Plants of limited distribution – a watch list

Plants with CNPS Ranks 1A, 1B, or 2 are generally considered to meet the criteria for endangered, threatened, or rare species as outlined by Section 15380 of the CEQA Guidelines. These plants also meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act)

and Sections 2062 and 2067 (CESA) of the California Fish and Game Code. Plants with CNPS Ranks 3 or and 4 generally do not meet these criteria or definitions unless they meet one or more of the following: a) the project area is considered a type locality (i.e., the area from which the plant was originally described) for that species; b) populations are at the periphery of a species range; c) occurrences are in areas where taxon is especially uncommon or has sustained heavy losses; or d) populations exhibit unusual morphology or occur on unusual substrates.

State Water Resources Control Board

The SWRCB administers Section 401 of the CWA, which requires that an applicant for a Section 404 permit first obtain a certification, or waiver thereof, that the project will not violate applicable state water quality standards. The SWRCB delegates authority to either grant certification or waive the requirement for certification to nine regional boards, including, in Merced County the Central Valley Regional Water Quality Control Board. The SWRCB protects all waters of the state but has special responsibility for isolated wetlands and headwaters. These water bodies have high resources value but are vulnerable to filling and may lack regulation by other programs. Projects that require a U.S. Army Corps of Engineers permit, or fall under other federal jurisdiction, and have the potential to impact waters of the state are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge of harmful substances to waters of the state, the water boards have the option to regulate such activities under the Porter-Cologne Act authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

California Environmental Quality Act

Although federal and state statutes protect threatened and endangered species, Section 15380(b) of the CEQA Guidelines provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after definitions in FESA and the section of the California Fish and Wildlife Code dealing with rare or endangered plants and animals. CEQA Guidelines Section 15380(b) requires public agencies to determine whether projects would result in significant effects on species not listed by either the USFWS or CDFW (i.e., candidate species). Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

Local Regulations

The project site is currently within the boundaries of Merced County and within the City of Merced Sphere of Influence. The project proposes to annex the site to the City. Thus, the potential effects on biological resources would be subject to the City of Merced biological resources policies as identified in this section and Merced County policies and regulations would not be applicable.

Merced Vision 2030 General Plan

The City of Merced Vision 2030 General Plan, Chapter 7 Open Space, Conservation and Recreation provides guidance for new development and focuses on the protection of natural areas which provide habitat and cover for wildlife and vegetation. The City provides specific protection for biological resources, as described in the following policies and implementing actions (City of Merced 2012a).

Policy OS-1.1 Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.

Implementing Actions:

1.1.a Identify, and recognize as significant, wetlands and critical habitat areas which meet the appropriate legal definition under Federal and State law. Wetlands, as defined by statute, have special regulations which must be followed as opposed to other riparian or "water" areas of the community. This policy provides for the identification of those lands subject to special Federal and State rules and standards and those which are solely subject to local policies and standards. Development applications will be reviewed to determine if potential wetland habitats exist on-site, and wetland delineation may be required in accordance with current U.S. Army Corps of Engineers guidelines.

"Wetlands" containing sensitive plant and/or animal species should be protected according to law. Specific protection policies should include: a) protection of wetland watershed areas; b) establishment of minimum setback areas around "wetlands" in accordance with the recommendations of California Department of Fish and Game, U.S. Fish and Wildlife Service, or a qualified wildlife biologist. c) Provision of compensation or wildlife mitigation banks if a site is not protected. The City, in cooperation with the County, may consider establishing a mitigation "banking" program in accordance with state and federal guidelines for vernal pools and other types of wetland habitats. Vernal pool preserves may be incorporated into other open space preserves (i.e. parks and trails) that would not be directly impacted by urban development.

1.1.b Urban development should occur away from identified sensitive species critical habitats areas unless specific provisions to ensure adequate protection and monitoring exist. When, as a result of specific site studies, it is determined that "potential" habitats actually contain sensitive or endangered species, development rules, policies and standards should be applied to assure that further degradation of these species does not occur. These policies should emphasize "avoidance" as a desirable mitigation alternative. In instances where open space areas are established to protect a sensitive wildlife species, those areas shall be subject to appropriate management principles as approved by the City upon recommendation of the California Department of Fish & Game [now called the California Department of Fish & Wildlife] or the U. S. Fish and Wildlife Service.

City of Merced Municipal Code

The City of Merced Street Tree Division requires property owners to water City trees (trees planted within 8-10 feet of City streets). If the project area is annexed to the City, removal of any City trees would require consultation with the City.

3.4.4 Impacts

Methods of Analysis

CEQA requires that projects analyze the potential impacts on special-status plant and animal species, as well as on sensitive habitats, wildlife corridors, and waters of the United States. Impacts on wildlife species that are not considered special-status under CEQA are generally not considered significant unless impacts are associated with the species' migration routes or movements, or the species are considered locally important. In the area surrounding the project site, common species (e.g., skunk, raccoon, and Virginia opossum) would not be considered special-status species. Regardless of status, all nesting native bird species are protected under the state Fish and Game Code and the MBTA.

The analysis of potential project impacts to sensitive biological resources presented in this section is based on the Biological Resources Assessment (Appendix E) and relevant federal, state, and local regulations and plans. Preparation of the Biological Resources Assessment included a field assessment of the project site, which was conducted on December 1, 2016 by Dudek wildlife biologist Lisa Achter. The field assessment was performed by walking transects throughout The Crossings portion of the site and around its periphery to map vegetation communities and land cover types present and evaluate the site's potential to support jurisdictional wetlands or waters of the U.S. and special-status plant and wildlife species. In addition, an aerial photograph (Google Earth 2016) with an overlay of the entire 68.6-acre project site, and surrounding buffer was used to map the vegetation communities/land cover types and record any special-status or sensitive

biological resources while in the field. Observations of the Remainder Area were made from The Crossings portion of the project site and perimeter roadways. In 2019, Dudek biologists updated the Biological Resources Assessment by reviewing multiple aerial images taken between 2016 and 2019 and completing an updated literature and database review.

The analysis in this section also reflects consideration of the NOP comments submitted by CDFW, which addressed potential impacts to special status wildlife, particularly Swainson's hawk, California tiger salamander, burrowing owl, and nesting birds. The comment letter is included in Appendix A.

Items Addressed in the Initial Study

The Initial Study, included in Appendix B, concluded that because the project site is a non-linear feature and bound by existing roads and development, it has little value as a potential wildlife corridor, habitat linkage or, native wildlife nursery site. Therefore, implementation of the proposed project would result in a less-than-significant impact and this issue is not further evaluated in this EIR.

In addition, the Initial Study documents that the project site is not located within or adjacent to any preserve or conservation area and that there are no adopted Habitat Conservation Plans or Natural Community Conservation Plans in Merced County. Therefore, the proposed project would have no impact and this issue is not further evaluated in this EIR.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Result in 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, regulations, or by the CDFW or USFWS.
- Result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Result in a substantial adverse effect on federally regulated wetlands or waters as defined by Section 404 of the Clean Water Act and/or State protected wetlands as defined by the Porter-Cologne Water Quality Control Act through direct removal, filling, hydrological interruption, or other means.

- Conflict with any applicable land use plans, policies, regulations, or ordinances adopted by an agency with jurisdiction over the project for the purpose of protecting biological resources or avoiding and mitigating impacts to biological resources.

The impact analysis considers both direct and indirect effects to plant and wildlife species identified as candidate, sensitive, or special-status. Direct impacts refer to permanent and temporary effects to biological resources that are caused by and occur at the same time and place as construction activities. Direct impacts can include loss of on-site habitat or loss of the plant and wildlife species within that habitat. Indirect impacts refer to permanent and temporary effects of the project that occur at a later time or place but result in adverse impacts to species. Indirect impacts can include soil runoff into adjacent habitats that reduces water quality or an increase in noise and human activity that disrupts normal foraging and movement patterns of wildlife species.

Impacts and Mitigation Measures

Impact 3.4-1: Implementation of the proposed project may result in substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species by CDFW or USFWS. This would be a potentially significant impact.

The Crossings

The Crossings portion of the project site supports a dominance of non-native and/or ruderal species common to disturbed sites. The site is disked annually and used for production of row crops (Appendix E).

Special-Status Plants

As discussed in Section 3.4.2, Environmental Setting, although the CNDDB and CNPS searches revealed 25 special-status plant species that occur in the project region, each requires a specific habitat or soil type that does not occur within the project site. There are no mesic habitats, such as vernal pools, marshes, and seeps, or alkaline, rocky, and serpentine soils within this portion of the site. Thus, the Biological Resources Assessment concludes that none of the special-status plant species in the region have the potential to occur in the project site because of the lack of suitable habitats and soil types and due to the disturbed nature of the project site, which creates unsuitable habitat conditions for special-status plant species (Appendix E). The Crossings component of the project is expected to result **no impact** to special-status plant species.

Special-Status Wildlife

As discussed in Section 3.4.2, The Crossings component of the project site provides suitable nesting and foraging habitat for burrowing owl, loggerhead shrike, and Swainson's hawk. Low quality roosting and foraging habitat exists for pallid bat, western mastiff bat, and Townsend's big eared bat. The project site provides marginal habitat for American badger and San Joaquin kit fox due to existing development and disturbances. Potential impacts to these species and their habitat are discussed below.

Burrowing Owl

Construction activities such as grading and operation of heavy equipment could result in the abandonment or failure of active nests either through direct destruction of burrows or through indirect effects from noise and vibration associated with construction equipment. Evidence of this species was not identified during the field survey, but the project area contains suitable habitat for this species, and there are occurrences of burrowing owl adjacent to the project site.

The Crossings portion of the project site currently provides foraging habitat for this species and would be converted to developed land uses, thereby reducing the available foraging habitat for burrowing owl. The removal of available nesting and foraging habitat constitutes a **potentially significant impact** to this species. This impact would be addressed with implementation of Mitigation Measure 3.4a, which requires completion of a habitat assessment of the project site for burrowing owls, and implementation of an exclusion plan if borrowing owls are found to be present prior to project construction. Subsequent surveys (if needed) would only be necessary if project construction would occur during the burrowing owl breeding season (February 1 through August 31).

Loggerhead Shrike and Nesting Birds

Although there is low quality breeding habitat for loggerhead shrike within the project area, the project's agricultural lands provide suitable foraging habitat for this species. The removal of approximately 28.4 acres of available foraging habitat is considered a **potentially significant** impact. In addition, nesting birds protected under California Fish and Game Code and the MBTA may be present within the project site. Disturbance to nesting birds through removal or destruction of nests or by interrupting nesting and breeding activities could occur if construction activities commence while nest building and tending is ongoing; this is considered a **potentially significant** impact. These impacts to nesting birds, including loggerhead shrike, would be addressed with implementation of Mitigation Measure 3.4b, which requires completion of a nesting bird survey prior to the start of construction.

Swainson's Hawk

There are several trees within the center of The Crossings component of the project site near the residence that could provide suitable nesting habitat for Swainson's hawk, and eight occurrences of Swainson's hawk exist within five miles of the project site. The nearest occurrence of Swainson's hawk is located approximately 2.5 miles east of the site. Swainson's hawks could be significantly impacted by the loss of suitable nesting and foraging habitat. Additionally, noise, light, and other activities associated with construction could result in nest failure if active nests are present within 0.5 mile of the project site at the time of construction.

In addition, the proposed project would result in the conversion of approximately 28.4 acres of agricultural land to residential and commercial development. The potential disturbance to nests and nesting activity as well as removal of this foraging habitat is considered a **significant** impact. This impact would be addressed with implementation of Mitigation Measure 3.4c, which requires a preconstruction survey for Swainson's hawk within 0.5 mile of the project site prior to the start of project construction if construction would begin during the Swainson's hawk breeding season (March 1 through August 31) or if construction is inactive for more than two weeks at any point during the Swainson's hawk breeding season and with implementation of Mitigation Measure 3.4d which requires the project applicant to provide compensation for the loss of foraging habitat.

Pallid Bat, Western Mastiff Bat and Townsend's Big Eared Bat, and Western Red Bat

Buildings and trees within and adjacent to the project site could provide roosting habitat for the pallid bat, western mastiff bat, and Townsend's big eared bat and the site also provides suitable foraging habitat for these species. Construction activities that disrupt foraging patterns such as by introducing light and noise during construction, as well as direct loss of roosting and foraging habitat by modification of resources within the project site is considered a **potentially significant impact**. This impact would be addressed with implementation of Mitigation Measure 3.4e, which requires completion of a preconstruction survey within 2 weeks prior to construction to assess whether bats are roosting onsite. The measure further requires that if a bat roosting or maternity colony cannot be completely avoided, a bat mitigation and monitoring plan would be prepared for CDFW review and approval.

American Badger and San Joaquin Kit Fox

The project site provides marginal habitat for American badger and San Joaquin kit fox due to existing development and disturbances, such as frequent disking, in the area. No potential burrow sites were observed during the field survey. Therefore, these species have a low potential to occur onsite and the project would result in a **less than significant** impact.

Remainder Area

The project proposes to pre-zone the Remainder Area with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new development to occur on that portion of the site.

Special-Status Plants

As discussed in Section 3.4.2, the Remainder Area could not be accessed during the field survey conducted for the proposed project. Conditions such as soil and natural habitat types within the Remainder Area appear similar to those of The Crossings area, thus the potential for special status plants to occur within the Remainder Area is considered low. However, aerial photography indicates likely presence of seasonal wetlands and/or vernal pools in the northwestern portion of the Remainder Area and on the parcel between the eastern boundary of The Crossings component of the project site and the parcel that supports Stoneridge Christian School and Yosemite Church. Thus, there are several special-status plant species associated with seasonal wetlands and vernal pools that could occur in this area.

No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new residential units on that portion of the site. As shown on Figure 2-5, the portions of the Remainder Area that support aerial signatures of seasonally wet areas are within the portions proposed to be zoned U-T, thus future development of those areas is not considered to be a likely result of the proposed project. However, there is some potential for future development in these areas. Further because none of the Remainder Area was surveyed, it is possible that seasonally wet areas that could support special-status species could be present in the portions of the site proposed to be zoned R-1-10. In the event that development and/or redevelopment occurs, any special-status plant species could be disturbed or destroyed such as through vegetation removal, grading, excavation, and/or new construction. Thus, the project has a **potentially significant** impact to special-status plant species**.** This impact would be addressed with implementation of Mitigation Measure 3.4f, which requires a preconstruction floristic survey of any portion of the Remainder Area proposed for development and/or redevelopment and to take avoidance and compensatory measures should special-status plant species be identified within the development area.

Special-Status Wildlife

There is suitable habitat for several special-status wildlife species within the Remainder Area, as well as potential for additional wetlands or waters of the U.S. to be present. The Remainder Area is considered to have a moderate potential to support the same special-status wildlife species that have potential to occur within The Crossings component of the project site, which are burrowing owl, loggerhead shrike, Swainson's hawk, pallid bat, Townsend's big eared bat, western mastiff bat, and western red bat. In addition, the Remainder Area is considered to have a low potential to support American badger or San Joaquin kit fox due to the existing levels of disturbance and removal of natural habitat and vegetation cover. Further, the Remainder Area is considered to have potential to support the following special-status wildlife species that are associated with seasonal wetlands and vernal pools: conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western spadefoot toad. Because the Remainder Area could not be surveyed, and future development could impact special-status wildlife species such as through vegetation removal, grading, excavation, and/or new construction, the impact to special status wildlife species is considered **potentially significant.**

Mitigation Measures

Implementation of the mitigation measures 3.4a, 3.4b, 3.4c, 3.4d, and 3.4e, as discussed above, would reduce impacts to burrowing owl, loggerhead shrike and other nesting birds, Swainson's hawk, and bat species by ensuring the species are identified and protected during project construction activities and any breeding, nesting or foraging habitat is replaced and preserved in perpetuity to ensure the survival of the species. Further, Mitigation Measures 3.4f and 3.4g would address potential impacts to special-status plant species on the Remainder Area portion of the site.

The Crossings and Remainder Area

3.4a To avoid impacts to burrowing owl, a qualified biologist shall conduct a habitat assessment of the project site for burrowing owl prior to ground-disturbance on the project site. Ideally, the assessment should be conducted prior to the breeding season to allow time for protocol surveys and/or passive relocation, should any suitable burrows and/or burrows with owl sign be detected during the survey. Surveys shall be conducted in accordance with the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and California Department of Fish and Wildlife's (CDFW) "Staff Report on Burrowing Owl Mitigation" (CDFG 2012). Specifically, CBOC and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season

(April 15 to July 15), when BUOW are most detectable. If the habitat assessment is not conducted prior to the breeding season, a protocol survey for burrowing owls shall be conducted following these guidelines, with the final survey occurring no more than 14 days prior to commencement of construction. The habitat assessment and/or survey(s) shall cover the limits of ground disturbance and potentially suitable and accessible nesting habitat within 300 feet.

If nesting or non-nesting burrowing owls, or evidence of an active owl burrow are observed during the survey, construction shall be postponed until the qualified biologist can fully implement a California Department of Fish and Wildlife-approved burrow exclusion plan (to be prepared by the qualified biologist). The exclusion plan shall be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Once owls have been successfully excluded and unoccupied burrows evacuated, construction in the area may proceed.

Construction activities within 300 feet of occupied burrows shall be delayed until young owls have fledged and are independent of the burrow, as determined by a qualified biologist in coordination with CDFW. The qualified biologist may reduce the buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once all young have fledged and are no longer dependent upon the nest burrow, the same burrow exclusion procedure described above shall be implemented prior to resuming construction activities in the area.

3.4b To avoid impacts to nesting birds species (including loggerhead shrike and other special-status species), vegetation clearing operations, including pruning or removal of trees and shrubs, should be completed between September 1 and February 14, if feasible. Further, a pre-construction nesting bird survey shall be performed by a qualified biologist no more than ten days prior to ground-disturbing or vegetation removal activities conducted during the nesting season (February 1 through September 15). The survey shall cover the limits of disturbance and suitable nesting habitat within 500 feet for raptors and 250 feet for other nesting birds.

If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance, to be determined by the qualified biologist, usually ranges from 50 to 300 feet and shall be determined based on factors such as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active

nests shall be established in the field with flagging, fencing, or other appropriate barriers and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.

If ground-disturbing or vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities. Further, if construction activities lapse for more than 14 days, the pre-construction survey shall be repeated no more than 7 days prior to the re-start of construction activities.

If the pre-construction survey shows that there is no evidence of active nests, then a letter report shall be submitted to the City and no additional measures are required.

3.4c To avoid impacts to Swainson's hawk, A qualified biologist shall conduct surveys for Swainson's hawk prior to ground-disturbance or vegetation removal activities, if undertaken during the Swainson's hawk nesting season (March 1 – August 31). The surveys shall be conducted in accordance with the Swainson's Hawk Technical Advisory Committee (TAC) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (TAC 2000). The survey shall cover the limits of construction and accessible, suitable nesting habitat within 0.5 mile. If an active nest is observed in the survey area, construction within 0.5 mile of the nest shall be delayed until young hawks have fledged and are independent of the nest, as determined by a qualified biologist. In consultation with California Department of Fish and Wildlife biologists, the qualified biologist may reduce the buffer based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the nest. Construction within the no-disturbance buffer of the nest may reinitiate once all young have fledged and are no longer dependent upon the nest.

3.4d To compensate for the loss of Swainson's hawk foraging habitat within The Crossings component of the project site, the project applicant shall provide for habitat mitigation by paying into a habitat mitigation bank and/or acquiring a conservation easement over land that provides Swainson's hawk foraging habitat and is located within 10 miles of the active Swainson's hawk nest nearest to the project site. In total, the compensatory mitigation shall be sufficient to protect an area equal to 75% of the acreage of foraging habitat lost to development. For The Crossings component of the project, the habitat mitigation shall be equal to 21.3 acres of foraging habitat. This is based on the expected loss of 28.4 acres of

foraging habitat and the CDFW recommendation to mitigated for 75% of the land lost to development when there is a known Swainson's hawk nest between 1 and 5 miles from the project site. This ratio may be increased to 100% of the land lost to development if an active Swainson's hawk nest is identified within 1 mile of the project site. The land protected under an agricultural conservation easement as required by Mitigation Measure 3.2a can be applied to this mitigation measure subject to confirmation by a qualified biologist that the conserved agricultural land provides Swainson's hawk foraging habitat that is of equal foraging value as provided at the project site, and subject to the agricultural conservation easement being located within 10 miles of the active Swainson's hawk nest nearest to the project site. For the Remainder Area, the amount of habitat mitigation required will depend on the area proposed for development/redevelopment that includes potential foraging habitat and shall be equal to 75% of that total area if the nearest active nest is between 1 and 5 miles of the Remainder Area, or equal to 100% of the total area to be developed if the nearest active nest is within 1 mile of the area to be developed.

3.4e A pre-construction bat survey for pallid bat, Townsend's big eared bat, western mastiff bat, and western red bat shall be performed by a qualified biologist no earlier than 14 days prior to the onset of construction to assess whether roosting bats occur in the buildings slated for demolition on the project site. If roosting bats are detected, the qualified biologist shall consult with CDFW to identify appropriate measures to avoid/minimize impacts to the species, which can include approval to passively exclude any bats found on the project site. If a maternity roost is identified on the project site, an appropriate buffer shall be determined by the qualified biologist and the roost shall be avoided until the young have fledged (which may require halting building demolition).

Additional Mitigation Measures for the Remainder Area

3.4f Prior to issuance of a discretionary permit or approval within the Remainder Area, the project applicant for that approval shall submit a biological assessment prepared by a qualified biologist to the City of Merced. The biological assessment shall identify special-status species, their habitat and/or other biological resources that could occur in the area subject to the requested discretionary permit or approval.

If the Biological Assessment determines that rare plants could be present, the project applicant shall retain a qualified botanist to conduct a floristic survey for special-status plant species within the area to be disturbed. The survey shall be conducted during the time of year when special-status plants with potential to occur

onsite are blooming and thus can be positively identified (generally March through June). The results of the survey shall be summarized in a report to the City of Merced.

If no special-status plants are located during the surveys, no further mitigation would be required.

If special-status plants are located during the survey, the project applicant shall implement the following measures:

(i) The project shall be redesigned to avoid the plants, to the extent feasible.

and

(ii) (a) If the plants cannot be avoided, the project applicant shall consult with the City and the Department of Fish and Wildlife (CDFW) regarding steps to take to off-set the loss of the plants on the project site, such as transplantation, collecting seed or clippings and replanting species in an onsite location, prior to approval of grading plans. The measures shall be sufficient to ensure the continued survival of the special status plants within the Middle San Joaquin-Lower Chowchilla watershed.

3.4g If the biological assessment prepared for any portion of the Remainder Area proposed for development identifies habitat that could support conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and/or western spadefoot toad, the following requirements shall apply:

1. Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp: Prior to issuance of a grading permit for any activities within seasonal wetlands or vernal pools, a protocol-level vernal pool branchiopod survey shall be performed by a qualified biologist (i.e., a biologist with several years' experience performing vernal pool surveys, capable of identifying signs of vernal pool fairy shrimp and/or vernal pool tadpole shrimp activity) to determine if conservancy fairy shrimp, vernal pool fairy shrimp and/or vernal pool tadpole shrimp are present on the project site. Alternatively, presence can be assumed. Where presence is identified or assumed, compensation for the loss of habitat for these species shall be provided at a ratio of 3 acres for every 1 acre affected (3:1). This ratio shall include creation of 1 acre of vernal pool habitat for every 1 acre impacts (1:1), and preservation of 2 acres of vernal pools for every 1 acre impacted (2:1), as described in the U.S. Fish and Wildlife Service (USFWS) programmatic biological opinion issued to the U.S. Army Corps of Engineers for small impacts to listed branchiopods (USFWS 1996). Mitigation for impacts to listed branchiopods

shall be implemented according to one of the following three options, to be determined and completed prior to impact: participation in a USFWS approved mitigation bank, off-site mitigation at a non-bank location approved by USFWS and subject to preservation in perpetuity such as through a conservation easement, or contribution to the USFWS Species Fund. In the event that protocol-level surveys demonstrate the absence of listed vernal pool branchiopods, mitigation shall not be required.

2. **California Tiger Salamander:** A qualified biologist with valid federal and state collecting permits shall conduct protocol-level surveys in accordance with the USFWS "Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander" (USFWS 2003) at the appropriate time of year to determine the existence and extent of California tiger salamander breeding and refugia habitat. The protocol-level surveys for California tiger salamander require more than one survey season and are dependent upon sufficient rainfall to complete. As a result, consultation with the California Department of Fish and Wildlife (CDFW) and the USFWS shall occur well in advance of beginning the surveys and prior to any planned vegetation- or ground-disturbing activities. The protocol-level survey shall include a 100-foot buffer around the proposed development area, subject to landowner authorization, in all areas of wetland and upland habitat that could support California tiger salamander. Protocol-level survey results for California tiger salamander are viable for two years after the results are reviewed by CDFW.

If California tiger salamander are encountered during the pre-construction survey, individuals shall be safely relocated to suitable habitat outside of the proposed development area. The approved biologist shall prepare a Salvage and Relocation Plan for California tiger salamander in consultation with, and for approval by, USFWS and CDFW. Any California tiger salamander relocations conducted during the pre-construction survey (as described above) shall be completed in accordance with the agency-approved plan. All relocation areas shall contain animal burrows or other suitable refugia and be identified and approved by USFWS and CDFW prior to the pre-construction survey. Relocated California tiger salamander shall be monitored until they have escaped into upland refugia or aquatic habitat with sufficient water.

If California tiger salamander are determined present within the proposed development area, then on-going monitoring by a qualified biologist may be required to ensure no impacts to this species and its habitat during construction and operation and maintenance activities for the project.

If impacts to California tiger salamander and/or their habitat cannot be avoided, impacts would require prior authorization from the regulatory agencies in the form of USFWS Section 7 Consultation and a CDFW Lake and Streambed Alteration Agreement. The project applicant shall also obtain "take" authorization for California tiger salamander from the USFWS and the CDFW prior to project implementation. The project may proceed after the Applicant has satisfied all pre-construction conditions in the "take" authorizations defined above. It is expected that avoidance and minimization measures associated with these authorizations will include requirements for providing methods to protect California tiger salamander during project construction and operation and maintenance activities, a Compensatory Mitigation Plan, a detailed California tiger salamander Monitoring Plan, and reporting requirements.

3. Western spadefoot toad: Surveys for western spadefoot toad shall be conducted by a qualified biologist no more than 48 hours prior to the start of grading or vegetation clearing within 200 feet of any vernal pools and/or seasonal wetlands. The survey shall be conducted by a biologist who has been approved by CDFW. If any western spadefoot toad individuals or populations are observed within the survey area, a no-disturbance area shall be established (flagged or fenced) within 200 feet of that location and no construction activity shall occur in that area until the animal voluntarily leaves the area. If no western spadefoot toads are observed, then a letter report documenting the results of the survey should be provided to the project proponent for their records, and no additional measures are recommended. If construction within each habitat feature that could support this species does not commence within 48 hours of the survey, a new survey shall be completed.

Impact 3.4-2: Implementation of the proposed project could result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS. This would be considered a potentially significant impact.

The Crossings

Due to the highly disturbed nature of the project site and the current agricultural usage, no riparian habitat or other sensitive natural communities were identified within the site. The agricultural ditches along the southern and northern boundaries of the project site appear to be regularly maintained and riparian vegetation is absent. Thus, there is no riparian habitat or other sensitive natural community within the project site and The Crossings component of the project would have **no impact** to such resources.

Remainder Area

The project proposes to pre-zone the Remainder Area with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new development on that portion of the site.

The Remainder Area could not be accessed during the field survey, although no riparian habitat or sensitive natural communities were observed during a review of aerial photographs. Additional surveys would be required prior to issuance of any further discretionary approvals to determine the potential for riparian habitat or other sensitive communities to occur within the Remainder Area. If the Remainder Area supports riparian habitat or sensitive natural communities, those resources could be destroyed or damaged if further development that includes activities such as vegetation removal, grading, excavation, and/or new construction is proposed. This is considered a **potentially significant impact.**

Mitigation Measures

Compliance with Mitigation Measure 3.4h would ensure potential impacts to riparian habitat or other sensitive natural communities associated with future development could be reduced to a less-than-significant level.

The Crossings

No mitigation measures are required.

Remainder Area

3.4h Prior to approval of any discretionary entitlements or issuance of a discretionary permit for the Remainder Area, the project applicant for that approval shall submit a biological assessment prepared by a qualified biologist to the City of Merced. The biological assessment shall identify special-status species, their habitat and/or other biological resources that could occur in the area subject to the approval. The biological assessment shall identify whether the Remainder Area (or the portion to which the requested discretionary permit or approval would apply) contains any sensitive natural communities, including riparian habitat.

If the Biological Assessment determines that sensitive natural communities are present, the Biological Assessment shall assess the nature and quality of those communities and identify avoidance and compensation measures that shall be implemented by the project applicant to ensure no net loss of these resources in the project region. If no sensitive natural communities are located during the surveys, no further mitigation would be required.

Impact 3.4-3: Implementation of the proposed project may result in placement of fill into potential jurisdictional waters of the U.S and State. This would be a potentially significant impact.

The Crossings

Preparation of the Biological Resources Assessment (Appendix E) included a constraints-level wetland assessment, which found two drainages along the northern and southern boundaries of the 28.4-acre study area for The Crossings component of the project, as shown in Figure 3.4-1, and described in Section 3.4.2 above. No potential Waters of the U.S., vernal pools, or wetlands were identified on The Crossings portion of the project site during the December 2016 field survey and no changes to site conditions were identified in a review of aerial photographs taken between 2016 and 2019. The Biological Resources Assessment notes that there are also three agricultural ditches northeast of the project site, but these features would be not be affected by project construction because they are outside the project boundaries.

Both of the drainages along the project site boundaries are man-made facilities that function as roadside and/or agricultural ditches. They were constructed in upland habitat to collect runoff and/or convey irrigation water. They are potentially under the joint regulation of the RWQCB and CDFW. The proposed project would require constructing three driveways across the ditch along the southern property boundary (Drainage 1) and may also require installing a new sewage conveyance line within or adjacent to the East Yosemite Avenue right-of-way. These actions could result in direct and indirect effects to Drainage 1. The proposed project would also require converting Drainage 2 from an open air canal channel to a piped underground canal, which would result in direct effects to Drainage 2. If either or both drainages meet the definition of waters of the state, impacts to these features would be a **significant** impact.

Remainder Area

Because the Remainder Area could not be accessed during the field survey, preparation of the Biological Resource Assessment included a review of aerial imagery to assess the potential for wetlands or other waters to present in this area. This review found that there are aerial signatures indicating seasonally wet areas visible on the four residential parcels in the northwest portion of

the study area, as well as in the undeveloped area between The Crossings portion of the site and the Stoneridge Christian School/Yosemite Church parcel.

No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new residential units on that portion of the site. As shown on Figure 2-5, the portions of the Remainder Area that support aerial signatures of seasonally wet areas are within the portions proposed to be zoned U-T, thus future development of those areas is not considered to be a likely result of the proposed project. However, there is some potential for future development in these areas. Further because none of the Remainder Area was surveyed, it is possible that wetlands or jurisdictional waters could be present in the portions of the site proposed to be zoned R-1-10. If the Remainder Area supports wetlands or jurisdictional waters, those resources could be destroyed or damaged if further development that includes activities such as vegetation removal, grading, excavation, and/or new construction is proposed. This is considered a **potentially significant impact.**

Mitigation Measures

The following mitigation measure would reduce potential impacts to wetland habitat less than significant by requiring the loss of aquatic habitat be replaced at a 1:1 ratio.

The Crossings and Remainder Area

3.4i Prior to issuance of any grading or construction permits, the project applicant shall have a wetland delineation prepared by either a qualified biologist or wetland scientist to determine if the development to which the grading and/or construction permits would apply could result in any impacts to waters of the U.S. or waters of the State. This includes the ditches along the northern and southern project site boundaries, which would be affected by construction of The Crossings component of the project, as well as potential seasonal wetlands and vernal pools within the Remainder Area. A copy of the wetland delineation shall be provided to the City for their review prior to submission to the appropriate agency for verification (e.g., Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Wildlife).

To mitigate for the loss of any waters of the U.S., the project applicant shall obtain a Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the Regional Water Quality Control Board and shall provide compensation for the loss of such waters by creating, preserving, and/or

restoring an equivalent amount of jurisdictional waters sufficient to ensure no net loss of jurisdictional habitats, with a minimum ratio of 1:1. Actual mitigation acreage requirements may be adjusted by the authority of the U.S. Army Corps of Engineers and the Regional Water Quality Control Board.

To mitigate for the loss of any waters of the State, the project applicant shall obtain Waste Discharge Requirements or Certification of Waste Discharge Requirements from the Regional Water Quality Control Board and a Section 1602 Streambed Alteration Agreement from the and California Department of Fish and Wildlife and shall provide compensation for the loss of such waters by creating, preserving, and/or restoring an equivalent amount of jurisdictional waters sufficient to ensure no net loss of jurisdictional habitats, with a minimum ratio of 1:1. Actual mitigation acreage requirements may be adjusted by the authority of the Regional Water Quality Control Board and California Department of Fish and Wildlife.

For both waters of the U.S. and waters of the State, mitigation may be accomplished by either of the following or a combination of these:

a. Creation of similar habitat either on- or off-site at an appropriate mitigation site; or
b. Purchase of the appropriate number of credits at an agency-approved off-site wetland mitigation bank.

Impact 3.4-4: Implementation of the proposed project would not conflict with the City of Merced land use plans, policies, regulations, or ordinances that address biological resources. This would be a less-than-significant impact.

The Crossings/Remainder Area

The City of Merced Street Tree Division requires property owners to water City trees (trees planted within 8 to 10 feet of City streets). The City does not have a tree ordinance that protects trees that are of a certain size or species. The project proposes to annex the project site to the City thus removal of any City trees would require consultation with the City's Tree Division and compliance with the City of Merced Street Tree Division. This would result in a **less-than-significant** impact related to conflict with existing land use policies.

Mitigation Measures

No mitigation measures are required.

3.4.5 Cumulative Impacts

Impact 3.4-5: The proposed project could contribute to cumulative impacts to special-status species in the region due to removal of foraging, cover and breeding habitat. This would be a potentially significant impact.

The Crossings/Remainder Area

The geographic region for consideration of cumulative biological resource impacts is the City of Merced including the Specific Urban Development Plan (SUDP) and Sphere of Influence (SOI). This region was chosen because it defines an area that supports a wide range of vegetation communities, hydrologic features, and plant and wildlife species and to ensure consideration of impacts to biological resources that would result from the planned expansion of the City into currently undeveloped areas.

The land development scenario for consideration of cumulative biological resource impacts is buildout of the City of Merced General Plan, including the SUDP. Properties to the south and west of the project site are currently developed and no major redevelopment projects are reasonably foreseeable in those areas. Properties to the north and east of the project site are located within the City's Sphere of Influence and currently designated Rural Residential in the General Plan Land Use Diagram (City of Merced 2015). There are no reasonably foreseeable development projects for any of the properties north and east of the project site. However, the General Plan anticipates future development within the SUDP, which would extend urban development into areas currently characterized primarily as agricultural and rural residential lands.

The General Plan EIR found that urban development projects in the City of Merced and surrounding municipalities has resulted in the loss of a large amount of historic foraging and nesting habitat for special-status raptors and birds, and special status plant species. The General Plan EIR also found that thousands of additional acres are proposed for development by the Merced County General Plan and the General Plans of its incorporated cities in addition to the proposed City of Merced SUDP/SOI area. The anticipated regional development, including road construction, site grading, infrastructure installation, and construction of residential, commercial, and public facilities uses could result in the direct loss of biological resource habitat. The General Plan EIR concluded that the cumulative impacts of development in accordance with the proposed General Plan and other General Plans in the County would be significant and unavoidable (City of Merced 2012b).

<u>Special Status Plants</u>

There are no special status plants considered to have potential to occur within The Crossings component of the proposed project, but there is potential for special status plants to occur within

the Remainder Area. Implementation of Mitigation Measures 4.3f and 3.4h would ensure that future development within the Remainder Area complies with the mitigation requirements in the General Plan EIR and that any impacts to special status plants within that portion of the project site would be avoided or off-set through compensatory measures. Thus, the project would not result in a cumulatively considerable contribution to the significant cumulative impact to special status plant species.

Special Status Wildlife

The proposed project would result in the conversion of approximately 28.4 acres of foraging habitat for Swainson's hawk, burrowing owl, and other raptors for development of the Crossings component. Although no development is proposed within the Remainder Area currently, at the time that such development is proposed, there is a potential for loss of 40.2 additional acres of foraging habitat for Swainson's hawk, burrowing owl, and other raptors. Other passerine bird species and bat species including the pallid bat, Townsend's big-eared bat, western mastiff bat and western red bat could also forage, nest, roost or use cover habitat within the project site. Additionally, if any portion of the Remainder Area that is proposed for development and/or redevelopment is found to support seasonal wetlands and/or vernal pools, the following special-status wildlife species could also be present: conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western spadefoot toad. With implementation of Mitigation Measures 3.4a, 3.4b, 3.4c, 3.4d, 3.4e, and 3.4g, the project's direct effects to special status wildlife species would be avoided through completion of pre-construction surveys, passive exclusion of bats and burrowing owls from nesting and roosting sites, avoidance of disturbance to active nests, provision of compensatory foraging habitat, and avoidance of direct effects to species dependent on seasonal wetlands and/or vernal pools. Thus, the project would not result in a cumulatively considerable contribution to the significant cumulative impact to special status wildlife species.

Jurisdictional Aquatic Resources

The proposed project would result direct effects to two drainage ditches that are potential waters of the State. Future development within the Remainder Area could also result in direct effects to jurisdictional aquatic resources if any portion of the Remainder Area that is proposed for development and/or redevelopment is found to support seasonal wetlands and/or vernal pools. Implementation of Mitigation Measure 3.4i would ensure that compensation for these direct impacts is provided sufficient to ensure no net loss of the biological function and values of jurisdictional aquatic resources. Thus, the project would not result in a cumulatively considerable contribution to the significant cumulative impact to waters of the U.S., waters of the State, and wetlands.

Mitigation Measures

Compliance with Mitigation Measures 3.4a through 3.4i would ensure impacts due to the loss of foraging, cover and breeding habitat for special-status species, loss of special status plant species, and loss of jurisdictional aquatic resources would be avoided and/or off-set through compensatory measures. No additional mitigation is required.

3.4.6 References

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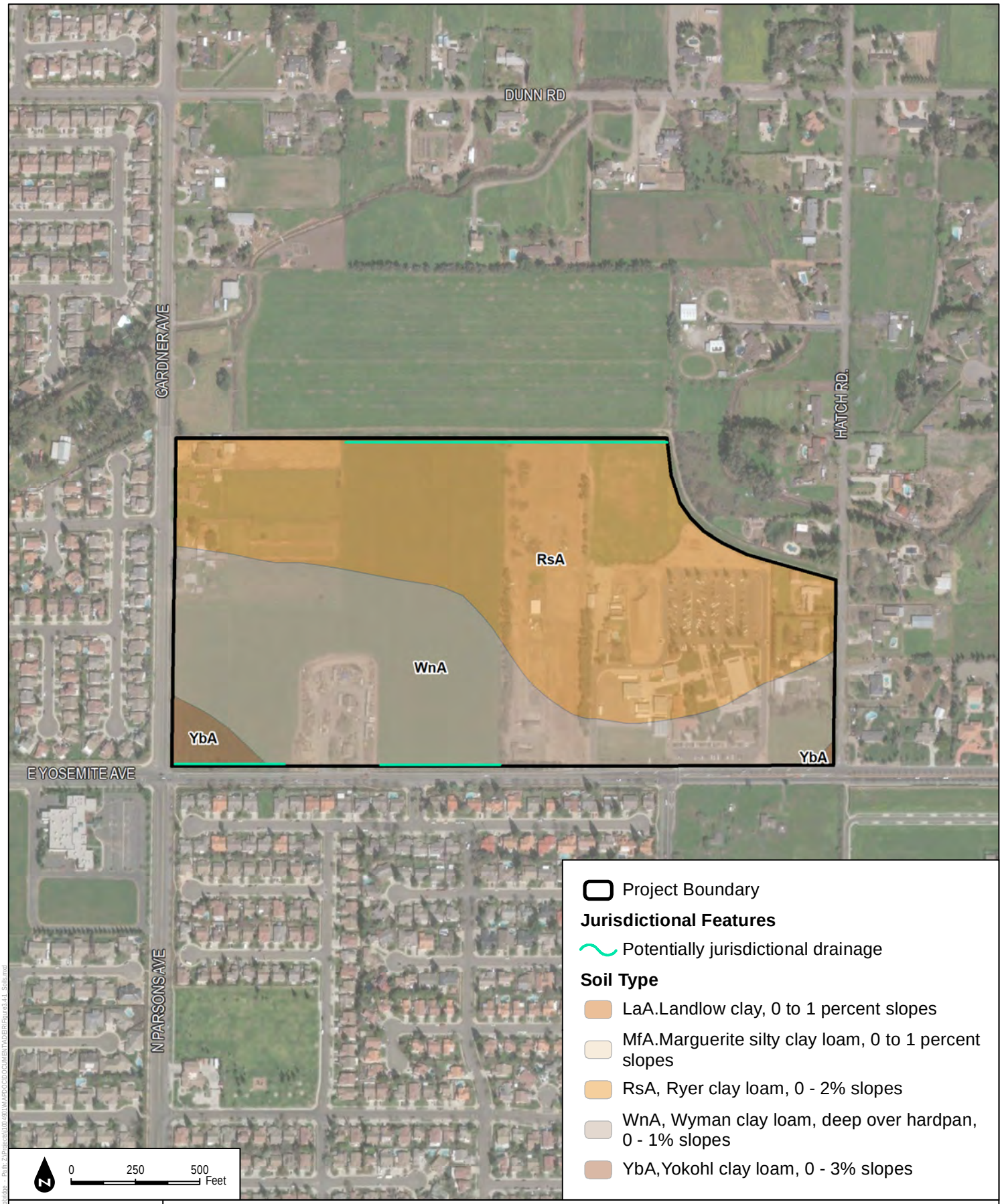
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DUDEK

SOURCE: Bing Maps (2016); County of Merced (2014); USDA NRCS

FIGURE 3.4-1

Soil Types and Potential Jurisdictional Resources

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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3.5 Cultural Resources and Tribal Cultural Resources

3.5.1 Introduction

This section evaluates the potential effects on cultural resources (archaeological and historic resources) and tribal cultural resources (as defined in Public Resources Code section 21074) that could result from development and operation of the Yosemite Avenue – Gardner Avenue to Hatch Road Annexation project (proposed project). The potential for prehistoric and historical resources to occur within or adjacent to the site is assessed; federal, state, and regional regulations pertaining to the protection of cultural resources are summarized; potential project-specific and cumulative impacts on cultural resources are evaluated; and mitigation measures to minimize impacts are identified.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. The Native American Heritage Commission (NAHC) submitted a response to both NOPs summarizing regulatory requirements related to assessment of potential impacts to cultural resources. The NAHC comment letters did not identify any project-specific concerns. Both NOPs and comments received in response to them are provided in Appendix A.

The primary sources referenced to prepare this section include the Cultural Resources Letter Report prepared by Dudek (included in Appendix F) and the *Merced Vision 2030 General Plan* (City of Merced 2012a).

3.5.2 Environmental Setting

This section describes the historical and cultural background of the region and identifies the existing conditions on the project site and resources that could be affected by the proposed project. Please refer to the *Cultural Resources Letter Report* included in Appendix F for additional details.

Prehistory Background

Paleoindian Period (ca. 12,000 to 9000 BP)

There is evidence of human habitation in the region dating to approximately 12,000 years before present (BP). While few sites of Paleoindian age have been identified in this area, occupation is documented to date to at least 11,000 years ago. Most of the evidence for a Paleoindian presence in the valley has been limited to surface finds of fluted projectile points (see below), that are

typically regarded by archaeologists to be associated with populations occupying this area during the late Pleistocene and early Holocene.

As noted above, the evidence for a Paleoindian occupation in the San Joaquin Valley has been in the form of numerous fluted, concave base (Clovis or "Clovis-like") projectile points, along with other artifacts presumed to be Paleoindian in age. Such artifacts have been collected from surface contexts in several locations, most notably from the southern shoreline of Tulare Lake southeast of Mendota. Unfortunately, many of these discoveries have been made by amateur collectors, many of whom were collecting illegally, so limited provenance is available for these artifacts. This has resulted in an enormous and irretrievable loss of data for understanding the Paleoindian Period in this region (Appendix F).

Early Period (ca. 9000 to 6000 BP)

Evidence for the Early Period in the San Joaquin Valley is limited. During this period, however, it is believed that human subsistence was based largely on the hunting of large game and fishing. Grinding implements, such as mortars, pestles, milling stones, and hand stones, appear infrequently during this time in the archaeological record. Other types of artifacts in these assemblages include hand-molded baked clay net weights, Olivella and Haliotis shell beads and ornaments, charm stones, and stemmed projectile points. Bone artifacts are uncommon. Burials are typically fully extended, oriented to the west, and generally have associated artifacts (e.g., quartz crystals). Cremations are rare (Appendix F).

Middle Period (ca. 6000 to 3000 BP)

After approximately 6,000 years BP the climate became generally warmer. This time period is characterized by a more generalized subsistence pattern. While hunting, fowling, and fishing continue to be the focus of subsistence activities, an increased emphasis on seed processing (particularly acorns) is evident. Artifacts include Olivella and Haliotis beads and other ornaments, distinctive spindle-shaped charm stones, cobble mortars, chisel-ended pestles, and large projectile points (inferring use of the atlatl). Bone tools, such as awls, fish spear tips, saws, and flakers may be evidence of generalized subsistence, but preservation bias (i.e., the lack of these perishable tools in earlier components) may have affected the archaeological record. Burials have few associated artifacts. At the same time, there is a slight increase in the number of cremations. Evidence of violent death appears in the burial assemblage, as indicated by disarticulated skeletons with embedded weapon points (Appendix F).

Late Period (ca. 3000 to 150 BP)

The Late Period has been postulated to represent the occupation of the ethnographic Yokuts, although this presumption is based on assemblage composition and must be conditioned by the

recognition that artifacts cannot be equated with culture. This is especially true since it is increasingly understood that the high diversity of identified tribes in California may have been a relatively late phenomenon associated with the development of an individualized currency economy.

During the Late Period in general, subsistence began to focus on the processing of acorns and other costly to process plant foods, with a proportionate decrease in the contribution of hunting, fowling, and fishing. Typical artifacts of this period include Olivella beads, Haliotis ornaments, stone beads and cylinders, clamshell disk beads, tubular smoking pipes of schist and steatite, arrow shaft straighteners, flat-bottomed mortars, cylindrical pestles, and small side-notched projectile points for use with the bow and arrow (Appendix F).

Ethnohistoric (post-AD 1750)

The region surrounding the project area would have been within Northern Valley Yokut tribal territory during the ethnohistoric period. This group inhabited the lower San Joaquin River watershed and its tributaries extending from Calaveras River in the north to approximately the large bend of the San Joaquin River eastward near Mendota. The lower San Joaquin River meanders through the territory making bends, sloughs, and marshes full of tule reeds as it meanders. Farther from the rivers and marshes, the valley floor would have been dry and sparely vegetated.

Northern Valley Yokut habitation areas were most commonly situated in close proximity to rivers and tributaries, more often on the east side of the river. Yokut populations and habitation areas were generally concentrated near the San Joaquin River, and in the foothills to the east. This focus on waterways can also be seen in their dietary resources, which included various fish, waterfowl, antelope, elk, acorns, tule roots, and various seeds. In particular, salmon was an abundant food during the fall spawning and in springtime. A focus on fishing is also seen in the material culture consisting of net sinkers and harpoons, likely used from rafts constructed from tule reed bundles.

Traditional larger habitation areas were often situated upon mounds, on or near riverbanks. Northern Valley Yokut dwellings were constructed of tule reed woven mats placed over a pole frame oval or round structure. These structures were generally from 25-40 feet in diameter, and typically housed a single family. This is in contrast to the larger multi-family dwellings erected sometimes by the Southern Yokuts. In addition to dwellings, earth covered ceremonial sweat lodges were constructed. While there were permanent, or semi-permanent, habitation areas in association with riverine resources, peripheral camps used when gathering, hunting, and processing resources such as acorns and seeds were common.

The Northern Valley Yokuts saw sharp and devastating decline from disease and relocation to coastal missions nearly immediately after Spanish contact. This served to further increase with the large influx of cattle ranching, agriculture, and Anglos Americans after the gold rush (Appendix F).

Historic Period

Spanish Period (1769–1822)

The Spanish missions were initiated in San Diego in 1769. A total of 21 missions were constructed by the Dominican and Franciscan orders between 1769 and 1823 throughout California. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano. The first Spanish arrived in the San Joaquin Valley in 1772, led by don Pedro Fages. Over the next few decades several other Spanish expeditions would make it to the Merced area of the Valley. During the first decade of the 19th Century, a trail was established from the Los Angeles Basin to San Francisco (El Camino Real).

Mexican Period (1822–1848)

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to Native American populations. Following the establishment of the Mexican republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger Land Grants to affluent Mexican citizens and rancheros. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to Native Americans, and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony. A Mexican land grant, Rancho Sanjon de Santa Rita, was issued in the vicinity to Francisco Maria Soberanes in 1841. This grant included more than 48,000 acres within present day Merced and Fresno counties. The grant was generally west of west of the San Joaquin River, including what is now Santa Rita Park and Dos Palos.

American Period (Post 1848)

California was officially ceded to the United States in 1848, which led to the continued appropriation of Native American territory by ranchers, prospectors, and an increasing number of settlers. The United States Government did little to dissuade these trespasses. By the mid-19th Century, Euro-Americans miners, having failed in the lodes to the east, began to move into the area to try their luck at agriculture and to work as farm hands. From 1850, with the passage of California's Indian Act, until legislative reforms in the late 1880s, state laws provided little

protections to the Native American population throughout California who often worked on these local ranches and farms.

Merced County was established in 1855 and named after the Merced Lake. Prior to 1855, Merced County was part of Mariposa County and was sparsely populated with the 1860 census reflecting a population of only 1,141. At the time of its founding Merced County was largely made up of farms and ranches. Large scale population growth started in Merced County in 1872, when the Southern Pacific Railroad established a stop in Merced and transformed the landscape and development pattern of the county. By 1900 the census showed a population of 9,215 (Appendix F).

As the area proved excellent for agriculture, populations continued to rise in Merced. By 1870, a post office was established. The success of farming in the region necessitated the need for more farm hands, steadily increasing the population of Merced. The town was incorporated as the City of Merced in 1889. Merced's position along a Southern Pacific Railroad line ballooned its population in the late 19th and earlier 20th centuries. The 1930s saw the appearance of large scale "agribusinesses" with the development of new water sources in the region and Merced's importance grew as an agricultural market city. During World War II, the Merced County fairgrounds became a temporary detainment center for Japanese Americans removed from their homes through President Roosevelt's Executive Order 9066. Post-War Merced saw steady, though not drastic population increase.

Agricultural development in Merced County is also an important pattern of development and continues to be a key element in the economic development of Merced County today. In 1873 the Farmers Canal Company was formed based on the work of civil engineer William Collier. While the Farmers Canal Company was successful in creating an extension to Canal Creek, they were unsuccessful in moving the canal further and sold their company to Charles Crocker and C.H. Huffman in 1882, which became Crocker-Huffman Land and Water Company in 1888. By 1919 the Merced Irrigation District was formed and projects like the Exchequer Dam were undertaken and irrigation was taken to the next level. The important developments in irrigation systems allowed Merced County to transition from dry farming of small grains and livestock ranching to irrigation-based farming. This transition allowed the farmers to switch from small grain farming and cattle ranching to tree and row crops. By the early decades of the 20th century, dairy farming also became popular in Merced County and by the 1920s livestock was the most profitable business in Merced County.

Land subdivision was also a key factor in the development of Merced County. Beginning with the development of irrigation companies and the establishment of the railroad in Merced, large portions of the county were subdivided into colonies. Although most of the development was closely tied to water rights and water development, the land development pattern created by large

landholding entities like the railroad and the Crocker-Huffman Land and Water Company continued to be part of the development pattern throughout the 20th century. The colony style subdivision of properties created large ranches, small farms, ranchette and eventually medium density suburban developments throughout the county (Appendix F).

Records Search

A records search was completed for the proposed project site and lands within a half-mile radius of the site by staff at the Central California Information Center (CCIC) at California State University Stanislaus on December 7, 2016.

CCIC records indicate that nine previous cultural resources technical investigations have been conducted within one-half mile of the proposed project site (see Table 3.5-1). Of these studies, one includes a portion of the project site (ME-04387). ME-04387 is an archaeological and built environment assessment for the University of Merced Development Project and associated local improvements. A portion of this prior study's project area includes road improvements to East Yosemite Avenue, which is adjacent to the project site's southern boundary. While the study discovered several previously unknown cultural resources, none were within one-half mile of the project site.

Dudek also requested a Native American Heritage Commission (NAHC) search of their Sacred Lands File (SLF) on December 7, 2016 for the proposed project area. The NAHC results failed to indicate the presence of Native American cultural resources within the project area or within one-half mile of the project area.

Table 3.5-1
Previous Cultural Resource Studies

Report ID	Date	Author	Title
Within the Project Area			
ME-04387	2001	URS Corporation	University of California, Merced, Cultural Resources (Archaeological and Historic Built Environment Resources), Technical Report.
Within the One-Half-Mile Search Area			
ME-00584	1991	Bissonette, Linda	Cultural Resources Survey for a Residential Subdivision Dunn Road and Cottonwood Avenue Merced County, California.

Table 3.5-1
Previous Cultural Resource Studies

Report ID	Date	Author	Title
ME-00646	1990	Napton, L. K.	Cultural Resource Investigation of the Proposed Black Rascal Estates 43.7 Acres in Merced County, California.
ME-04384	2001	URS Corporation	Archaeological Survey Report, Merced Campus Parkway (Draft Technical Report, Federal Aid Project #RPHP21L-0484[001]).
ME-04385	2001	URS Corporation	Archaeological Survey Report--Addendum 1, Merced Campus Parkway (Draft Technical Report, Federal Aid Project #RPHP21L-0484[001]).
ME-04698	2002	URS Corporation	Archaeological Survey Report--Addendum 2, Merced Campus Parkway (Draft Technical Report; Federal Aid Project #RPHP21L-0484[001]).
ME-05956	2005	Bowden, E.	Cultural Resources Fieldwork Results for Cottonwood Creek Bicycle Path Corridor, Merced County, California.
ME-06949	2002	Dexter, S.	Historic Property Survey Report, Addendum 1. Merced Campus Parkway, Federal Aid Project #RPHP21L-0484(001).
ME-06979	2002	Herbert, R. F.	Historic Architectural Survey Report University Community Plan Project Merced County, California.

Source: Appendix F

Archaeological Survey

Dudek archaeologist, William Burns, RPA, inspected all portions of the 28.4-acre portion of the site that is proposed to support The Crossings component of the project on December 9, 2016, using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory. The Crossings portion of the project site includes approximately 25.4 acres in tilled agricultural land and approximately 3 acres developed with a residence, barn, and various smaller sheds. Mr. Burns examined the ground surface for artifacts, undisturbed areas, or archaeological deposits. Subsurface exposures

and rodent burrows were opportunistically inspected for indications of soils with the potential to contain archaeological deposits. Ground visibility was excellent throughout most of the area (approximately 85%). However, areas surrounding the residence lacked ground visibility as a result of parked agricultural machinery and paved areas (approximately 10%). The entirety of The Crossings portion of the project site has been subject to substantial disturbances related to agricultural and residential use. All portions of The Crossings component were found to be heavily disturbed as a result of past and present agricultural activities, construction of the residence and associated structures, and paved areas around the residence. No archaeological resources were identified within The Crossings area during the field survey (Appendix F).

The remaining 40.2-acre portion of the project site, the Remainder Area, largely supports existing private development and was not surveyed for cultural uses because no development is currently proposed in this area. Specifically, the approximately 9.4 acres of the Remainder Area located in the northwest corner of the project site is developed with four rural residential/agricultural properties. The approximately 22 acres of the Remainder Area located in the eastern portion of the project site are developed with a church, a private school, and three single-family residences. The 9.7-acre parcel near the center of the project site that forms the western boundary of the eastern section of the Remainder Area project site supports one residence, several agricultural buildings, and agricultural production. It is unlikely that surface artifacts are present in the portions of the Remainder Area that support structures, hardscape, and landscape; however there is potential for surface artifacts to be present in the undeveloped portions and potential for subsurface artifacts to be present throughout the Remainder Area (Appendix F).

The project proposes to pre-zone the Remainder Area with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved.

Historic Resources Review

Within The Crossings component portion of the project area there is an approximately 3-acre developed area that contains a residence, barn, and numerous sheds that were evaluated to determine if they meet the National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR) significance criteria and integrity requirements to be considered potentially eligible for listing as a historic building.

The survey was positive for one property that required recordation and evaluation for historical significance: the residence/farm located at 1897 East Yosemite Avenue (APN 060-570-010). The

property significance evaluation was prepared by Dudek architectural historian Sarah Corder, MFA, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. The subject property is an example of a vernacular bungalow-style (with nods to the Prairie style) residence and small family farm constructed in 1920. The history of the residence, dating back to its construction in 1920, is altogether lacking despite extensive archival and property record research. The building appears to retain much of its original simplistic vernacular style/design and workmanship, and its exterior materials appear to be largely intact. The property's feeling and association as a rural farming residence also remains intact. It appears that little has changed on the property, but the surrounding area to the west and south (in the City) shows dense suburban development and a clear departure from the early rural development patterns in the area.

While the property retains much of its integrity, it is a common type of a vernacular bungalow-style residence that lacks many of the more distinctive character-defining features of the style. Further, the property is not significant to local, regional or national patterns of development or significant people. As a result, the property is recommended not eligible under all NRHP and CRHR designation criteria, as described in detail in the *Cultural Resources Letter Report* prepared for the proposed project and included in Appendix F. Therefore, the property is not considered a historical resource for the purposes of CEQA.

In addition to this onsite residence, the MID canal along the northern boundary of the site was evaluated for historic significance. The canal is an extension of the Yosemite Lateral irrigation canal, from Lake Yosemite. The section of canal adjacent to the proposed development would be required to be piped and converted into an enclosed water line. The Yosemite Lateral irrigation canal has been previously evaluated and recorded. That prior evaluation found that the Yosemite Lateral canal is likely to have been originally constructed in 1888. The Yosemite Lateral flows to the Project area from approximately 3 miles north at Yosemite Lake, a manmade reservoir. Yosemite Lake and Yosemite Lateral are both part of the Merced Irrigation District The extension of the main canal traverses the project site northern boundary, beginning at the northeast corner of the project area and extending west, then heads north before turning west again and passing under Gardner Avenue. The irrigation canal is an open air, earthen ditch approximately 16 feet wide and 5.8 feet deep.

The extension of the Yosemite Lateral that is adjacent to the project site is earthen, covered in grass, and trapezoidal in shape with a flat bottom that is earth/grass/river rock with low flat berms on each side of it. As described in Appendix F, there are seven particular features of the irrigation ditch that are present within the project area: a concrete dam, two concrete culverts with valve, two wood and concrete dams, and two small outlets with valves.

The DPR form for the Yosemite Canal, prepared in 2000 by JRP Historical Consulting Services, recommends that the canal is ineligible for listing in the NRHP/CRHR due to its very low degree of integrity. Dudek's architectural historians concur with this recommendation for the extension to the Yosemite Lateral bordering the project site on the north (Appendix F). Therefore, the canal and its extension are not considered historical resources for the purposes of CEQA.

Paleontological Setting

Fossils are, by definition, objects that are more than 10,000 years old. An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved. Marine invertebrates are generally common, well developed, and well documented and would generally not be considered a unique paleontological resource whereas identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare. Surveys previously completed in northern California have found two major divisions of Pleistocene-age fossils: the Irvingtonian (older Pleistocene fauna) and the Rancholabrean (younger Pleistocene and Holocene fauna). Remains of land mammals have been found in the project region at various localities in alluvial deposits, including specimens of Rancholabrean-age horse, camel, deer, mammoth and camel.

3.5.3 Regulatory Setting

Cultural resources are defined as buildings, sites, structures, or objects each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. Several laws and regulations at the state level govern archaeological and historic resources deemed to have scientific, historic, or cultural value. The pertinent regulatory framework, as it applies to the proposed project, is summarized below.

Federal Regulations

National Historical Preservation Act

The National Historic Preservation Act of 1996 established the NRHP as the official federal list of cultural resources that have been nominated by state offices for their historical significance at the local, state, or national level. Properties listed or eligible for listing in the NRHP must meet certain criteria for historical significance and possess integrity of form, location, and setting. Under Section 106, federal agencies are required to consider the effects of their actions, or those they fund or permit, on properties that are listed or may be eligible for listing. The regulations in 36 CFR 60.4 describe the criteria to evaluate cultural resources for inclusion in the NRHP. Properties may be listed in the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association. No historic properties, buildings or resources eligible for

listing in the NRHP are known to exist on the project site or adjacent areas that would be disturbed during project construction.

The Department of the Interior has established Standards and Guidelines for Archaeology and Historic Preservation. These standards and guidelines are not regulatory and do not set or interpret agency policy. A project that follows the standards and guidelines generally shall be considered mitigated to a less-than-significant level, according to Section 15064.5(b)(3) of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

State Regulations

California Register of Historical Resources

The CRHR is established through California Public Resources Code (PRC) Section 5042.1. In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." (PRC Section 5020.1(j)). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains “substantial integrity,” and (ii) meets at least one of the following criteria:

1. Is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California.
2. Is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value.
4. It has yielded, or may be likely to yield, information important to prehistory or history.

In addition to meeting one or more of the above criteria, a property must also retain integrity to be considered a significant historical resource. Properties eligible for listing in the CRHR must retain enough of their historic character to convey the reason(s) for their significance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association.

Properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

No historic properties or resources eligible for listing in the CRHR are known to exist on the project site or adjacent areas that would be disturbed during project construction.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." PRC 21083.2 requires agencies to determine whether proposed projects would have effects on "unique archaeological resources."

"Historical resource" is a term of art with a defined statutory meaning (see PRC 21084.1 and CEQA Guidelines, Sections 15064.5(a) and 15064.5(b)). The term embraces any resource listed in or determined to be eligible for listing in the CRHR. The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be "historical resources" for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC 5024.1 and 14 CCR 4850). Unless a resource listed in a survey has been demolished or has lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources (PRC 21084.1 and CEQA Guidelines, Section 15064.5(a)(3)). In general, a historical resource, under this approach, is defined as any object, building, structure, site, area, place, record, or manuscript that "is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, education, social, political, or cultural annals of California" and meets at least one of the four CRHR eligibility criteria listed above.

These factors are known as "Criteria 1, 2, 3, and 4" and parallel Criteria A, B, C, and D under the National Historic Preservation Act. The fact that a resource is not listed or determined to be eligible for listing does not preclude a lead agency from determining that it may be a historical resource (PRC 21084.1 and CEQA Guidelines, Section 15064.5(a)(4)).

CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource, as described above, and "unique archaeological resources." Under CEQA, an archaeological resource is considered "unique" if it:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special or particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC 21083.2(g)).

CEQA directs that a proposed project that would cause a substantial adverse change in the significance of a historical resource is considered to have a significant impact. A "substantial adverse change" in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1)). In turn, the significance of an historical resource is materially impaired when a project demolishes or alters the physical characteristics that convey a resources historical significance such that it would no longer be eligible for listing in the CRHR and/or a local register of historic resources.

CEQA Guidelines Section 15064.5(c) provides specific guidance on the treatment of archaeological resources, depending on whether they meet the definition of a historical resource or a unique archaeological resource. If the site meets the definition of a unique archaeological resource, it must be treated in accordance with the provisions of PRC Section 21083.2.

CEQA Guidelines Section 15064.5(e) requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as identified in a timely manner by the Native American Heritage Commission. Section 15064.5 of the CEQA Guidelines directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Senate Bill 18

Senate Bill 18 (SB 18; Government Code Sections 65352.3, 65352.4) requires that, prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, a city or county must consult with Native American tribes with respect to the possible preservation of, or the

mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. The project requires an amendment to the City's General Plan and the City has complied with the requirements of SB 18.

On March 17, 2018, letters were sent out to the tribes identified on the Native American Heritage Commission's (NAHC) official SB 18 California Tribal Consultation List. No response was received from any of the tribes who were notified. The revised Notice of Preparation was also sent to these tribes in May 2020. The City has not received any responses to the SB 18 notifications or the NOPs.

Assembly Bill 52

Assembly Bill 52 (AB 52) went into effect July 1, 2015 and requires lead agencies to consult with all California Native American tribes that have requested formal consultation at the onset of a project, or when a NOP is released. AB 52 also establishes a new class of resources to be evaluated – Tribal Cultural Resources.

All tribes identified on the Native American Heritage Commission's (NAHC) official SB 18 California Tribal Consultation List were notified of this project. No tribes requested consultation. The revised Notice of Preparation was also sent to these tribes in May 2020. The City has not received any responses to the AB 52 notifications or the NOPs.

Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains. PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours. The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Paleontological Resources

Consideration of paleontological resources is required by CEQA. Other state requirements for paleontological resource management are found in PRC Chapter 1.7, Section 5097.5, Archaeological, Paleontological, and Historical Sites. This statute specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources. This statute does not apply to the proposed project because none of the property includes public lands.

No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth moving on state or private land in a project site.

Local Regulations

The project site is currently within the boundaries of Merced County and within the City of Merced Sphere of Influence. The project proposes to annex the site to the City thus the City of Merced regulations are relevant to this analysis of the project's potential effects on cultural resources.

Merced Vision 2030 General Plan

The City of Merced Vision 2030 General Plan (City of Merced 2012a) Sustainable Development Chapter (Chapter 8) provides guidance for new development and focuses on the protection of historic and archaeological resources. The following policies from the City's Sustainable Development Chapter are applicable to the proposed project:

Policy SD-2.1 Identify and preserve the City's archaeological resources.

Policy SD-2.2 Identify and preserve the City's historic and cultural resources.

Policy SD-2.3 Develop and promote financial incentive programs for historic preservation efforts.

Implementing Actions:

2.1.a Utilize the inventory of known archeological sites maintained by the Central California Information Center for the review of development proposals. The Archaeological Inventory shall be used to identify areas within the Merced Planning Area subject to preservation practices. For large scale development projects proposed in close proximity to a natural water course, or in an area which exhibits potential for containing cultural resource material, preliminary cultural resource inventories should be conducted by a qualified

archaeologist. Information from these site investigations shall be provided to the Central California Information Center for recordation.

2.1.b Utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation. Cultural resource discoveries are subject to the rules and regulations in State law. The City should work closely with the building trades industry to facilitate compliance with these laws and to assist where necessary in minimizing the adverse impacts of the implementation of these laws on the City's construction industry.

Merced Municipal Code

Chapter 17.54, Historic Preservation of the Merced Municipal Code addresses historic preservation and includes language regarding the rehabilitation and preservation of structures or sites of special historical, architectural or aesthetic interest or value. The chapter identifies the City's intent to promote the health, safety, and general welfare of the citizens of the City of Merced through:

1. The protection, enhancement, perpetuation and use of structures, sites and areas that are reminders of past eras, events and persons important to local, state or national history, or which provide significant examples of architectural styles of the past or are elements in the history of architecture or which are unique and irreplaceable assets to the City of Merced and its neighborhoods, or which provide for this and future generations examples of the physical soundings in which past generations lived;
2. The development and maintenance of appropriate settings and environments for such structures, in such sites and areas;
3. The enhancement of property values, the stabilization of neighborhoods and areas of the city, and the increase of economic and financial benefits to the city and its inhabitants;
4. The preservation and encouragement of a city of varied architectural styles, reflecting the distinct phases of its history—cultural, social, economic, political and architectural;
5. The enrichment of human life in its educational and cultural dimensions in order to serve spiritual as well as material needs by fostering knowledge of the living heritage of the past.

Professional Paleontological Standards Standard profession standards have been established by SVP, a national scientific organization of professional vertebrate paleontologists. These standards outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that

contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions. Marine invertebrates are generally common; the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

3.5.4 Impacts

Methods of Analysis

A formal records search was conducted for the project area by Dudek through the CCIC (see Appendix F). The records search included the entire 70-acre project site and a half-mile radius. The CCIC included a review of their collection of mapped prehistoric, historical, and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, historical maps, and local inventories. Additional consulted sources included the National Register of Historic Places (NRHP), California Inventory of Historical Resources/California Register of Historical Resources and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks.

The archeological fieldwork was completed on December 9, 2016 and was documented using field notes, digital photography, iPad technology with close-scale field maps, and aerial photographs. Location-specific photographs were taken using an Apple 3rd Generation iPad equipped with 8-megapixel resolution and georeferenced PDF maps of the project site. Accuracy of this device ranged between 3 and 10 meters. The Crossings component of the project site was subject to an intensive pedestrian survey using parallel transects spaced 15 meters apart.

The building survey entailed walking all portions of the 28.4-acre The Crossings area and documenting each building with notes and photographs, specifically noting character-defining features, spatial relationships, and observed alterations.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources.
- Disturb any human remains, including those interred outside of dedicated cemeteries.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

Impacts and Mitigation Measures

Impact 3.5-1: Implementation of the proposed project may cause a substantial adverse change in the significance of a historical resource. This would be a potentially significant impact.

The Crossings

An evaluation of the existing buildings located on the project site that are proposed to be demolished was conducted by Dudek's architectural historian Sarah Corder, MFA, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. Based on the findings of the building evaluation (see Appendix F), only one of the buildings on the site, the residence/farmhouse located at 1897 East Yosemite Avenue constructed in 1920, was evaluated for historical significance. The remaining buildings and the integrity of the overall setting were all determined to not meet the eligibility requirements. The residence was evaluated under the NRHP and CRHR designation criteria and determined to lack many of the more distinctive character-defining features of the bungalow-style and was determined not to represent significant local, regional or national patterns of development or significant people.

In addition, the extension of the Yosemite Lateral irrigation canal that runs along the northern boundary of the project site was evaluated and found to be ineligible for listing in the NRHP due to very low degree of integrity. Specifically, as discussed in more detail in Appendix F, while there are several features of the original canal design and engineering present along the reach of the canal extension adjacent to the project site, many of those features are missing components, such as sluice gates, sluice gate boards, and outlet valved. Although the Yosemite Lateral canal was likely built in 1888 by the Crocker-Huffman Land and Water Company and thus contributed to regional land development patterns including agricultural production and the colony system of

land subdivision, the lack of integrity of features within the main canal and the extension impair the ability of both to convey their historical significance.

As a result, neither the residence nor the canal extension is considered eligible under NRHP and CRHR designation criteria and are not considered historical resources for the purposes of CEQA. The removal of the residence and the piping of the canal would not result in a substantial adverse change in the significance of a historical resources and the impact is **less than significant.**

Remainder Area

None of the buildings located in the Remainder Area were evaluated for historical significance because no development or building demolition is proposed in this portion of the project site at this time. However, there is the potential that historically significant buildings may be present and future development resulting in their removal could result in a potentially significant impact.

Mitigation Measures

The Crossings

No mitigation measures are required.

Remainder Area

3.5a Prior to issuance of a discretionary permit or approval within the Remainder Area, the project applicant for that approval shall submit to the City of Merced a Cultural Resources Evaluation that includes an assessment of the historical significance and integrity of any buildings proposed to be demolished or that would be located within 300 feet of new structures. The Cultural Resources Evaluation shall be prepared by a qualified architectural historian that meets the Secretary of the Interior's Professional Qualification Standards for architectural history and shall include a determination of whether the affected buildings meet the significance and integrity requirements set forth in the National Register of Historic Places and the California Register of Historical Resources.

Impact 3.5-2: Implementation of the proposed project may cause a substantial adverse change in the significance of an archaeological resource. This would be a potentially significant impact.

The Crossings/Remainder Area

As discussed in the Environmental Setting above, the formal records search prepared for the proposed project did not identify any recorded archaeological resources within the project site.

There have been nine previous cultural resource studies within a half mile of the project site with one study that included a portion of the site adjacent to East Yosemite Avenue. However, no archaeological resources have been previously identified within the proposed project area, or within one-half mile of the project area (Appendix F). Thus, there are no known resources eligible for listing in the NRHP or CRHR that exist in the project area.

However, it is possible that previously unidentified subsurface archaeological resources are present within both portions of the project site. Ground-disturbing activities associated with construction of The Crossings component of the project as well as future development within the Remainder Area have the potential to encounter or disturb previously unidentified subsurface archaeological resources. If such resources are uncovered during construction and are eligible for listing in the NRHP or CRHR or otherwise meet the definitions and standards of significant archeological resources under CEQA, disturbance to those resources would result in a **potentially significant** impact.

Mitigation Measures

The City's General Plan contains Policy SD-2.1, which calls for identifying and preserving archaeological resources. This is supported by implementing action 2.1.b, which notes that standard practices for preserving archeological materials unearthed during construction, as set forth by the State Office of Historic Preservation, should be followed (City of Merced 2012a). In addition, in the event of a discovery resources are subject to the rules and regulations in State law. These actions would ensure that any potential impacts to previously unidentified subsurface archaeological resources are avoided or minimized, and/or that appropriate data recovery efforts are conducted. Specific protocols and standards that would ensure compliance with the General Plan policy and State law in the event of an inadvertent discovery of a resource during project construction are identified in Mitigation Measures 3.5b and 3.5c. These include requiring that construction crews are trained to recognize site and soil conditions that may indicate presence of an archeological resource and requiring work to stop in the event a resource is discovered, consultation be initiated with an archaeologist to determine the appropriate course of action, and Native American representatives be consulted for their input and concerns. Compliance with these measures would ensure that potential impacts to previously unidentified subsurface resources are mitigated to a less-than-significant level. Mitigation Measures 3.5b and 3.5c apply to both The Crossings area and the Remainder Area. In addition, Mitigation Measure 3.5d applies to the Remainder Area and requires that a site-specific cultural resources inventory and report is prepared prior to issuance of any discretionary approvals for development within that portion of the project site.

The Crossings/Remainder Area

3.5b Prior to issuance of any demolition or grading permits for activities within or adjacent to the project site, the City of Merced shall ensure that construction contracts and/or plans include a note requiring that all construction crews involved in demolition, grading, trenching, and/or excavation receive worker cultural resources awareness training prior to commencement of construction activities. Further, the City shall verify that a qualified archaeologist has been retained by the construction contractor to conduct the worker cultural resources awareness training, and all training materials shall be submitted to and reviewed by the City prior to issuance of grading permits. The training may be presented in-person or by videoconference. Training materials shall include:

- A worker cultural resources awareness brochure prepared by the same qualified archaeologist;
- Relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations;
- Appropriate avoidance and minimization measures for resources that have the potential to be located on the project site;
- Steps that must be taken to comply with Mitigation Measure 3.5c, including who to contact if any potential archaeological resources or artifacts are encountered;
- The requirement for confidentiality and culturally appropriate treatment of any kind of significance related to Native Americans and behaviors, consistent with Native American tribal values; and
- Instruction to construction workers for recognizing potential cultural resources, such as the presence of discolored or dark soil, fire-affected material, concentrations of lithic materials, or other characteristics observed to be atypical of the surrounding area; lithic or bone tools that appear to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; non-local high-quality materials such as chert and obsidian; and historic artifacts such as glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies.

3.5c Prior to issuance of any demolition or grading permits for activities within or adjacent to the project site, the City of Merced shall ensure that construction

contracts and/or plans include the following note: "If any cultural resources, such as structural features, unusual amounts of bone or shell artifacts, or architectural remains, are encountered during any construction activities, the contractor shall suspend all work within 100 feet of the find, immediately notify the City's Community Development Director, and retain a qualified archaeologist to assess the finds, consult with agencies and descendant communities (as appropriate), and make recommendations for the treatment of the discovery in compliance with Mitigation Measure 3.5c." The qualified archaeologist shall determine if the discovered resources can be preserved in place. If preservation in place is not feasible, the archaeologist shall evaluate the deposit for its eligibility for listing in the California Register of Historical Resources. If the deposit is not eligible, mitigation is not necessary and work can continue. If the deposit is eligible, mitigation shall include excavation of the archaeological deposit in accordance with a data recovery plan (see CEQA Guidelines Section 15126.4(b)(3)(C)). The City of Merced shall ensure that descendant communities are consulted for their input and concerns during the development and implementation of any mitigation plan.

Upon completion of the evaluation and/or mitigation, the data recovery plan or report shall be submitted to the City of Merced, the applicant, the Central California Information Center, and, if appropriate, descendant communities. The data recovery plan shall be fully implemented prior to resumption of construction activities proximate to the resource(s).

Additional Mitigation Measure for the Remainder Area

3.5d Prior to issuance of a discretionary permit or approval within the Remainder Area, the project applicant for that approval shall submit to the City of Merced a Cultural Resources Evaluation that includes a records search and site survey, as well as an inventory and evaluation of any resources identified within the area for which the discretionary permit of approval is requested. The Cultural Resources Evaluation shall be prepared by a qualified archaeologist and using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory.

Impact 3.5-3: Implementation of the proposed project could disturb human remains, including those interred outside of dedicated cemeteries. Compliance with State law would ensure this impact remains less than significant.

The Crossings/Remainder Area

There is no evidence that human remains are present within the project site. However, it is possible for human remains to be discovered during earth disturbing activities within the Crossings component as well as future development within the Remainder Area. In the event that human remains are encountered, construction contractors would be required to comply with California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98, which define required notification and evaluation procedures.

Compliance with Health and Safety Code Section 7050.5 would help reduce the potential impact to human remains because it would protect Native American burials, skeletal remains, and associated grave goods, and require sensitive treatment and disposition of those remains. Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains. PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. Compliance with the Health and Safety Code and Public Resources Code would ensure potential impacts associated with an accidental discovery of human remains would be less than significant.

Mitigation Measures

No mitigation measures are required.

Impact 3.5-4: The proposed project could contribute to impacts to tribal cultural resources in the area. This would be a potentially significant impact.

The Crossings/Remainder Area

Preparation of the Cultural Resources Report (Appendix F) included a Sacred Lands File records search for the project site. This search failed to indicate the presence of Native American cultural resources within the project area or within one-half mile or the project area. Dudek sent information outreach letters to all NAHC-listed Native American tribal representatives on February 6, 2017 and no responses to these outreach efforts were received.

As discussed above, in compliance with AB 52, the City provided formal notification of the proposed project to all tribes listed on the NAHC official SB 18 California Tribal Consultation List that have requested notification of projects subject to CEQA review. The City provided notification

to these tribes in May 2020 and stated that tribes had 30 days to request consultation, in accordance with the timelines established in AB 52. No tribes requested participation in the consultation process, and no tribes identified any tribal cultural resources in the project site or vicinity. Portions of the site have supported agricultural and residential development since at least the early 1900s, and possibly since the late 1800s.

As discussed above, there are no known cultural resources within The Crossings area, and while the Remainder Area was not surveyed, the existing level of development throughout the Remainder Area reduces the potential for surface level cultural resources to occur. These conditions also reduce the potential for previously unidentified tribal cultural resources to be present. However, there is a potential for unknown tribal cultural resources to be affected during ground disturbance activities and this impact is potentially significant.

Mitigation Measures

The Crossings

Implementation of Mitigation Measures 3.5b and 3.5c would require that any potential tribal cultural resources encountered during project construction would be protected from further impacts until they have been evaluated by a qualified professional and a determination is made as to whether they can be preserved in place or must be excavated subject to a data recovery plan prior to continuance of construction activities in the vicinity of the resource. Mitigation Measures 3.5b and 3.5c would reduce the project's impacts to tribal cultural resources to a less-than-significant level.

Remainder Area

In addition to Mitigation Measures 3.5b and 3.5c as discussed above, completion of a site-specific cultural resources evaluation would be required under Mitigation Measure 3.5d would be required for any development within the Remainder Area. This would provide additional opportunity to identify any potential tribal cultural resources that could be present in the Remainder Area and in combination with Mitigation Measure 3.5b and 3.5c would ensure that project's impacts to tribal cultural resources remain less than significant.

Impact 3.5-5: The proposed project could destroy a unique paleontological resource or site. This would be a potentially significant impact.

The Crossings/Remainder Area

There is no evidence that paleontological resources are present within the project site. However, it is possible for paleontological resources to be discovered during earth disturbing activities within

the Crossings component as well as future development within the Remainder Area. In the event that paleontological resources are encountered, construction contractors would be required to federal, state and local regulations regarding the discovery of paleontological resources. In addition, Mitigation Measure 3.5e would require the education of construction personnel regarding the possibility of the accidental discovery of paleontological resources as well as the proper course of action in the event of accidental discovery. Therefore, the proposed project would result in a **less than significant** impact after implementation of Mitigation Measure 3.5e.

Mitigation Measures

The Crossings/Remainder Area

3.5e To minimize potential adverse impacts on unique, scientifically important paleontological resources, the project applicant shall do the following:

- Before the start of grading or excavation activities, construction personnel involved with earth-moving activities shall be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction activities, and proper notification procedures should fossils be encountered. This worker training shall be prepared and presented by a qualified paleontologist or archaeologist.
- If paleontological resources are discovered during earth-moving activities, the construction crew shall immediately cease work in the vicinity of the find and shall notify the City planning department. The project applicant shall retain a qualified paleontologist to evaluate the resource and prepare a proposed mitigation plan in accordance with SVP guidelines (1995). The proposed mitigation plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations determined by the lead agency to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

3.5.5 Cumulative Impacts

The geographic scope or cumulative context for evaluation of potential cumulative impacts on cultural resources is Merced County, which includes the cities of Merced, Atwater, Livingston, Gustine, Los Banos, and Dos Palos. While project specific impact analysis for cultural resources necessarily includes separate analyses for historical, archaeological and human remains, the cumulative analysis combines these resources into a single, non-renewable resource base and

considers the additive effect of project-specific impacts to significant regional impacts on cultural resources. Thus, this cumulative impact analysis for cultural resources relies on projected plans for development in the City of Merced and surrounding unincorporated Merced County areas, consistent with CEQA Guidelines Section 15130(b)(1)(B).

Impact 3.5-6: The proposed project could contribute to cumulative impacts to historical and archaeological resources in the area. This would be a less-than-significant impact.

Archaeological evidence suggests that Merced County has been inhabited dating to approximately 12,000 years before present (BP). Background research has identified a number of historical archaeological sites, prehistoric archaeological sites, and historic buildings and structures throughout the city and county. Urban development throughout the County has likely impacted a number of known and unknown historic and prehistoric sites. It is reasonable to assume that present and future development would continue to have an impact on known and unknown cultural, historical, and archaeological resources in the City and County. All significant and cultural resources and human remains are unique and non-renewable, all adverse effects or negative impacts erode a dwindling resource base. For example, the loss of any one archaeological site affects all others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. Proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions and cultures by recording data about sites discovered and preserving artifacts found. Federal, state, and local laws are also in place, as discussed above, that protect these resources in most instances. However, the cumulative loss of cultural, historic, and archaeological resources from present and future development within the County would be considered a potentially significant cumulative impact.

The Merced County General Plan EIR found that “implementation of the proposed 2030 General Plan would involve future population growth within the unincorporated county that could result in substantial changes to significant identified historical resources, or those resources considered eligible for National Register or California Register listing,” particularly resources that have not yet been identified. The County’s General Plan EIR also recognizes that “urbanized areas are unlikely to contain significant sub-surface historical resources due to previous development activity. However, redevelopment activities within existing urbanized areas that contain known historical resources, some that date between the late 1800s and the early 1900s,” including sites within the City of Merced. Further, the County’s General Plan EIR finds that development of agricultural lands is more likely to encounter archeological and historical resources noting that “studies indicate that significant, unique historic remains can exist below the plow zone in Merced County.” To address these potential effects, the County’s General Plan EIR required mitigation in the form

of adding policies to the General Plan that require property surveys to identify cultural resources and concluded that these measures would provide sufficient additional protection for historical and cultural resources to reduce the impact to less than significant (Merced County 2013).

The City of Merced General Plan EIR also recognized that implementation of the City's General Plan in combination with implementation of the General Plans of the County and other incorporated cities in the area "would increase the density of development throughout the County and could further threaten significant cultural resources within the County" because the increased human presence and activity could lead to increased vandalism and other actions that could destroy significant archaeological resources. The EIR also noted that land development in the City of Merced as well as county-wide has already converted hundreds of acres to urban uses and thousands of additional acres are planned for development under each jurisdiction's General Plan. For the City of Merced, this involves lands within the SUDP/SOI area, including the project site. The conditions within the SUDP/SOI are similar to lands planned for development elsewhere in the County, in that they support primarily rural residential and agricultural uses and thus have been subject to lower intensity levels of development compared to more urbanized areas. Under these conditions, while there are no known cultural resources within the project site and in many sites throughout the SUDP/SOI area and other lands planned for development in the region, there is a potential for cultural resources to be encountered and adversely affected during construction. Although the General Plan contains policies intended to minimize such effects, the General Plan EIR found that "the cumulative impacts of development in accordance with the proposed General Plan and other General Plans in the County are significant" and mitigation at the individual project level may not be sufficient to avoid or substantially reduce such impacts. Thus, the City's General Plan EIR concluded that the cumulative impacts to cultural resources would be significant and unavoidable (City of Merced 2012b).

As discussed in Appendix F, the project site does not contain any known cultural, tribal cultural, historic, or archaeological resources and construction on the project site is not likely to impact these resources. The site could support sub-surface cultural resources, however the existing and past levels of development and activity at the site reduce the potential for such resources to be encountered. While the County's General Plan EIR notes that such resources can exist below the plow zone, the proposed project does not involve excavation for below-grade building components or substantial depths of soil cuts other than for creation of the proposed detention basin. The project is required to comply with the City's General Plan implementation measures related to the preservation of cultural resources and the Health and Safety Code related to unearthing human remains as described in Mitigation Measures 3.5a and 3.5b. Under these requirements, any resources that may be uncovered during construction would be required to be evaluated and where a resource is significant, it must either be preserved in place or excavated subject to an approved data recovery plan. This would ensure that the project would not result in

any significant direct adverse effects to cultural resources because all of the important information that a resource can provide would be retained, and therefore the project would not make a cumulatively considerable contribution to the cumulative loss of cultural resources. Thus, this impact would be **less than significant**.

Mitigation Measures

The Crossings

Implementation of Mitigation Measures 3.5b, 3.5c, and 3.5e would ensure that the project's potential direct impacts to cultural resources would be reduced to a less than significant level and that the project's contribution to the cumulative impact would be less than cumulatively considerable.

Remainder Area

Implementation of Mitigation Measures 3.5b, 3.5c, 3.5d, and 3.5e as described above would ensure that the project's potential direct impacts to cultural resources would be reduced to a less than significant level and that the project's contribution to the cumulative impact would be less than cumulatively considerable.

3.5.6 References Cited

City of Merced. 2012a. *City of Merced 2030 General Plan*. Adopted January 2012. https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan.

City of Merced. 2012b. *City of Merced 2030 General Plan EIR.* Adopted January 2012. https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan-adoption.

County of Merced. 2013. *2030 Merced County General Plan EIR*. Adopted December 2013. https://www.co.merced.ca.us/100/General-Plan.

3.6 Energy Consumption

3.6.1 Introduction

This section evaluates the potential effects of energy consumption associated with development and operation of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This section describes the existing conditions around the project site; outlines applicable federal, state, and regional regulations pertaining to energy use; and identifies potential project-specific and cumulative impacts on energy use and measures to minimize these impacts.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. No comments were received in response to the NOP that raised concerns regarding energy consumption. Both NOPs and the comments received in response to them are provided in Appendix A.

Resources referenced to prepare this section include the Merced Vision 2030 General Plan (City of Merced 2012), reports on energy consumption and energy-efficiency prepared by the California Energy Commission (CEC), and Dudek's modeling of project construction and operation using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017). The CalEEMod modeling is provided in Appendix D.

3.6.2 Environmental Setting

Project Site Energy Supply

Pacific Gas and Electric Company (PG&E) currently provides electrical service to the existing residences and church property within the project site. PG&E also provides natural gas supply in Merced County.

Statewide Electricity Consumption

Electricity usage in California varies substantially by the types of uses in a building, types of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Seasonal changes in weather also result in wide fluctuations in typical daily energy use. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita has remained stable for more than 30 years, while the national average has steadily increased (CEC 2015). The state's Building Code is updated every three years. The 2016 and 2019 updates include more stringent requirements for energy-efficiency in new structures. The 2019 updates also include requirements for residences to include onsite photovoltaic power-generation. As discussed in more detail in

Section 3.6.3 Regulatory Setting, the building code requirements further reduce the energy consumption of new residences and commercial buildings.

The Renewables Portfolio Standard (RPS) established a goal for California to increase the amount of electricity generated from renewable energy resources to 20 percent by 2010 and 33 percent by 2020. The current goals are to have renewable energy sources for 44 percent of the total electricity sold to retail customers in California per year by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. Currently, California's in-state renewable generation is composed of biomass, geothermal, small hydro, wind, and solar generation sites that make up approximately 25 percent of the total in-state generational output.

The Overview webpage at the California Energy Almanac, the online database of the CEC, states that statewide electricity generation exceeds 200,000 gigawatt-hours (GWh) each year, with natural gas as the main source for electricity generation, responsible for 60.5 percent of the total in-state electric generation system power. The CEC identifies that "in 2019, total generation for California was 277,704 gigawatt-hours (GWh), down 2.7 percent, or 7,784 GWh, from 2018 (CEC 2021a). In Merced County, the CEC reported an annual electrical consumption of approximately 3.70 billion kilowatt-hours (kWh) in total, with 0.73 billion kWh for residential use in 2019 (CEC 2021b).

The CEC prepares an Integrated Energy Policy Report (IEPR) every year to document the CEC's assessments of a variety of energy issues facing California, including current and projected energy demands, development of renewable energy sources, and energy-efficiency. The 2019 IEPR reports that the California Department of Finance's estimates that California added nearly 187,000 residents in 2018, which represents less than 1 percent growth since 2017. Further, there were 77,000 new housing units constructed in 2018, resulting in more than 14.2 million total housing units in the state. Multi-family units comprised 31.5 percent of the new housing units in 2018. The Department of Finance estimates that ongoing growth rates would remain at less than 1 percent per year. Based on this projection, the CEC estimates that in 2030, statewide energy consumption would be nearly 321,300 GWh (CEC 2020).

The CEC also finds that a portion of the projected energy consumption would be offset by rooftop solar power generation, noting that before 2018, more than 1,300 megawatts (MW) were generated from photovoltaic (PV) systems on individual buildings (referred to as behind the meter, or BTM), and by the end of 2018, the BTM PV capacity had increased to 8,000 MW. By 2030, the 2019 IEPR forecasts that BTM PV capacity is expected to reach approximately 23,300 MW (CEC 2020).

PG&E Service

PG&E provides electric services to 5.1 million customers, including residents of the City of Merced and most portions of Merced County, through 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2021). According to the CEC, PG&E generated approximately 78.07 billion kilowatt-hours (kWh) of electricity in total in 2019, of which approximately 28 billion kWh was consumed by the residential sector and 29.6 billion kWh was consumed by commercial buildings (CEC 2021c).

Statewide Natural Gas Consumption

Natural gas is commonly used for cooking and space heating as well as for generating electricity and as an alternative transportation fuel. In California, natural gas is used for space heating, oil refining, industrial processes, cooking, electricity generation, and grid reliability. Demand for natural gas can vary depending on factors such as weather, price of electricity, economic conditions, environmental regulations, energy efficiency programs, and the availability of alternative renewable energy sources.

The California Public Utilities Commission (CPUC) regulates natural gas utility service for approximately 10.8 million customers who receive natural gas from PG&E and other natural gas utilities. The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers accounted for approximately 30 percent of the natural gas delivered by California utilities in 2016. Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 70 percent of the natural gas delivered by California utilities in 2016 (EIA 2018). In 2019, California's estimated annual energy use included approximately 21.4 billion therms of natural gas (EIA 2021). California relies on out-of-state natural gas imports for the majority of the natural gas supply. In 2017, in-state sources provided about 10 percent of the natural gas consumed in California, while interstate pipeline shipments satisfied the remaining 90 percent. This ratio of in-state to out-of-state natural gas supply is projected to continue in future years. (CEC 2020).

PG&E also provides natural gas service to the County of Merced. The system receives gas from PG&E's regional transmission system. The CEC reports that PG&E consumed a total of approximately 4.94 billion British thermal units (MMBtu) of natural gas in 2016, with 1.9 billion MMBtu for residential use. In Merced County, total natural gas consumption was approximately 120.16 million MMBtu in 2019, with 25.94 million MMBtu for residential use (CEC 2021d).

The 2019 IEPR forecast for natural gas demand includes increased demands from projected natural gas vehicle adoption, amounting to an additional 150 million therms by 2030 but finds that "this modest increase is more than offset by the energy savings impacts from new building

standards, as well as reduced consumption in the mining sector." By 2030, statewide end-user natural gas consumption is projected to decline to just below 12,800 million therms in 2030. This projected reduction is attributed to a transition to cleaner energy sources as required under Senate Bill 100, which established state policy for renewable energy and zero-carbon resources to supply 100 percent of retail sales of electricity to California customers (and 100 percent of electricity procured to serve all state agencies) by December 31, 2045 (CEC 2020).

The 2019 IEPR finds that market trends in California "are signaling the start of a transition away from natural gas as the state's primary electricity source." Key factors in this transition are the price decreases for renewable resources, particularly for solar PV, which contributed to a 12 percent increase in solar generation between 2017 and 2018, and the CPUC plans to retire aging coastal natural gas plants that use ocean water for cooling (CEC 2020).

Transportation Energy Demand

The 2019 IEPR notes that there are approximately 30 million registered cars, trucks, buses, and other motorized on-road vehicles in California, and that the increase in vehicle ownership and the number of miles driven in the last 60 years has made "the transportation sector the largest contributor of greenhouse gas (GHG) emissions in the state, as well as a leading cause of air pollution and ozone-forming gas emissions." The transportation sector energy demand is reflected in the electricity and natural gas forecasts discussed above. The forecasts include the effect of the anticipated increase in the use of zero-emission vehicles (ZEVs), including plug-in electric vehicles and fuel cell electric vehicles. Even considering increases in ZEVs, petroleum-based fuels represent the largest shares of transportation energy demand under existing conditions and through 2030. However, a decline in gasoline demand is projected, primarily due to improvements in fuel efficiency and increased electrification. The transportation electricity consumption represents 5.4 percent of overall electricity projected demand for 2030, with a total transportation-sector demand equivalent to slightly more than 19 billions of gasoline-gallon equivalent in 2019 to slightly more than 17 billions of gasoline-gallon equivalent by 2030 (CEC 2020).

3.6.3 Regulatory Setting

Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined

based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202) – this requires ever-increasing levels of renewable fuels to replace petroleum, reducing imports of petroleum, and encouraging development and expansion of the renewable fuels sector in the United States
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

Additional provisions of the EISA address energy savings in government and public institutions, research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green" jobs.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) regulates and oversees the energy industries in the interests of the American public. The Energy Policy Act of 2005 gave FERC additional responsibilities including interstate commerce, licenses and inspections, energy markets, and penalizing energy organizers and individuals who violate FERC rules in the energy market.

State

California Environmental Quality Act

Appendix F of the CEQA Guidelines, Energy Conservation, includes recommendations for information that should be included in an EIR to "assure that energy implications are considered in project decisions" (14 CCR 15000 et seq.). Appendix F directs that EIRs should include "discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3))" (14 CCR 15000 et seq.). Specifically, the energy assessment should include energy requirements and energy use efficiencies of the project by fuel type and amount for each stage of the project, the effects of the project on local and regional energy supplies and on requirements for additional capacity, compliance with existing energy

standards, the effects of the project on energy resources, and the project's projected transportation energy use requirements and overall use of efficient transportation alternatives.

State Climate Change Targets

As discussed in more detail in Section 3.7 Greenhouse Gas Emissions, California has engaged in regulatory efforts since 2005 with the goal of reducing GHG emissions. Many of these efforts relate to energy consumption because they seek to improve energy-efficiency in buildings, transportation, and power generation. The first effort was an Executive Order (EO) issued in June 2005, EO S-3-05, which set the following targets for reducing GHG emissions :

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

This was followed in 2006 with the Legislature enacting AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code, Sections 38500–38599 et seq.), which codified the first two targets from EO S-3-05. As required by AB 32, in 2008, the California Air Resources Board (CARB) approved *The Climate Change Proposed Scoping Plan: A Framework for Change* (Scoping Plan). The Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission-reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. Elements of the Scoping Plan that relate to energy consumption include the following (CARB 2008):

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewable energy mix of 33 percent
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (17 CCR 95480 et seq.)

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012 (CARB 2014). In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030

target of 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050, as set forth in S-3-05. In December 2017, CARB approved the 2017 Climate Change Scoping Plan Update (Second Update, CARB 2017). The Second Update identifies new technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. These strategies include implementing renewable energy and energy efficiency (including the mandates of SB 350) standards.

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 Building Standards)

According to the 2019 IEPR, "in 2017, the most recent data available, the state's building stock accounted for almost a quarter of statewide GHG emissions, including fossil fuel consumed onsite (for example, gas or propane for heating) and electricity consumption (for example, for lighting, appliances, and cooling)" (CEC 2020). Thus, increasing energy-efficiency in buildings is a key strategy for reducing statewide GHG emissions.

The CEC administers Title 24 Building Standards, which were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. California's building efficiency standards are updated on an approximately 3-year cycle. The current Title 24 standards are the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020.

Title 24 also includes Part 11, California's Green Building Standards (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, high-rise residential, state-owned buildings, schools, and hospitals, as well as certain residential and non-residential additions and alterations. The CALGreen 2019 standards have improved upon the previous 2016 CALGreen standards and went into effect on January 1, 2020. Specifically, the CALGreen 2019 standards increase the energy-efficiency standards for new residences and require PV systems be installed on all new single-family and multi-family units that are three stories or less, with the system sized to offset the home's annual electricity consumption. The CEC finds that over the three years that the CALGreen 2019 standards are in effect, energy consumption of new structures would be reduced sufficiently to reduce cardon dioxide emissions by 700,000 metric tons, which is equivalent to taking 115,000 gasoline-powered cars off the roads (assuming each car has a fuel efficiency of 18 miles per gallon) (CEC 2021e).

Renewable Energy and Energy Procurement

Through several legislative actions and EOs, California has established policies and regulations that require use of renewable energy generation sources throughout the state. This includes the Renewables Portfolio Standard (RPS) program, which was first established in 2002 under SB 1078 and sets minimum standards for utility providers to obtain energy from renewable sources. The RPS was accelerated in 2006 with SB 107, in 2011 with SB X1-2, in 2015 with SB 350, and most recently in 2018 with SB 100 which calls for California's electricity system to become 100 percent zero-carbon by 2045. The current goals are to have renewable energy sources for 44 percent of the total electricity sold to retail customers in California per year by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. As reported in the 2019 IEPR, renewable resources such as solar and wind accounted for about 34 percent of California's electricity use in 2018.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the RPS standards. Therefore, the proposed project's reliance on non-renewable energy sources would also be reduced.

Local

City of Merced Vision 2030 General Plan

The City's General Plan includes the following policies and implementing actions relating to energy use that are applicable to the proposed project (City of Merced 2012).

Policy SD-3.1 Promote the use of solar energy technology and other alternative energy resources.

Implementing Actions

3.1.a Encourage the use of solar energy in design and management of all new construction in the City.

3.1.b Require all new subdivisions to maximize, to the extent feasible, proper orientation of lots with regard to solar utilization.

3.1.c Encourage developers and builders to properly design all structures on each building lot in the City to take fullest advantage of solar use in heating and cooling.

3.1.d Encourage developers and builders to maximize "passive" solar design, such as large south-facing windows for winter heat gains and overhangs and shading for summer heat protection. The City should collect and make available to builders and homeowners design

solutions to passive solar construction problems and support the local building industry's efforts to comply with State regulations on energy conservation design standards.

Policy SD-3.2 Encourage the use of energy conservation features, low-emission equipment, and alternative energy sources for all new residential and commercial development

Implementing Actions

3.2.b Cooperate with the local building industry, utilities and the SJVAPCD to promote enhanced energy conservation standards for new construction.

3.2.c Encourage new residential, commercial, and industrial development to reduce air quality impacts from area sources and from energy consumption

3.2.d Encourage builders to develop "green" and/or LEED-Certified (or other similar programs) buildings.

3.6.4 Impacts

Methods of Analysis

The following assessment of energy consumption and conservation is based on the air pollutant and greenhouse gas emission modeling completed using the CalEEMod modeling software. The modeling output files are provided in Appendix D to this Draft EIR.

For the purposes of this analysis, energy consumption is measured in kilowatt hours (kWh) or million British thermal units (MMBtu). One MMBtu is equivalent to 293.297 kWh.

Thresholds of Significance

The significance criteria used to evaluate the project impacts associated with energy consumption and conservation are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to energy would occur if the project would:

- Result in wasteful, inefficient, or unnecessary consumption of energy.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impacts and Mitigation Measures

Impact 3.6-1: Implementation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy. This would be a less-than-significant impact.

The Crossings

Construction

Energy consumption would occur during construction and project operation. Electricity use is generally low during construction, being limited to lighting, electrically powered hand tools, and electronic equipment (such as computers inside temporary construction trailers and heating, ventilation, and air conditioning). These types of equipment would not require use of substantial quantities of electricity and would be in use only temporarily.

Natural gas is not anticipated to be required during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the following subsection, Petroleum. Any minor amounts of natural gas that may be consumed as a result of proposed project construction would be temporary and negligible.

Petroleum would be consumed throughout construction of the proposed project. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction, and vehicle-miles traveled (VMT) associated with the transportation of construction materials and construction worker commutes would also result in petroleum consumption. Heavy-duty construction equipment associated with construction activities and haul trucks involved in moving dirt around the project site, would rely on diesel fuel. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed that construction workers would travel to and from the project site in gasoline-powered vehicles.

Heavy-duty construction equipment of various types would be used during each phase of construction. CalEEMod was used to estimate construction equipment usage, and results are included in Appendix D. Based on that analysis, over all phases of construction, diesel-fueled construction equipment would operate for an estimated 38,640 hours, as summarized in Table 3.6-1, Hours of Operation for Construction Equipment.

Table 3.6-1
Hours of Operation for Construction Equipment

Phase	Hours of Equipment Use
Demolition	1,440
Site Preparation	1,120
Grading	2,880
Building Construction	30,800
Paving	1,680
Architectural Coating 1	240
Architectural Coating 2	240
Architectural Coating 3	240
Total	**38,640**

Source: Appendix D

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 9.13 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.35 kilograms per metric ton CO_2 per gallon. The estimated diesel fuel use from operation of construction equipment is shown in Table 3.6-2, Construction Equipment Diesel Demand.

Table 3.6-2
Construction Equipment Diesel Demand

Phase	Equipment CO_2 (MT)	kg CO_2/Gallon	Gallons
2021	1,091.70	10.35	11,299.1
2022	1,430.81	10.35	14,080.9
2023	168.73	10.35	1,746.4
Total			**27,126.4**

CO_2 = carbon dioxide; kg = kilogram; MT = metric ton
Sources: Appendix D (equipment CO_2); The Climate Registry 2016 (kg/CO_2/gallon).

Fuel consumption from worker and vendor trips is estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, and vendor/hauling vehicles are assumed to be diesel fueled. Calculations of fuel consumption from construction

workers and vendors are provided in Table 3.6-3, Construction Worker Vehicle Gasoline Demand, and Table 3.6-4, Construction Vendor Truck Diesel Demand.

Table 3.6-3
Construction Worker Vehicle Gasoline Demand

Phase	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
2021	342.87	9.13	3,130
2022	575.75	9.13	5,257
2023	6.94	9.13	63
Total			**8,450**

CO_2 = carbon dioxide; kg = kilogram; MT = metric ton
Sources: Appendix D (equipment CO_2); The Climate Registry 2016 (kg/CO_2/gallon).

Table 3.6-4
Construction Vendor Truck Diesel Demand

Phase	Vehicle CO_2 (MT)	kg/CO_2/Gallon	Gallons
2021	328.14	10.35	3,396.25
2022	531.57	10.35	5,501.75
2023	41.87	10.35	433.35
Total			**9,331.35**

CO_2 = carbon dioxide; kg = kilogram; MT = metric ton
Sources: Appendix D (construction worker CO_2); The Climate Registry 2016 (kg/CO_2/gallon).

As shown in Tables 3.6-3 and 3.6-4, the proposed project is estimated to consume 17,781 gallons of petroleum during the construction phase. By comparison, approximately 64 billion gallons of petroleum would be consumed in California over the course of the proposed project's construction period (27 months) based on statewide consumption of approximately 28.6 billion gallons (681 million barrels) of petroleum in 2018 (EIA 2021). The proposed project would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes. This would ensure that petroleum use during construction is not wasteful or inefficient. Therefore, because it is not possible to avoid petroleum use during construction of the proposed project, and all energy consumption would be temporary, minimal, and not be wasteful or inefficient, impacts would be **less than significant**.

Operation

During project operation, energy consumption includes electricity for operating the various buildings, such as appliances, lighting, heating/cooling, kitchen operations, and pool maintenance

and operation. Natural gas consumption may also occur within kitchens and for heating, while petroleum use is associated with all residents, employees, and visitors traveling to and from the site.

Once the project is constructed, the proposed project would consume electricity onsite for interior and exterior lighting, use of appliances and equipment within each building, and operations of heating and cooling systems. All buildings constructed as part of the proposed project would be required to comply with the City's Green Building Ordinance and the 2019 Title 24 standards or the most recent standards at the time of building issuance.

Additionally, the project includes the following design measures to minimize onsite energy consumption:

- Use of drought tolerant, indigenous plantings to minimize water use.
- Incorporating open and naturally ventilated circulation spaces in buildings to minimize energy use.
- Cut-off luminaires (no upward light emitted).
- Installation of Electric Vehicle Supply Equipment (EVSE) and designated parking for low-emitting and fuel-efficient vehicles.
- Short-term and long-term bicycle parking.
- Energy efficient mechanical and plumbing systems.
- Energy efficient building envelope with water resistance and moisture management.
- Solar shading devise to minimize heat gain on south and west facing facades.
- Construction waste reduction, disposal and management.
- Energy efficient HVAC systems and building commissioning.
- Indoor air quality using non-toxic, non-V.O.C paints and adhesives, moisture control, acoustical control, natural daylight and natural ventilation.

The increase in the number of residents onsite would increase the amount daily vehicle trips that access the site, which would result in an increase in the total VMT in the project area.

Petroleum fuel consumption is largely associated with motor vehicles traveling to and from the project site and is directly related to VMT. As shown in Appendix D, the daily VMT attributable to the proposed project is expected to be approximately 6,307 miles, with an annual total of 2,302,165 miles. The U.S. EPA lists the average miles for gallon for passenger vehicles as 24.9 miles per gallon. This correlates to annual consumption of 92,456 gallons of gasoline based operational VMT. By comparison, California as a whole consumed approximately 28.6 billion

gallons (681 million barrels) of petroleum in 2018 (EIA 2021). Thus, the project represents a 0.00000323 percent increase in statewide annual petroleum consumption during operation.

Over the lifetime of the proposed project, the fuel efficiency of the vehicles being used by residents and employees is expected to increase and the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emissions vehicles in California (CARB 2016). Inclusion of electric-vehicle charging outlets would result in the potential for reduced petroleum use during operation because residents and employees would have the option of charging their electric vehicles.

In summary, although the proposed project would increase petroleum use during operation, the use would be a small fraction of the statewide use and, due to vehicle efficiency increases, would diminish over time. Further the proposed project would implement sustainability features in order to reduce direct and indirect energy demand. The proposed project is consistent with the City's development projections and the demand for housing and commercial land uses in the project area demonstrates that the energy consumption associated with the project would not be unnecessary. Therefore, operation of the proposed project would not result in a wasteful, inefficient or unnecessary consumption of energy and impacts would be **less than significant**.

Remainder Area

The project proposes to pre-zone the 40.2-acre Remainder Area to Low Density Residential (R-1-10) and Urban Transition (U-T). No new development within the Remainder Area is proposed at this time. At this time, no development is proposed for the Remainer Area; thus, implementation of the proposed project would not result in additional energy consumption from this area. However, the portions of the Remainder Area proposed to be zoned R-1-10 could support single-family residential development. The energy demand associated with new residences within the Remainder area would be similar to the energy demand for the residential uses in The Crossings development because all new single-family homes would be subject to the requirements of the Building Code and CalGreen Standards in effect at the time that building permits are issued. Therefore, energy would not be used in a wasteful or inefficient manner and impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 3.6-2: Implementation of the proposed project would not conflict with existing energy standards and regulations. This would be a less-than-significant impact.

The Crossings

As discussed in Impact 3.6-1, the new buildings constructed under the proposed project would adhere to applicable building code energy standards and regulations and the project includes implementation of project features to minimize energy consumption, provide for onsite energy generation by installing PV for the residential units, and reduce water consumption (which reduces the indirect consumption of electricity for water and wastewater treatment and conveyance). The proposed project would be built and operated in accordance with all existing, applicable regulations at the time of construction. Thus, the proposed project would not conflict with existing energy standards or regulations, and impacts would be **less than significant**.

Remainder Area

Future development in the Remainder Area would be required to comply with all applicable building code energy standards and regulations. This future construction would be built and operated in accordance with all existing, applicable regulations at the time of construction. Therefore, construction and operation of new land uses within the Remainder Area would not conflict with existing energy standards or regulations, and impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.6.5 Cumulative Impacts

Impact 3.6-3: The proposed project would contribute to a cumulative increase in regional energy consumption but would not result in wasteful or inefficient use of energy. This would be a less-than-significant impact.

In the context of the residential and commercial development proposed under this project, consideration of energy consumption is inherently a cumulative issue because the project-specific energy demands are extremely low relative to statewide energy demands. Further, energy consumption itself is not an adverse environmental effect, but as shown in Section 3.6.3, Regulatory Setting, California has identified that energy consumption and generation are substantial sources of GHG emissions, which contribute to climate change effects. Thus, an individual small project would not result in a direct change in the environment because it would

not have a material effect on the global climate or the state's ability to achieve GHG reduction targets. Rather, these effects would result from the energy demands of many individual projects across the state. Therefore the geographic area for consideration of cumulative impacts associated with energy consumption is the State of California, and the cumulative development scenario for this consideration is the statewide projected development and population growth, which generally is reflected by planned development under General Plans across the state.

As discussed in Section 3.6.3, the State has adopted multiple laws and policies that define the State's priorities and targets for improved energy-efficiency in buildings and transportation, increased use of renewable sources for energy generation, and other strategies for achieving the State's GHG reduction targets. The analysis of proposed project's impact related to energy consumption presented in Impacts 3.6-1 and 3.6-2 above addresses the project's contribution to statewide energy demand management and energy efficiency. Energy consumption by the project was determined not to be wasteful, inefficient, or necessary. The proposed project would use electricity that would rely less on generation by fossil fuels, in accordance with the RPS targets, and would utilize various energy efficient design features. Furthermore, structures within the project site would be required to comply with the adopted California Building Code and CALGreen Standards, which include energy efficiency provisions. Therefore, the project would be consistent with state standards and targets and would not impair the State's ability to achieve the identified targets.

The State's targets for prior years have been achieved and the state is on track to continue to achieve the targets for future years (CEC 2020, CARB 2017). It is reasonably expected that the state's energy-efficiency and GHG targets will be met and thus the cumulative impact would be less than significant. Therefore, there is no significant cumulative impact to which this project could contribute.

3.6.6 References Cited

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3.7 Greenhouse Gas Emissions

3.7.1 Introduction

This section evaluates the potential effects on greenhouse gas (GHG) emissions associated with development and operation of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This section describes the existing GHG emissions conditions in the project region; outlines applicable federal, state, and regional regulations pertaining to GHG emissions; and identifies potential project-specific and cumulative impacts on air quality and measures to minimize these impacts.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. No comments were received in response to either NOP that raised concerns regarding GHG emissions. Both NOPs and all comments received in response to them are provided in Appendix A.

Resources referenced to prepare this section include the Merced Vision 2030 General Plan (City of Merced 2012), the Merced County 2030 General Plan (Merced County 2013), and the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009). In addition, Dudek completed modeling of the GHG emissions associated with project construction and operation using the Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017). The CALEEMod modeling is provided in Appendix D.

3.7.2 Environmental Setting

The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its present 57°F (14°C). If the atmospheric concentrations of GHGs rise, the average temperature of

the lower atmosphere will gradually increase. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

Greenhouse Gases

GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text. The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), the California Air Resources Board's (CARB's) Glossary of Terms Used in GHG Inventories (2017a), and the U.S. Environmental Protection Agency's (EPA's) Glossary of Climate Change Terms (2016).

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans, volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of coal, oil, natural gas, and wood.

Methane. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and the use of N_2O as a propellant (such as in rockets, racecars, aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Chlorofluorocarbons:** CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.

- **Hydrochlorofluorocarbons:** HCFCs are compounds containing hydrogen, fluorine, chlorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone depleting substances (chlorofluorocarbons).

- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to the ozone depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

- **Sulfur Hexafluoride:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

- **Black Carbon.** Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and

are also TACs that have been regulated and controlled in California for several decades to protect public health.

- **Water Vapor.** The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere. It is essential to maintaining a climate necessary for life.

- **Ozone.** Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

- **Aerosols.** Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016). The IPCC developed the global warming potential (GWP) concept to compare the relative abilities of each GHG to trap heat in the atmosphere. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2E).

The current version of the California Emissions Estimator Model (CalEEMod) (version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

3.7.3 Regulatory Setting

GHG emissions are monitored through the efforts of various international, federal, state, regional, and local government agencies. The agencies work jointly and individually to reduce GHG emissions through legislation, regulations, planning, policy making, education, and a variety of programs. The agencies responsible for regulating contributors to climate change within the City of Merced (City) are discussed in the following text.

Federal Regulations

Massachusetts vs. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007

On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and directs National Highway Traffic Safety Administration (NHTSA) to

establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.

3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the DOT, DOE, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021. On January 12, 2017, EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2017b).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by

approximately 1.1 billion MT and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits. In October 2017, the EPA proposed to repeal the Clean Power Plan.

State Regulations

The statewide GHG emissions regulatory framework is summarized in this subsection by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, water, solid waste, and other state actions. The following text describes EOs, Assembly Bills (ABs), Senate Bills (SBs), and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. As summarized here, these actions include EOs, legislation, and CARB plans and requirements.

California began regulating GHG emissions in June 2005 with EO S-3-05, which set the following targets for reducing GHG emissions :

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80% below 1990 levels

This was followed in 2006 with the Legislature enacting AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code, Sections 38500–38599 et seq). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions to 1990 levels by 2020, and initiate the transformations required to achieve the state's long-range climate objectives.

A critical component of AB 32 was the directive to CARB to develop a Climate Change Scoping Plan. In 2008, CARB approved the first scoping plan: The Climate Change Proposed Scoping Plan: A Framework for Change (Scoping Plan). The Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission-reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewable energy mix of 33%
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (17 CCR 95480 et seq.)
- Creating targeted fees, including a public goods charge on water use, fees on high-GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments, including the City of Merced, developed community-scale local GHG-reduction plans based on this Scoping Plan

recommendation. The City's Climate Action Plan is discussed in the Local Regulations section below.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012 (CARB 2014). The First Update concluded that California is on track to meet the 2020 target, but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050 including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level, using more recent GWPs identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e.

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050, as set forth in S-3-05. The Governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the Legislature affirmed the importance of addressing climate change through passage of SB 32.

In December 2017, CARB approved the 2017 Climate Change Scoping Plan Update (Second Update, CARB 2017a). The Second Update builds on the successful framework established in the initial Scoping Plan and First Update, while identifying new technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' "known commitments" include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the Low Carbon Fuel Standard, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, the Second Update recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

For local governments, the Second Update replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than 6 MT CO_2e per capita

by 2030 and no more than 2 MT CO_2e per capita by 2050, which are developed around the scientifically based levels necessary to limit global warming below 2°C.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the EOs; it also establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it would meet the general policies in reducing GHG emissions in order to facilitate the achievement of the state's goals and would not impede attainment of those goals. As discussed in several cases, a given project need not be in perfect conformity with each and every planning policy or goal to be consistent. A project would be consistent if it would further the objectives and not obstruct their attainment.

Finally, in September 2018, EO B-55-18 was issued, which establishes a statewide policy for the state to achieve carbon neutrality as soon as possible (no later than 2045) and achieve and maintain net negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Building Energy

Energy used within buildings contributes to GHG emissions from power generation. The Scoping Plan and statewide GHG reduction regulations recognize the importance of improving energy-efficiency of buildings as a component for attaining the state's GHG emission goals. As discussed in more detail in Section 3.5 of this EIR, energy efficiency of buildings is regulated through the California Building Standards Code, specifically through the Building Energy Efficiency Standards under Part 6 of Title 24. The current Title 24 standards are the 2019 Title 24 building energy efficiency standards, which became effective January 1, 2020; and the Title 24 standards are updated every three years.

In addition, the California Green Building Standards Code (Part 11 of Title 24), which is commonly referred to as California's Green Building Standards (CALGreen), establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The 2019 CALGreen standards are the current applicable standards; these are also updated every three years.

Renewable Energy and Energy Procurement

Through several legislative actions and EOs, California has established policies and regulations that require use of renewable energy generation sources throughout the state. This includes the Renewables Portfolio Standard (RPS) program, which sets minimum standards for utility providers to obtain energy from renewable sources. The current goals are to have renewable energy sources for 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030.

Mobile Sources

The transportation sector accounts for more than half of California's CO_2 emissions, thus increasing the fuel efficiency of motor vehicles is another key component to the statewide GHG emission reduction strategies. However, efforts by the state to regulate vehicle emissions have precluded by federal action, particularly publication by the EPA and NHTSA of the SAFE Vehicles Rule, which revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California.

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel—including extraction/feedstock production, processing, transportation, and final consumption—per unit of energy delivered.

Water

In response to the drought conditions in the state, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by 2000.

AB 341 amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery to develop strategies to achieve the state's policy goal.

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

Sustainable Community Strategies

Under SB 375 (California Government Code Section 65080), the state addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG-reduction targets for the automobile and light-truck sector for 2020 and 2035, and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations (MPOs) to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan that will achieve the GHG-reduction targets set by CARB. If an MPO is unable to devise an SCS to achieve the GHG-reduction target, the MPO must prepare an Alternative Planning Strategy demonstrating how the GHG-reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

A SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it (California Government Code Section 65080(b)(2)(K)). Nonetheless, SB 375 makes regional and local planning agencies responsible for developing

those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

Local Regulations

San Joaquin Valley Air Pollution Control District

SJVAPCD has adopted the Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009) The guidance relies on the use of performance-based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project-specific GHG emissions on global climate change during the environmental review process. For development projects (rather than stationary sources of GHG emissions), the recommended BPS focus on measures that improve energy efficiency and those that reduce vehicle miles travelled. The SJVAPCD Guidance states that a project that implements BPS and reduces emissions to 29% below the "business as usual" scenario could be determined to have a less than significant impact related to GHG emissions. This 29% reduction threshold was originally developed in preparation of the first Scoping Plan, discussed above. Many Lead Agencies applied this reduction from the Scoping Plan to individual projects as a threshold of significance. This approach was invalidated by the California Supreme Court unless specific analysis and evidence supports a finding that the statewide reduction target would also be directly applicable to a particular project or jurisdiction. The SJVAPCD Guidance does not demonstrate that this threshold is sufficient to ensure attainment of the regional GHG targets developed by CARB under SB 375, and thus this threshold is not relied upon in this EIR.

Merced County Association of Governments

The Merced County Association of Governments (MCAG) is the regional planning agency for Merced County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. MCAG serves as the federally designated metropolitan planning organization (MPO) for Merced County. MCAG has prepared the 2018 Regional Transportation Plan and Sustainable Communities Strategy (2018 RTP/SCS) for the region (MCAG 2018).

The 2018 RTP/SCS emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which is assessed in Section 8 of the 2018 RTP/SCS. The 2018 RTP/SCS also emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

City of Merced

Climate Action Plan

In November 2009, the City Council accepted Energy Efficiency and Conservation Block Grant (EECBG) funds from the Federal Department of Energy to undertake several projects to increase energy efficiency. One of these projects was preparation and adoption of a Climate Action Plan (CAP). The City's CAP is a stand-alone community-based policy document that establishes a goal to reduce GHG emissions and a variety of implementation actions that will help to achieve broadly-supported community values including: 1) protecting water and air resources; 2) reducing the waste-stream to the landfill; 3) improving energy-efficiency; 4) enhancing choice in mobility; and 5) creating healthy and livable communities. The CAP identifies GHG reduction opportunities from a wide variety of sources in the community, including but not limited to transportation, buildings, and water conservation, and it relies on incentive-based actions, communication-based actions, and encouragement-based actions to reach the defined goals.

The CAP recognizes that the City and larger region is expected to grow substantially, but that growth can and must occur in a manner that allows the City to achieve its GHG reduction goals. The CAP notes that the "urban village" concept that informs the City's General Plan encourages transit-oriented development and mixed-use development, "which are foundational elements of reducing GHG emissions through land use planning" (Merced 2009).

City of Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan was adopted by the Merced City Council in January 2012 and establishes the following policies that are relevant to consideration of potential GHG emissions from new development:

Policy UE-1.2 Foster compact and efficient development patterns to maintain a compact urban form.

Policy T-1.6 Minimize adverse impacts on the environment from existing and proposed road systems.

Policy OS-5.2 Protect soil resources from the erosive forces of wind and water.

Policy SD-1.3 Integrate land use planning, transportation planning, and air quality planning for the most efficient use of public resources and for a healthier environment.

Policy SD-1.4 Educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.

Policy SD-1.5 Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs.

Policy SD-1.7 Develop and implement a Climate Action Plan for the City.

Policy SD-1.8 Implement policies in other general plan chapters to address air quality and greenhouse gas emissions reduction goals.

Policy SD-3.2 Encourage the use of energy conservation features, low-emission equipment, and alternative energy sources for all new residential and commercial development.

3.7.4 Impacts

Methods of Analysis

The issue of global climate change is inherently a cumulative issue as the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact to climate change is addressed only as a cumulative impact. To provide a full understanding of the project's potential contribution to climate change, the project's short-term construction-related and long-term operational GHG emissions were estimated using the CalEEMod software. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, and water use.

Thresholds of Significance

The following significance criteria are used for the purposes of analysis in this EIR. A significant impact related to greenhouse gases would occur if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment by generating more than 10,000 metric tons of CO2e per year during construction and/or by generating more than 4.6 metric tons of CO2e per service population (residents and employees) per year.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Impacts and Mitigation Measures

Impact 3.7-1: Implementation of the proposed project may generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. This would be a less-than-significant impact.

The Crossings

Construction

Construction of the project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. CalEEMod Version 2016.3.2 was used to calculate the annual GHG emissions based on the construction scenario described in Section 3.3 (Air Quality). The construction equipment assumptions utilized in the CalEEMod model are summarized in Appendix D and are based on the default number of equipment in addition to construction phasing information supplied by the project applicant. Table 3.7-1 presents the project's construction CO_2E emissions from January 2021[1] to March 2023. Detailed modeling outputs are also provided in Appendix D. As shown in Table 3.7-1, GHG emissions in each year of construction would remain well-below 10,000 MT CO2E and thus construction emissions would remain **less than significant.**

Table 3.7-1
Project Estimated Annual Construction GHG Emissions

Year	Emissions (MT CO_2E)
2021	1,025
2022	1,318
2023	160

Source: Appendix D

[1] The analysis assumes a construction start date of January 2021, which represented the earliest date construction would initiate at the time that the modeling was conducted. Assuming the earliest start date for construction represents the worst-case scenario for GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years. Thus, the fact that construction would occur later than the dates used for modeling does not invalidate the modeling results. Impacts would be the same or less than those identified herein.

Operation

Operation of the project would result in GHG emissions from vehicular traffic, area sources (e.g., natural gas combustion and landscaping), electrical generation, water supply, and solid waste as described below.

Vehicular Traffic Trip rates and traffic volumes provided in the project's Transportation Impact Study were incorporated into CalEEMod in order to match the daily trips identified in the project traffic impact analysis, included as Appendix M of this EIR. CalEEMod default mobile source data, including temperature, trip characteristics, variable start information, emission factors, and trip distances, were used for the model inputs. Operational emissions were modeled in CalEEMod under the assumption that the project would be fully operational by 2023.

Electrical Generation The estimation of operational energy emissions was based on CalEEMod land use defaults and number of dwelling units included as a part of the project. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for PG&E and adjusted to account for achievement of the 33% renewable portfolio standard in 2020 and future years.

The project would also be required to comply with the California Building Energy Efficiency Standards (Title 24, Part 6, of the California Code of Regulations) that are in effect at the time that building permits are issued. A portion of the additional energy efficiency resulting from compliance with the Building Code is reflected in the CalEEMod modeling, but it is not possible to reflect all of the additional energy efficiency in the model and thus emissions would be somewhat lower than stated herein.

Area Sources CalEEMod was used to estimate GHG emissions from the project site area sources, which include gasoline-powered landscape maintenance equipment.

Water Supply and Wastewater Water supplied to the project requires the use of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through use of electricity. The CalEEMod modeling assumes that the project would install use of low-flow water fixtures and other water-saving devices as stated within Chapter 3, Project Description.

Solid Waste The project would generate solid waste and would therefore result in GHG emissions associated with landfill off-gassing.

The estimated GHG emissions during project operation associated with for landscape maintenance, energy usage, motor vehicles, solid waste generation, water supply, and

wastewater treatment, and the estimated per capita GHG emissions are shown in Table 3.7-2. The estimates generated under CalEEMod reflect energy use under the 2019 Building Code, which has increased requirements for energy efficiency compared to the 2016 Building Code. This includes requiring that photovoltaic panels are installed on multi-family residential structures of three stories or less at the time of construction. The California Energy Commission estimated that under the 2019 Building Code, residential energy use would be reduced compared to buildings constructed under the 2016 Building Code by 7 percent due to improved energy efficiency and reduced a further 46 percent due to the provision of rooftop solar electricity generation. The CalEEMod estimates also reflect the 2018 Power Content Label for PG&E, which identifies the sources of electricity generation and the resulting GHG emissions, was used. Under the RPS program, PG&E is required to increase the amount of energy that comes from renewable sources, which would reduce the associated GHG emissions in future years.

According to US Census data, the City has an average household size of 3.2 persons. With the proposed 552 apartment units and 18 extended stay units, the project would support a residential population of 1,824 residents. The residential and commercial uses included in the project are expected to support approximately 147 employees. Based on the total emissions of 6,848 MT CO_2E and the project's estimated service population of 1,971 people, the project is expected to generate approximately 3.34 MT CO_2E per capita. This remains well-below the threshold of 4.6 MT CO2E per capita, thus the impact would be **less than significant.**

Table 3.7-2
Estimated Annual Operational Greenhouse Gas Emissions

Emission Source	Emissions (MT CO_2E per year)
Area	294
Energy	806
Mobile	5,227
Solid Waste	213
Water Supply and Wastewater	45
Total Emissions	**6,585**
Emissions Per Capita	**3.34**

Source: Appendix D

Remainder Area

Although no development is proposed within the Remainder Area at this time, the portions of the Remainder Area that are proposed to be zoned R-1-10 could support single-family residential

development in the future. Because new construction would be subject to the 2019 Building Code or later versions, new homes constructed within the Remainder Area would also be required to meet stringent energy-efficiency and solar energy generation standards. Additionally, any new homes constructed within the Remainder Area would be expected to have similar traffic patterns as the residences within The Crossings, as discussed in Section 3.12 and Appendix M. Thus the GHG emissions associated with future residential development in the Remainder Area would be similar to those of The Crossings and would be expected to remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.7-2: Implementation of the proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This would be a less-than-significant impact.

The Crossings

The City's General Plan EIR found that implementation of General Plan policies designed to reduce GHG emissions would ensure that buildout of the General Plan would be consistent with GHG reduction plans, policies, and regulations. The proposed project would be consistent with many of these General Plan policies. For example, the project would extend the City boundaries in an area that is contiguous with existing development in the City and would support the City's policy of ensuring a compact urban form. The project also meets the City's policies regarding the Urban Village concept by proposing a mixed-used development combining multi-family and commercial uses. This would provide good access to shopping, employment, and services for project residents and would improve access to shopping, employment and services for existing residents in this portion of the City. Further, the site is within approximately 2 miles of Merced College and approximately 3.5 miles of UC Merced.

The City's General Plan EIR was prepared in 2010, and thus pre-dates many of the applicable plans, policies, and regulations discussed in Section 3.7-3 above. Regarding consistency with SB 32 (goal of reducing GHG emissions to 40 percent below 1990 levels by 2030) and EO S-3-05 (goal of reducing GHG emissions to 80 percent below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the *First Update to the Climate Change Scoping Plan* that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to

80% below 1990 levels, the *First Update to the Climate Change Scoping Plan* states the following (CARB 2014):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions (CARB 2014).

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in *California's 2017 Climate Change Scoping Plan* (*2017 Scoping Plan*), which states, "This Plan draws from the experiences in developing and implementing previous plans to present a path to reaching California's 2030 GHG reduction target. The *2017 Scoping Plan* is a package of economically viable and technologically feasible actions to not just keep California on track to achieve its 2030 target, but stay on track for a low- to zero-carbon economy by involving every part of the state" (CARB 2017b). The *2017 Scoping Plan* also states that although "the Scoping Plan charts the path to achieving the 2030 GHG emissions reduction target, we also need momentum to propel us to the 2050 statewide GHG target (80 percent below 1990 levels). In developing this Scoping Plan, we considered what policies are needed to meet our mid-term and long-term goals" (CARB 2017b).

Because the local, regional, and statewide planning documents do not provide specific direction that can be readily applied to the analysis of an individual project-level analysis, it is common to rely on GHG efficiency metrics in order to assess if projects could meet the state's GHG reduction goals. As previously discussed, project-generated operational GHG emissions would not exceed the efficiency threshold of 4.6 MT CO_2E per service population per year. As such, the project would be consistent with regional GHG reduction targets. Overall, the proposed project would not conflict with any other applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions and this impact would be **less than significant**.

Remainder Area

Although no development is proposed within the Remainder Area at this time, the portions of the Remainder Area that are proposed to be zoned R-1-10 could support single-family residential development in the future. Any new homes constructed within the Remainder Area would be contiguous to existing development within the City, and proximate to the commercial land uses

proposed in The Crossings. Thus, any such future residential development would be consistent with the City's General Plan policies intended to reduce GHG emissions, as discussed for The Crossings component above, and such future development would not be expected to conflict with any other applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.7.5 Cumulative Impacts

Impact 3.7-3: The proposed project would not make a cumulatively considerable contribution to emissions of greenhouse gases in the cumulative scenario. This would be a less-than-significant impact.

The issue of global climate change is inherently a cumulative issue as the GHG emissions of individual projects cannot be shown to have any material effect on the global climate. The cumulative context for climate change comprises anthropogenic (i.e., human-made) GHG emissions sources across the globe, and no single project would reasonably be expected to contribute to a noticeable incremental change to the global climate. Subsequently, California has established legislation and regulatory measures providing a statewide context for developing an enforceable statewide cap on GHG emissions. Given the environmental consequences resulting from GHGs and global climate change, CEQA requires that lead agencies consider evaluating the cumulative impacts of GHGs, even relatively small (on a global basis) contributions.

Thus, the analysis of proposed project's impact related to GHG emissions presented in Impacts 3.7-1 and 3.7-2 above addresses the project's contribution to this significant cumulative impact. Because project-generated GHG emissions would remain below the applicable threshold of significance and the project would not conflict with local, regional, or state plans, policies, and regulations intended to reduce GHG emissions, the proposed project would have a **less than significant** impact with regards to cumulatively considerable GHG emissions.

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3.8 HYDROLOGY, WATER QUALITY AND DRAINAGE

3.8.1 Introduction

This section describes potential hydrologic effects related to drainage and water quality associated with development of the Yosemite Avenue - Gardner Avenue to Hatch Road Annexation project (proposed project). As discussed in the Initial Study for the proposed project (Appendix B), potential impacts related to 100-year flood zones, impediment or redirection of flood flows, and other flood hazards (e.g., dam/levee failure and inundation by seiche, tsunami or mudflow) were determined to be less than significant. Additionally, the Initial Study identified that the project site is not within a 100-year flood hazard area and would not risk release of pollutants due to inundation of the project site. Accordingly, these issues are not further evaluated in this EIR.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. The City received a total of seven comment letters in response to the NOP issued in 2017, and six comment letters in response to the NOP issued in 2020. One specific comment was raised pertaining to drainage, stating that storm drainage in the Black Rascal and Cottonwood Creek watershed areas through downstream connections with Bear Creek have contributed to downstream flooding in previous storm incidents. Both NOPs and letters received in response to them are provided in Appendix A.

Information to prepare this section is derived primarily from the Storm Drainage Report (Appendix H), Flood Study (Appendix G), and Water Supply Assessment (Appendix L) prepared by QK, Inc. for the proposed project. The information in these technical documents is supplemented by information from the Merced Vision 2030 General Plan (City of Merced 2012a), the Merced Vision 2030 General Plan EIR (City of Merced 2012b), and the Merced Groundwater Subbasin Groundwater Sustainability Plan (GSP). This plan was developed and adopted by three agencies – the Merced Subbasin Groundwater Sustainability Agency (GSA), Merced Irrigation-Urban GSA, and Turner Island Water District GSA, and is herein referred to as the Merced Groundwater Subbasin GSP and cited as “Merced GSA 2019.”

3.8.2 Environmental Setting

Merced Region Watersheds and Drainage Basins

The Merced region is situated over a large underground aquifer with groundwater depths ranging from within 5 feet of the surface to over 1,200 feet deep. The City contains a varied surface water

system which includes a natural creek and drainage systems, the Merced Irrigation District's (MID) irrigation canal system and Lake Yosemite in the northeastern portion of the City's planning area (City of Merced 2012a). The City of Merced and areas within the Sphere of Influence/ Specific Urban Development Plan/ (SOI/SUDP) are located within the San Joaquin/Merced River watershed. A watershed is defined as the area of land that drains water, sediment, and dissolved materials to a common outlet at some point along the stream channel. The San Joaquin Valley drainage basin stretches approximately 110 miles from north to south between near the City of Stockton to near the City of Fresno, and approximately 95 miles from east to west between the Sierra Nevada mountain range and the coastal mountain ranges. The basin encompasses approximately 11,000 square miles. The San Joaquin River originates in the Sierra Nevada mountains and flows southwesterly to the vicinity of Mendota. It then flows northwesterly to its mouth in the Suisun Bay, and is the principal river within the drainage basin. Other rivers and surface waters within the basin and SOI/SUDP, as well as the proposed project area, include the following, as shown in Figure 3.8-1, Regional Hydrology:

- **The Merced River** is located approximately eight miles north of the SUDP study area, flowing through the northeastern part of Merced County. Originating in Yosemite National Park, it drains an area of approximately 1,040 square miles along the western flank of the Sierra Nevada range. With an average flow of 969,400 acre-feet, the Merced River provides a source of water for a number of water systems including the Merced Irrigation District.

- **Black Rascal Creek** located north of Santa Fe Drive and Olive Avenue, flows southwesterly through the SUDP plan area. Black Rascal Creek originates in the foothills northeast of the SUDP plan area near the boundary of Merced and Mariposa Counties. Black Rascal Creek is listed by the State of California as an Impaired Waterway (303(d) list) due to bacteria, dissolved oxygen, and toxicity and is subject to Total Maximum Daily Load (TMDL) requirements, with attainment of those standards currently expected by 2027 (SWRCB 2021a and 2021b).

- **Bear Creek** located south of Santa Fe Drive/Olive Avenue, flows in an east-west direction, south of Black Rascal Creek. Its headwaters are impounded by a reservoir approximately four miles east of the SUDP plan area. Bear Creek ultimately flows directly into the San Joaquin River. Bear Creek is listed by the State of California as an Impaired Waterway (303(d) list) due to bacteria and toxicity and is subject to TMDL requirements. According to the 2014 and 2016 Integrated Report, attainment of those standards was expected by 2021 (SWRCB 2021c).

- **Fahrens Creek** originates at approximately the 700-foot elevation northeast of the SUDP plan area and flows southwesterly to its confluence with Black Rascal Creek at a location east of Highway 59 and north of Olive Avenue.

In addition to the natural drainages and rivers, the City and SOI/SUDP is transected by numerous man-made channels which are part of MID's extensive system of irrigation canals, levees, and ditches (City of Merced 2012b). This includes the Yosemite Lateral Irrigation Canal north of the project site and an extension of the Yosemite Lateral Irrigation Canal adjacent to the northern project site boundary.

Groundwater Resources and Quality

The City of Merced is located within the 2,665 square-mile Middle San Joaquin-Lower Chowchilla watershed (USGS Hydrologic Unit 18040001), which in turn is part of the San Joaquin River Groundwater Basin. The basin covers approximately 15,200 square miles. Groundwater, which is generally supplied by runoff from the foothills and mountains, is the sole source of domestic water support for the City of Merced and is found within the San Joaquin Valley Groundwater Basin and Merced subbasin. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin (Merced GSA 2019).

The Merced Groundwater Subbasin is one of 21 basins in the State of California identified by the California Department of Water Resources as critically overdrafted and one of 48 basins considered high priority. The boundaries of this basin and nearby major waterways are shown in Figure 3.8-2, Merced Groundwater Subbasin. Consistent with the requirements of the California Sustainable Groundwater Management Act (SGMA), water management and land management agencies in Merced Subbasin have formed three GSAs: the Merced Irrigation-Urban Groundwater Sustainability Agency, the Merced Subbasin Groundwater Sustainability Agency, and the Turner Island Water District Groundwater Sustainability Agency. The three GSAs collaborated on developing a GSP for the entire Merced Groundwater Subbasin, which was adopted by each of the three GSAs in November and December 2019 (Merced GSA 2019).

In addition, the City of Merced prepared an Urban Water Management Plan (UWMP), last updated in 2017, that identifies the amount of groundwater available to the City and the existing and projected amounts of water demand in the City. The UWMP recognizes that the Merced Subbasin experiences overdraft conditions. It also found that the rate of groundwater extraction was reduced between 2013 and 2017 in response to drought conditions and is expected not to rebound to pre-drought levels because water metering had been implemented throughout the city

and water conservation measures would remain in effect regardless of any increases in precipitation over time (City of Merced 2017).

Further, the City participated in development of the Merced Integrated Regional Water Management Plan (MIRWMP) which was adopted in 2013 and last updated in 2019 (Merced Irrigation District 2019). The MIRWMP has identified the correction of overdraft conditions as one of the highest priorities for the region. The Groundwater Management Plan and MIRWMP identify several actions that have been implemented by local agencies to improve groundwater conditions, including:

- **Groundwater Recharge:** Merced Irrigation District (MID) has implemented in-lieu recharge programs to reduce groundwater pumping.
- **Water Conservation and Education:** The City implemented watering restrictions, provided rebates for water efficient fixtures, and distributed educational information.
- **Conjunctive Use of Water Resources:** Surface water from MID canals is used to irrigate landscape within the City and UC Merced.
- **Wastewater Reclamation and Recycling:** The City's Wastewater Treatment Plant (WWTP) is capable of producing approximately 12 million gallons per day (mgd) of highly treated recycled water which can be used in-lieu of ground water for irrigation. In 2015, the City used 4,886 acre-feet of recycled water for sewer and storm drain flushing, agricultural, and environmental purposes and discharged 2,653 acre-feet into Hartley Slough (City of Merced 2017).

As shown in Figure 3.8-2, the Merced Groundwater Subbasin includes lands south of the Merced River between the San Joaquin River on the west and the crystalline basement rock of the Sierra Nevada foothills on the east. Geologic units in the Merced Subbasin consist of consolidated rocks and unconsolidated deposits. The consolidated rocks include the Ione Formation, the Valley Springs Formation, and the Mehrten Formation. In the eastern part of the area, the consolidated rocks generally yield small quantities of water to wells except for the Mehrten Formation, which is an important aquifer. There are three ground water bodies in the area: an unconfined water body, a confined water body, and the water body in consolidated rocks (City of Merced 2012b).

Groundwater recharge and discharge is driven by both natural and anthropogenic (human-influenced) factors. Anthropogenic recharge, particularly deep percolation from agricultural irrigation and earthen-lined canals, is a key source of recharge in the Merced subbasin. Groundwater discharge is primarily through groundwater production wells. However, groundwater also discharges to rivers and streams where groundwater elevations are higher than river stage (Merced GSA 2019).

The Merced Groundwater Subbasin Groundwater Sustainability Plan: Annual Water Report Water Years 2016 - 2019, includes an estimate of historic change in the storage of the Merced Subbasin between 1996 and 2019. The report found that between 2006 and 2015, the subbasin storage was reduced by 1.92 million acre-feet (MAF) in total (192 thousand acre-feet (TAF) per year), resulting in total storage in 2015 of 45.3 MAF. By 2019, the total storage had increased slightly to 46.0 MAF, thus between 2016 and 2019 storage increased by an average of 16 TAF per year. The Annual Water Report concluded that "significant and unreasonable reduction of groundwater storage is not present and not likely to occur in the Subbasin. The 2006-2019 cumulative change in storage described above, which includes both representative dry and wet years, reflects a rate of overdraft of approximately 0.3 percent per year. It is not reasonable to expect that the available groundwater in storage would be exhausted" (Merced GSA 2020).

Groundwater in the Merced subbasin contains both anthropogenic and naturally occurring constituents. While groundwater quality is often sufficient to meet beneficial uses, some of these constituents either currently impact groundwater use within the subbasin or have the potential to impact it in the future. Depending on the water quality constituent, the issue may be widespread or more of a localized concern. The primary naturally occurring water quality constituents of concern are arsenic and uranium. There are also aesthetic issues related to iron and manganese. The primary water quality constituents of concern related to human activity include salinity, nitrate, hexavalent chromium, petroleum hydrocarbons, pesticides, solvents, and emerging contaminants. Salinity is also an issue due to the widespread nature of the problem and difficulty of management given increases in salinity as a result of both urban and agricultural use (Merced GSA 2019).

Flooding

A 100-year flood plain is defined as an area subject to inundation from a flood event that has a statistical probability of occurring once every 100 years (City of Merced 2012b). The proposed project site is not within a 100-year flood zone; the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Mate (FIRM) map number 06047C0429G indicates that the project site is within Flood Zone X (not shaded) and is therefore not in a special Flood Hazard Area and is an area outside the 0.2 percent annual chance Floodplain. No designated flood elevation applies to this project in regard to FEMA criteria for the 100-year Floodplain (Appendix G).

The City also requires consideration of potential localized flooding effects. Portions of the project site would be subject to shallow (less than 3 feet deep) flooding from Black Rascal Creek (which is located south of the project site) and Cottonwood Creek (which is located north of the project site) in the event of a 200-year storm event. Specifically, flooding of the Black Rascal Creek channel could create flooding of between 0 feet at the northeast corner of the Crossings component of the project site to 1.4 feet at the southwest corner of the Crossings component.

Flooding of the Cottonwood Creek channel could add approximately 0.3 feet of flooding depth to the Crossings component of the project site. Additionally, the southeastern portion of the Remainder Area would be subject to shallow (less than one foot) flooding from flooding of the Black Rascal Creek channel (Appendix G).

The Merced Streams Group is implementing flood control improvements on Black Rascal Creek approximately 5 miles east of the proposed project site. The flood control project "consists of a new perimeter levee, internal levee, and training levees to create a flood control detention basin and wetland area on Black Rascal Creek, which is a tributary to Bear Creek" and would reduce peak flows in Bear Creek by limiting flow in the diversion channel to 3,000 cubic feet per second (cfs). The perimeter levee would create a 300-acre detention basin to accommodate up to 2,800 acre-feet of water during a 200-year storm event while the internal levee would accommodate flood flows up to a 50-year storm event (to protect agricultural land within the 300-acre detention basin) (County of Merced 2017).

Surface Water Quality

Due to increased amounts of impervious surfaces within the City and SOI/SUDP, higher rates of stormwater runoff have occurred during rainy periods. This runoff can be a source of surface water pollution. Pollutants found in urban runoff vary from storm event to storm event at a given site and from site to site within a given area. Variances can be the result of differences in rainfall intensity and occurrence, geographic features and the land use of the site, as well as vehicle traffic and percent of impervious surface. The construction of roadways and vehicle parking areas, in combination with the use of chemical pesticides and fertilizers, cleaning solvents, etc., may have resulted in inadvertent contamination of surface waters throughout the City of Merced urban area. Storm runoff can carry these polluting agents into natural drainage courses causing adverse effects on surface water quality.

As noted above, both Black Rascal Creek and Bear Creek are identified by the State of California as impaired waterways, with Black Rascal Creek having elevated levels of bacteria, dissolved oxygen, and toxicity and Bear Creek having elevated levels of bacteria and toxicity. In general, agricultural operations contribute to bacteria levels in surface water bodies, while toxicity and changes in dissolved oxygen levels can result from both agricultural operations and land development.

In the Central Valley, there is a natural weather pattern of long dry periods from May to October. During this seasonal dry period, pollutants created by agricultural operations as well as urban and suburban sources such as vehicle exhaust, vehicle and tire wear, crank case drippings, spills and atmospheric fallout accumulate on the ground, building roofs, roadways, parking areas, and other areas of hardscape and compacted soil (where groundwater infiltration is limited). Precipitation

during the early portion of the wet season, typically beginning in November, displaces these pollutants into the storm water runoff, resulting in high pollution concentrations in the initial wet weather runoff. This early runoff with peak pollutant levels is commonly referred to as the "first flush" of a storm.

Under conditions where surface storm water discharge is not regulated, stormwater runoff from paved roadways and parking areas may contain substances such as oil, battery acid, and engine coolant. All of these can be hazardous to local flora and fauna. Pesticides and fertilizers applied to landscaping could be washed into the stream channel which could affect native plants and animals (City of Merced 2012b).

Project Site Conditions

Topography and Soils

The project site slopes from the northeast to the southwest. Based on soil data from the Natural Resource Conservation Service maps (USDA 2019), the following three soil types are mapped within the project site, as shown in Figure 3.8-2: Ryer clay loam, 0-2 percent slopes; Wyman clay loam (deep over hardpan), 0-1 percent slopes; and Yokohl clay loam, 0-3 percent slopes. Ryer clay loam and Wyman clay loam are well-drained alluvium soils derived from igneous rock. These soils fall within Hydrologic Soil Group D, which has the highest runoff potential, and are generally characterized as well drained with slow permeability rates and slow to medium runoff rates. They have very low infiltration rates and high runoff potential when thoroughly wetted and consist of clay soils with a high shrink-swell potential, soils with a permanent high-water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission (USDA 2009).

Existing Drainage and Stormwater Runoff

Approximately 26 acres of the project site are currently farmed with irrigation water supplied by MID. As described in the project's Storm Drainage Report (Appendix H), drainage from the project site and adjacent road ditches flow to the southwest corner of the project site. In previous years, this drainage continued south in a ditch along Parsons Avenue and discharged into Black Rascal Creek. As properties on the south side of Yosemite Avenue were developed as residential housing projects, their respective storm drainage systems were required to maintain and accommodate the historical drainage pattern from the north side of Yosemite Avenue. One of these residential developments, the Silverado project, installed a 24-inch storm drain pipe that collects drainage from the project site, crosses under Yosemite Avenue, and flows into the Silverado storm detention basin. Flows leaving the detention basin are conveyed to a storm pump station that discharges into Black Rascal Creek. This station was constructed as a shared system

between the Oakmont Village, Silverado, and Camelot residential subdivisions located south and southwest of the project site. The pump station is located at the southern terminus of Cascade Creek Avenue, adjacent to a portion of the Rascal Bike Path. Drainage from adjacent parcels to the north, east or west do not enter into or cross the project site.

The City of Merced does not provide storm drainage and detention facilities; the City's standards require each development to provide its own system that includes on-site detention of the runoff that would occur due to the project improvements (increased impervious surfaces) under a 50-year, 24-hour storm event. The Silverado project design accounted for the drainage and the 2-year, 24-hour discharge rate that the subject 30-acre property was "entitled" to; this detention capacity is still available.

3.8.3 Regulatory Setting

Federal Regulations

Clean Water Act

The Clean Water Act (CWA, 33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987, is the major legislation governing water quality. The main objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Sections of the act relevant to consideration of the project's effects on hydrology and water quality include:

- CWA Section 303 requires states to adopt water quality standards for all surface waters of the United States. Water quality standards are defined as consisting of two elements: (1) designated beneficial uses of the water body and (2) criteria that protect the designated uses. States are also required to develop a list of impaired water bodies that do not meet water quality standards and objectives and establish a TMDL for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. In California, the EPA has designated the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) with the authority to identify beneficial uses and adopt applicable water quality objectives.
- CWA Section 304(a) requires that the U.S. Environmental Protection Agency (U.S. EPA) publish advisory water quality criteria based on the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from pollutants in water. If multiple beneficial uses exist for a water body, water quality standards must protect the most sensitive use.
- CWA Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity which may result in discharge to waters of the United States,

obtain certification from the state that the discharge will comply with all provisions of the act.

- CWA Section 404 establishes a permit program for the discharge of dredge and fill material into waters of the United States, which is jointly administered by the U.S. Army Corps of Engineers and the EPA. Refer to Section 4.2, Biological Resources, Impact 4.2-3 for a discussion of jurisdictional waters.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level this includes the EPA, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the major federal land management agencies such as the U.S. Forest Service and the Bureau of Land Management. At the state level, with the exception of tribal lands, the California EPA and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

National Pollution Discharge Elimination System

CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), which is a permitting system for the discharge of pollutants into waters of the United States. The permit program is administered by the SWRCB and the RWQCBs, who have programs that implement individual and general permits related to construction activities, stormwater quality runoff, and various types of non-stormwater discharges. Large communities with the potential to cause larger impacts to receiving waters are issued permits with requirements specific to that community. The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0005-DWQ) for Small Municipal Separate Storm Sewer System (MS4) operators in small communities. Cities permitted under the general MS4 permit are required to develop and implement a Stormwater Management Plan (SWMP) outlining measures to reduce the discharge of pollutants to the maximum extent practicable. MS4 permits are described in more detail under State Regulations and the City's adopted SWMP is described further under Local Regulations.

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) oversees floodplains and administers the National Flood Insurance Program adopted under the National Flood Insurance Act of 1968. The program makes federally subsidized flood insurance available to property owners within communities who participate in the program. Areas of special flood hazard (those subject to inundation by a 100-year flood) are identified by FEMA through regulatory flood maps titled Flood Insurance Rate Maps. The National Flood Insurance Program mandates that development cannot occur within the regulatory floodplain (typically the 100-year floodplain) if that development results in more than a 1-foot increase in flood elevation. In addition, development is not allowed in delineated floodways within the regulatory floodplain.

State Regulations

Porter-Cologne Water Quality Control Act

The Porter–Cologne Act (codified in the California Water Code, Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters. Under the Act, that State must adopt water quality policies, plans, and objectives that project the State's waters for the use and enjoyment of the people. The act is implemented by the SWRCB and the RWQCBs, who are required to adopt and periodically update water quality control plans (Basin Plans). Basin Plans are the regional water quality control plan that detail beneficial uses, water quality objectives, and implementation programs as required under the CWA and the Porter-Cologne Act. The act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. WDRs typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

Basin Planning

As noted above, the primary enforcement authority for the Porter-Cologne Act and portions of the CWA has been given to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. Each of the nine RWQCBs are responsible for adopting and implementing Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality

problems. The Central Valley RWQCB (CVRWQCB) is responsible for the protection of the beneficial uses of waters draining to the Central Valley Region.

The *Central Valley Region Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley: Sacramento River Basin and San Joaquin River Basin* designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code Sections 13240–13247) (CVRWQCB 2018). Beneficial uses of the surface waters of the Sacramento–San Joaquin Delta include municipal, agricultural, industrial, and recreational uses, freshwater habitat, migration, spawning, wildlife habitat, and navigation. Beneficial uses for all groundwater resources in the Central Valley region include or potentially include municipal, agricultural, and industrial uses (City of Merced 2012b).

The Basin Plan identifies the Bear Creek Minor Subarea consisting of 620 square miles of the Bear Creek watershed contained within Merced County. This area is within the Lower San Joaquin River watershed, upstream of the Salt Slough Subarea. The Basin Plan finds that "water quality in the San Joaquin River has degraded significantly since the late 1940s, with increasing concentrations of salt, boron, selenium, molybdenum and other trace elements resulting from "reservoir development on the east side tributaries and upper basin for agricultural development, the use of poorer quality, higher salinity, Delta water in lieu of San Joaquin River water on west side agricultural lands and drainage from upslope saline soils on the west side of the San Joaquin Valley" (CVRWQCB 2018). To address this degradation of water quality, the CVRWQCB adopted a control program for salt and boron with specific implementation actions to address subsurface agricultural drainage.

Sustainable Groundwater Management Act

The California Sustainable Groundwater Management Act (SGMA), which was adopted in 2014, established a framework for sustainable groundwater management by requiring governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, local agencies may form GSAs which are required to adopt Groundwater Sustainability Plans (GSPs) that define a sustainable management plan for crucial groundwater basins and requires that annual reports be submitted to DWR to provide updates on basin conditions and GSP implementation.

The Merced Groundwater Subbasin is one of 21 basins in the State of California identified by the California Department of Water Resources as critically overdrafted and one of 48 basins considered high priority. The Merced Groundwater Subbasin GSP was adopted in late 2019 by three GSAs that were formed in accordance with the SGMA, as noted above and discussed further in the Local Regulations section below.

State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high water quality in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy includes a provision stating that when existing water quality is better than required under the water quality control plan, such quality would be maintained until it can be demonstrated that a change would be consistent with maximum public benefit. Additionally, the policy requires any waste producing activities which would discharge into high-quality waters be required to meet discharge requirements ensuring that pollution or nuisance would not occur and that the highest water quality for maximum public benefit would be maintained.

Regional Water Quality Control Board (Central Valley Region)

NPDES Construction General Permit (Order No. 2009-0009 DWQ, as amended)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. Construction General Permits regulate stormwater flows from construction activities that disturb one acre or more of land and construction on smaller sites that are part of a larger project. The permit requires preparation of and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which includes Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality through construction and operation of the project. The Construction General Permit requires routine inspection of all BMPs to monitor effectiveness of the SWPPP. The project applicant must submit a Notice of Intent (NOI) to the SWRCB to be covered by a NPDES permit and prepare the SWPPP prior to the beginning of construction. Since development of the proposed project would disturb more than one acre of land, the project would require coverage under the Construction General Permit.

The City's standard conditions of approval requires development project applicants to prepare and submit a SWPPP for review by the City Engineer in conjunction with the submittal of the Improvement Plans, Grading Plans, and Final Map.

Municipal Stormwater Permit (CVRWQCB Order 2013-0001-DWQ, as amended)

For discharges from municipal storm sewer systems, the State Water Resources Control Board issued a Phase II Small MS4 General Permit (Permit Number CA000004, Water Quality Order

No. 2013-0001 DWQ) which became effective on July 1, 2013. The Phase II Small MS4 General Permit requires regulated small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for their stormwater discharges. Each regulated MS4 is required to develop and implement a stormwater management program/approach to reduce and/or eliminate discharge of pollutants from the MS4 to the maximum extent practicable and effectively prohibit discharges of non-stormwater into its MS4, unless such discharges are authorized.

The Storm Water Management Program (SWMP) was implemented to limit discharge of pollutants from the storm sewer systems of the Merced Storm Water Group (which is a coalition of municipalities consisting of the City of Atwater, City of Merced, and Merced County) to fulfill requirements of storm water discharges from Small MS4 operators in accordance with Section 402(p) of the Federal Clean Water Act (CWA). The SWMP was developed to also comply with the Phase II Small MS4 General Permit. The Small MS4 Permit regulates stormwater runoff by requiring implementation of BMPs to reduce pollutants in runoff to the maximum extent practicable to protect water quality. The provisions of the Phase II Small MS4 General Permit are implemented in the City through Municipal Code Chapter 15.50.120, Reductions of Pollutants in Storm Water, which is described in more detail under Local Regulations. The City's standard conditions of approval require development project applicants to demonstrate that the proposed development meets the requirements of the Phase II Small MS4 General Permit and corresponding design standards.

Local Regulations

Merced Subbasin Groundwater Sustainability Plan

As discussed above, the Merced Groundwater Subbasin GSP was adopted in late 2019 by three GSAs that were formed in accordance with the SGMA (Merced GSA 2019). The Merced Groundwater Subbasin GSP was submitted to the California Department of Water Resources (DWR) in January 2020, ahead of the January 31, 2020 regulatory deadline for submission of GSPs for critically overdrafted subbasins. The first annual report for water years 2016 to 2019 was submitted in April 2020 and the second annual report for water year 2020 was submitted in April 2021.

Stormwater Management Program

The City has developed a Stormwater Management Program (SWMP) to limit the discharge of pollutants from the Merced Storm Water Group's storm sewer systems (City of Merced 2015). The development and implementation of the SWMP is to fulfill requirements of storm water

discharges from Small Municipal Separate Storm Water Sewer System (MS4) operators in accordance with Section 402(p) of the Federal Clean Water Act (CWA). The SWMP was developed to also comply with the Phase II Small MS4 General Permit.

The overall goals of the SWMP are to do the following: (a) reduce the potential impact(s) of pollution from urban areas on waters of the State and waters of the United States (U.S.) and protect their beneficial uses; and (b) develop and implement an effective stormwater program that is well-understood and broadly supported by stakeholders. As part of complying with the City's obligations under the Phase II Small MS4 General Permit, the City has prepared a Program Effectiveness Assessment and Improvement Plan (PEAIP) (City of Merced 2015). The PEAIP includes the City's strategy for tracking the short- and long-term effectiveness of the stormwater program, measures used to assess the effectiveness of BMPs and/or the stormwater program as a whole, and the City's approach to using the information obtained through the PEAIP to improve the stormwater program (City of Merced 2015).

Post Construction Standards Plan

The City of Merced Post Construction Standards Plan provides guidance on the design and use of stormwater management measures for new construction projects. These standards require that a proposed development project identify the Drainage Management Area(s) within the project site, identify potential sources of pollutants within the project, incorporate appropriate Best Management Practices / Source Controls into the project design, demonstrate how the City's identified Low Impact Design standards will be achieved, and demonstrate that stormwater runoff will be managed for flow rates, flow volumes, and water quality treatment. The City's standards require that each project detain the equivalent of a 50-year, 24-hour storm due to the increased runoff from the project improvements (City of Merced n.d.). Further, the City's storm design standards allow detained stormwater to be discharged over a 48-hour period at a metered discharge rate equivalent to the runoff that the undeveloped property would generate from a 2-year, 24-hour storm. The Post Construction Standards Plan recognizes that reducing storm water discharge to zero would be ideal but that the heavy clay soils throughout most of the City of Merced make this infeasible because they do not allow for sufficient water infiltration rates.

Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan, Public Services and Facilities Chapter includes several goals and policies relating to hydrology and water quality (City of Merced 2012a). The following policies and implementing actions are applicable to the proposed project:

Policy P-1.1 Provide adequate public infrastructure and municipal services to meet the needs of future development

Policy P-1.3 Require new development to provide or pay for its fair share of public facility and infrastructure improvements.

Implementing Actions

1.3.c All new development shall contribute its fair share of the cost of on-site and off-site public infrastructure and municipal services as appropriate. This could include installation of public facilities, payment of impact fees, and annexation to the City Communities Facilities District for annual operating costs of City services. New development shall provide adequate financing, as necessary, to meet all identified costs associated with new development, including, but not limited to, public facilities and municipal services where nexus can be shown. It is understood, however, that facilities and infrastructure not provided by the City is the planning and funding responsibility of other governmental, quasi-public, or private entities.

1.3.d The City may require developments to install off-site facilities which also benefit other properties. The City may establish funding mechanisms to reimburse developers for infrastructure capacity in excess of the fair share costs resulting from a specific development's impacts if these excess facilities are deemed necessary to efficient and orderly development. 1.3.e Master Plans, Community Plans, General Plan amendments, pre-zoning, and annexation proposals, through the Development Agreement process, shall ensure that infrastructure development and public facilities and municipal services are consistent with overall local public agency plans, and that the local public agencies can reasonably provide and/or extend services within the proposed development time frame of implementation. Master Plans, Community Plans, General Plan amendments, pre-zoning, and annexation proposals prepared for areas subject to annexation to the City shall include an evaluation (prepared by the applicants with input from the City, School Districts, and other service providers) of all infrastructure, public facilities, and services under the jurisdiction of all local public agencies. These Plans for Service should include an evaluation of existing infrastructure and services, future public facilities and services required to serve the development, and the timing and funding of such public facilities and municipal services. The determination of the ability to reasonably provide or extend services for purposes of this implementing action rests with the City Council when considering the master plan, community plan, or annexation as a whole.

Policy P-5.1: Provide effective storm drainage facilities for future development.

Implementing Actions

5.1.c Continue to require all development to comply with the Storm Water Master Plan and any subsequent updates. All new development proposals will be reviewed for consistency with the plan and shall be responsible for construction of storm water retention basins, collection, treatment and disposal facilities necessary to adequately support the project. Where development is proposed in an area which lacks basic drainage infrastructure at present, the development project may be required to construct the necessary improvements with non-project related costs to be reimbursed as other development occurs in the area.

5.1.d Installation or design of facilities necessary to provide services to development projects will be based on the full build-out scenario. Short-term or intermediate flood control and storm drainage facility improvements can result in higher long-term costs for ultimate system development and result in short-term flooding on adjacent areas. At the same time, if it can be demonstrated that an immediate development project's storm water can be contained completely on-site without off-site impacts to the regional drainage system, such proposals can be approved provided that the project contribute its fair share towards the regional flood control and drainage system.

Policy P-5.2: Integrate drainage facilities with bike paths, sidewalks, recreation facilities, agricultural activities, groundwater recharge, and landscaping.

Implementing Actions

5.2.b Storm water facilities shall be designed and constructed in accordance with the standards in the Parks and Open Space Master Plan and the Storm Water Master Plan. The City's Parks and Open Space Master Plan and Storm Water Master Plan include design criteria and standards for joint use facilities. Design criteria include the use of rounded or sculpted edges, natural materials, and abundant landscaping.

Merced Municipal Code

The City of Merced Municipal Code Chapter 15.50 Storm Water Management and Discharge Control establishes the City's requirements for "controlling non-storm water discharges to the storm water conveyance system from spills, dumping, or disposal of materials other than storm water, and by reducing pollutants in urban storm water discharges to the maximum extent practicable" (City of Merced 2020). Section 15.50.120, Reduction of Pollutants in Storm Water, details the requirements for any person performing construction activities in the city. This section

requires prevention of pollutants from entering the storm water conveyance system and compliance with all applicable federal, state and local laws, ordinances, or regulations, including, the California NPDES General Permit for storm water discharges associated with construction activity (Construction General Permit) and the city storm water management and discharge control chapter. All construction projects, regardless of size, having soil disturbance or activities exposed to storm water are required to implement BMPs for erosion and sediment controls, soil stabilization, dewatering, source controls, pollution prevention measures, and prohibited discharges. Prior to issuance of a construction permit or approval of the proposed improvement plans, for projects subject to the state's current Construction General Permit, the waste discharger identification (WDID) number and the SWPPP must be submitted to the City for approval.

3.8.4 Impacts

Methods of Analysis

Hydrology and water quality impacts were evaluated in the Storm Drainage Report prepared by QK, Inc. (Appendix H). This study provides comparisons of runoff rates for the pre- and post-project runoff and stormwater retention conditions.

The impact analysis below considers compliance with regulations pertaining to water quality and implementation of the City's standard conditions of approval for new development as part of the proposed project. Impact determinations are made based on both the magnitude of project-related change from existing conditions, as well as the effectiveness of compliance with existing regulations and standards.

Issues Addressed in the Initial Study

As discussed in the Initial Study for the proposed project (Appendix B), the project site is outside of flood hazard zones and not within the Federal Emergency Management Act (FEMA) Flood Insurance Rate Maps (FIRM) for a 100-year, 500-year or dam failure inundation zone, as shown on Figure 3.8-1 of the City's General Plan EIR (City of Merced 2012b), and would be subject only to shallow (less than 3 feet deep) flooding from Black Rascal Creek and Cottonwood Creek in a 200-year storm event. Thus, the Initial Study concludes that potential impacts related to 100-year flood zones, impediment or redirection of flood flows, and other flood hazards (e.g., dam/levee failure and inundation by seiche, tsunami or mudflow) would be less than significant and there would be no risk to people or property on the project site from dam or levee failure. Additionally, the project site is not within a 100-year flood hazard area and would not risk release of pollutants due to inundation of the project site. These issues are not further addressed in this EIR.

Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a significant impact would occur if development of the proposed project would:

- Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in a substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impacts and Mitigation Measures

Impact 3.8-1: Through compliance with federal, state, and local regulations, implementation of the proposed project would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. This would be a less than significant impact.

The Crossings

Construction

Construction of the proposed project would result in earth disturbing activities such as site clearing and grading for construction of onsite driveways, parking areas, and building pads. Before disturbed areas are paved, if they are exposed to rainfall they could lead to an increase in erosion and the discharge of sediment to receiving waters resulting in a degradation of water quality. Additional pollutants can be introduced during construction from vehicular use, construction materials, and construction waste products. Pollutants typically present on construction sites include petroleum products and heavy metals from equipment, and products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Construction activities could result in water quality degradation if runoff entering receiving waters contains

pollutants in sufficient quantities to exceed water quality objectives defined in the Basin Plan or TMDLs established under CWA Section 303(d). Impacts from construction-related activities would generally be short term and of limited duration.

Because implementation of the proposed project would collectively require construction activities resulting in a land disturbance of more than 1 acre, the project applicant is required to obtain coverage under the Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended), which pertains to pollution from grading and project construction. Coverage under the Construction General Permit requires a qualified individual (as defined by the SWRCB) to prepare a SWPPP that addresses the potential for construction-related activities to contribute to pollutants within the project's receiving waterways. The SWPPP must describe the type, location and function of stormwater BMPs to be implemented, and must demonstrate that the combination of BMPs selected are adequate to meet the discharge prohibitions, effluent standards, and receiving water limitations contained in Construction General Permit.

The following list includes examples of construction water quality BMPs that are standard for most construction sites subject to the Construction General Permit:

- Silt fences and/or fiber rolls installed along limits of work and/or the project construction site;
- Stockpile containment and exposed soil stabilization structures (e.g., visqueen, fiber rolls, gravel bags and/or hydroseed);
- Runoff control devices (e.g., fiber rolls, gravel bag barriers/chevrons, etc.) used during construction phases conducted during the rainy season;
- Wind erosion (dust) controls;
- Tracking controls at the site entrance, including regular street sweeping and tire washes for equipment;
- Establishment of vehicle fueling and maintenance areas and material storage areas that are either covered or are designed to control runoff;
- Proper waste/trash management; and
- Regular inspections and maintenance of BMPs.

These BMPs would be refined and/or added to as necessary by a qualitied SWPPP professional to meet the water quality performance standards in the Construction General Permit.

To obtain coverage under the Construction General Permit, the project applicant must submit to the SWRCB a Notice of Intent and associated permit registration documents, including a SWPPP and site plan, and must obtain a Waste Discharge Identification Number. As a standard condition of approval, the project applicant is also required to provide the SWPPP for review by the City

Engineer in conjunction with the submittal of the Improvement Plans, Grading Plans, and Final Map. In addition, all earthwork, grading, trenching, backfilling and compaction operations must be conducted in accordance with the City's Building Code (Title 17 Chapter 17.04) and the City's Introduction to Standard Designs (City of Merced 2008).

The BMPs required for coverage under the Construction General Permit and the erosion control provisions contained in City ordinances would require measures to prevent transport of construction-related contaminants to impaired surface waters (Black Rascal Creek and Cottonwood Creek, as discussed in Section 3.8.2 Environmental Setting) and contributing to water quality impacts. For these reasons, water quality impacts resulting from construction-related activities and ground disturbances would be **less than significant.**

Operation and Maintenance

Implementation of the proposed project would convert approximately 28.4 acres of existing agricultural lands to urban uses and create new impervious surfaces (roof, pavement, and sidewalks) covering approximately 64 percent of the project site. The increase in impervious area created by the proposed project, as well as on-site activities and uses, could alter the types and levels of pollutants that could be present in project site runoff. Runoff from building rooftops, walkways, parking lots, and landscaped areas can contain nonpoint source pollutants such as oil, grease, heavy metals, pesticides, herbicides, fertilizers, and sediment. Concentrations of pollutants carried in urban runoff are extremely variable, depending on factors such as the following:

- Volume of runoff reaching the storm drains;
- Time since the last rainfall;
- Relative mix of land uses and densities; and
- Degree to which street cleaning occurs.

Under existing conditions, stormwater that is not infiltrated into the soil moves as sheet flow from northeast to the southwest. Drainage from the project property and adjacent road ditches flow to the southwest corner where the ditch that runs along the site's southern boundary on East Yosemite Avenue is piped and heads south, crossing under East Yosemite Avenue. The Phase I Environmental Site Assessment conducted for the project site did not report any detectable level of organochlorine pesticides in the soil (Appendix I). However, the past agricultural uses of the site mean that low levels of residual nutrients/fertilizers may remain within site soils. Given surface soils are exposed over the entire site, existing stormwater runoff may contain levels of sediment and/or nutrients characteristic of agricultural land uses.

Where roads, driveways and residences are proposed, the surface soils that are now exposed to stormwater runoff would be stripped and replaced with engineered fills that meet geotechnical specifications. Engineered fills and new pavement would introduce impervious surfaces to approximately 64 percent of the project site. The new site configuration would reduce the exposure of soils containing nutrients/fertilizers to stormwater runoff and would likely reduce the turbidity levels of runoff when compared to the current agricultural use. However, it would also introduce new uses and activities that have the potential to degrade the quality of stormwater runoff. The primary pollutants of concern for this type of residential and commercial development are associated with uncovered parking areas (e.g., leaking fuel or fluids may enter stormwater), landscaping and landscape maintenance (e.g., sediment, improper/excessive use of pesticides, and/or fertilizers/nutrients), and/or improper waste management (e.g., fugitive litter/trash).

The release of such pollutants would be localized and periodic in nature, minor in magnitude (especially in comparison to the total volume of stormwater discharges entering regional waterways) and would only occur on an improperly designed and maintained development. Nevertheless, because the cumulative effects of past projects could result in substantial water quality problems in the region's major waterways, and because water quality problems are generally cumulative in nature, the City's standard conditions of approval, the Small MS4 General Permit, and drainage design standards require developers to design and maintain projects in a manner that reduces pollutant concentrations within stormwater discharges to the maximum extent practicable. Standard conditions of approval require the project applicant to demonstrate to the City Engineer and Director of Public Works that the proposed project meets the requirements of the City's Storm Water program, Post Construction Standards Plan, Introduction to Standard Designs, and the Small MS4 General Permit issued by the SWRCB. In addition, as discussed in the Construction section above, the project would be required to comply with the Construction General Permit by preparing and implementing a SWPPP, which must identify permanent BMPs that would be installed during construction to ensure post-construction water quality protection.

The proposed project would construct a network of storm drains to collect storm runoff from the project buildings and paved areas which would direct the storm water to a proposed detention basin. A storm pump station would be installed to empty the detention basin (in less than 48 hours) while limiting the discharge to the allowable metered rate into the existing City system, as discussed further in Impact 3.8-2. The proposed detention basin would provide both storm water storage and water quality treatment because detention times in the range of 24 to 48 hours allow sediment and pollutants to settle out before the storm water is discharged to downstream receiving waters.

To provide stormwater quality treatment prior to stormwater reaching the detention basin, various combinations of low impact design features would be developed during the design phase of the

project, as required by the City's Post Construction Standards Plan. These measures may include bio swales, modular wetlands biofiltration units, storm water planters, and nutrient separating baffle boxes. As required by Municipal Code Chapter 15.50 and the NPDES, the project applicant must show that water quality BMPs sufficient to "remove pollutants from stormwater to the maximum extent practicable" are included in the project design, and that BMPs will be "implemented and maintained in a manner that is consistent with the California Storm Water Quality Association (CASQA) Best Management Practice Handbooks or equivalent guidelines" (City of Merced 2020). In addition, under Municipal Code Section 15.50.120, the project would be conditioned to demonstrate compliance with the City's Storm Water program, Post Construction Standards Plan, Introduction to Standard Designs, and the Small MS4 Permit issued by the SWRCB. Specifically, Municipal Code Section 15.50.120 states "all site design measures, source controls, treatment controls, and hydromodification measures must be selected, sized, and situated in accordance with the guidance provided in the current MS4 permit and the city's Storm Water Design Standards Manual. Documentation of the site's post-construction storm water design measures must be submitted to the city engineer for review and approval prior to the commencement of the project" (City of Merced 2020). For these reasons, the impacts of the proposed project on water quality would be **less than significant.**

Remainder Area

The project proposes to pre-zone the Remainder Area with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new development to occur on that portion of the site.

No development, construction, grading, or change in the impervious landscape within the Remainder Area is currently proposed. At the time that development is proposed within the Remainder Area, would be required to analyze the construction and operation hydrology and drainage conditions in order to demonstrate compliance with the Municipal Code and applicable storm water quality regulations. Future land uses are unknown and therefore analysis of potential impacts at this stage would be speculative. However, compliance with applicable regulations as discussed in The Crossings analysis above would ensure impacts would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.8-2: Through compliance with the City of Merced stormwater management regulations, implementation of the proposed project would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in a substantial erosion or siltation, substantially increase the rate or amount of surface runoff in a manner which would result in flooding, or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. This would be a less than significant impact.

The Crossings

The proposed project would convert approximately 28.4 acres of the existing agricultural lands to residential and commercial uses. The project would result in impervious coverage (roofs, pavement, and sidewalks) over 64 percent of the project site, which could cause an increase in the peak flows and volumes discharged from the site during storm events. To prevent the increase in peak flows, the project includes a proposed stormwater detention basin and a pump station to regulate the rate of discharge such that stormwater is released from the site over a 48-hour period at a rate equivalent to the runoff that the undeveloped property would generate from a 2 year, 24 hour storm. The proposed storm basin would have a relatively small footprint (approximately 1.1 acres), so it would be configured as a “deep & steep” basin rather than a “shallow & wide” basin in order to provide the necessary storage volume in the available space. The side slopes would be constructed at a 2:1 slope ratio and the water depth would be approximately 10 feet deep in a 50-year storm event, providing a detention volume of approximately 6 acre-feet.

As shown in Figure 3.8-3, Stormwater Management, once water is discharged from the proposed detention basin, it would flow into the existing 24-inch stormwater pipe that crosses under East Yosemite Avenue. This pipe discharges to the detention and pumping system for the Silverado residential subdivision, and then into Black Rascal Creek via the combined system pump station at the south end of Cascade Creek Avenue in the Oakmont Village subdivision (as described in Section 3.8.2, Environmental Setting). Thus, stormwater from the project site would experience two detention events – it would first be detained within the project site and then detained again once it enters the detention and pumping system for Silverado - before it is discharged to Black Rascal Creek.

The proposed project would maintain the existing drainage pattern, with stormwater runoff flowing southwest through the project site and then south through existing stormwater pipes, through the detention and pump system in the Silverado subdivision, and finally into Black Rascal Creek. Further, the project would ensure that there are no increases in the peak flows of stormwater discharge leaving the site and entering Black Rascal Creek. The project would increase the total volume of stormwater discharge from the site by increasing the extent of impervious surfaces onsite. However, given the low infiltration rates of the soils present onsite, the increase in total volume of stormwater discharge would not be substantial and would not lead to increased erosion within Black Rascal Creek or flooding.

As concluded in the Storm Drainage Report prepared by QK, Inc. (Appendix H), the project would be designed to meet all city storm drainage standards. Stormwater discharge would be equal to or less than the current discharge from the undeveloped property so there would be no adverse impact to the city's existing downstream system. As a result, the proposed detention basin would prevent the project from creating a significant impact due to an increase in erosion or siltation downstream, the proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be **less than significant**.

Remainder Area

No development, construction, grading, or change in the impervious landscape within the Remainder Area is currently proposed. At the time that development is proposed within the Remainder Area, the applicant for that development proposal would be required to analyze the construction and operation hydrology and drainage conditions in order to demonstrate compliance with the Municipal Code and applicable storm water management regulations. Future land uses are unknown and therefore analysis of potential impacts at this stage would be speculative. However, compliance with applicable regulations as discussed in The Crossings analysis above would ensure impacts due to potential increases in the rate or volume of stormwater runoff, including increased erosion or flooding, would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.8-3: Implementation of the proposed project may substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. This would be a less than significant impact.

The Crossings

Agricultural uses currently at the project site obtain irrigation water from the Merced Irrigation District. The project proposes to annex the property to the City and develop residential and commercial uses in The Crossings component of the site. Water supply for the proposed uses would come from the City of Merced.

Groundwater Recharge

As noted in the Section 3.8.2 and shown in Figure 3.8-2, the project site is located in the Merced Groundwater Basin (MGWB) subbasin of the San Joaquin Hydrologic Region. The City of Merced Municipal Service Review (MSR) finds that MID canals provide a substantial source of groundwater recharge and as agricultural irrigation demands decrease, there will be less water in the MID canals and therefore less groundwater recharge from this source (Merced LAFCo 2013).

Based on the Storm Drainage Report (Appendix H) prepared for the proposed project by QK, Inc., the proposed project would result in the creation of impervious surfaces over approximately 64 percent of The Crossings component of the proposed project. The project would direct storm water runoff into a detention basin within the project site, and, as part of the project design phase, would include bio swales, modular wetlands biofiltration units, storm water planters, and nutrient separating baffle box, and/or other stormwater management measures to reduce the detention amount and allow for infiltration of stormwater runoff, to the extent that the onsite soils are capable of infiltration. Stormwater runoff collected within the detention basin would be released into the stormwater drainage system before being released into Black Rascal Creek, where it would have the opportunity to filter into the groundwater basin. Thus, the proposed project would allow for stormwater runoff to infiltrate and replenish the groundwater basin with limited recharge occurring within the project site's water quality and detention elements and greater recharge occurring once stormwater has been discharged to Black Rascal Creek. Thus, impacts relating to groundwater recharge would be **less than significant**.

Groundwater Supply

As discussed in more detail in Section 3.11, Public Services and Utilities, the Merced Subbasin is the primary source of water supply for the City of Merced. The City's system consists of 22 active groundwater wells, and 340 miles of distribution pipeline, as well as other related equipment. The City's capacity to provide water to City residents and businesses is described in

the City's UWMP, last updated in 2017 (City of Merced 2017), and the MIRWMP, which was developed by the City of Merced, County of Merced, and the Merced Irrigation District and was last updated in February 2019 (Merced Irrigation District 2019). The UWMP identifies that the City's water supply comes from two sources: 79 percent from groundwater in the Merced Subbasin and 21 percent from recycled water. Year 2035 projections of water supplies include exchanges and transfers with MID, but groundwater and recycled water remain the top two sources of water supply. Total water demands are expected to increase from 22,741 AF per year (AFY) in 2015 to 37,829 AFY in 2035. The UWMP demonstrates that the City would be able to meet water demand during normal, dry, and multiple-dry years through the year 2035 (City of Merced 2017). The project site is located within the Planning Area for the City's current UWMP and the UWMP considers the ability of the City to meet future water demands of the projected population within the City, including the SOI/SUDP, determined by the Merced County Association of Governments.

The City of Merced MSR notes that in 2009 the City supplied 7.6 billion gallons of water (equivalent to 23,306 acre feet per year) to approximately 86,000 residents, and that as population and total water demand has increased, the City has been able realize decreases in the per capita water demand, likely due to conservation efforts (Merced LAFCo 2013). As noted in Section 3.8.2, the groundwater basin has approximately 46 MAF of groundwater storage as of 2019. The Merced Groundwater Subbasin GSP recognizes that the basin has been in overdraft conditions for many years. The 2020 Annual Water Report found that "the current (2020) total fresh groundwater storage was estimated as 45.8 MAF and the cumulative change in storage from water years 2006-2020 was estimated as -1.98 MAF, or an average reduction of 132 TAF per year. During water year 2020, the change in storage was estimated as a reduction of 157 TAF" which is 25 acre-feet greater than the recent average (Merced GSA 2021). The Merced Groundwater Subbasin GSP also recognizes the historic overdraft condition, finding that the basin typically has an annual reduction in storage of 0.3% but concludes that at this rate of overdraft, it is not expected that the available groundwater in storage would be exhausted (Merced GSA 2019). The Merced GSA, City of Merced, and other agencies in the project region are continuing ongoing efforts to reduce per capita water consumption and reduce water loss in the distribution system.

Further, implementation of the Merced Groundwater Subbasin GSP is expected to eliminate the overdraft condition by 2040. The Merced Groundwater Subbasin GSP identifies the sustainable yield for the Merced Subbasin as "a net-zero change in groundwater storage over a long-term average condition" and finds that the actual sustainable yield of the basin is approximately 570,000 AFY (Merced GSA 2019). This identified sustainable yield is consistent with the SGMA definition of sustainable yield as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result"

(California Water Code §10721(w)). The Merced Groundwater Subbasin GSP finds that to achieve sustainable yield, "current agricultural and urban groundwater demand in the Merced Subbasin would need to be "reduced by approximately 10 percent, absent implementation of any new supply-side or recharge projects" (Merced GSA 2019). The Merced Groundwater Subbasin GSP identifies projects and management actions to be implemented as part of bringing the Subbasin into sustainability; these include projects that will either increase surface water supplies to augment the sustainable groundwater yield or increase groundwater recharge.

The proposed project includes 552 dwelling units, 18 extended-stay units, and 66,000 square feet of commercial space. Due to the project size, a Water Supply Assessment was prepared in accordance with the requirements of California Water Code Section 109132. The Water Supply Assessment found that the project would generate a water demand of 161 acre-feet per year. This includes residents, occupants of the extended-stay units, commercial space, and irrigation needs. The Water Supply Assessment also notes that the water demand for the project would equate to approximately 3.24 acre-feet per acre of land, which is generally consistent with the amount of water demand for the existing agricultural uses at the site (with agricultural water demand typically ranging from 2.5 to 4.0 acre-feet per acre) (Appendix L). The UWMP and other water planning documents include consideration of projected increases in City population and find that the water demand associated with the planned growth can be accommodated by the City's existing and future groundwater supply. Therefore, the proposed project would not result in a substantial decrease in groundwater supply and this impact would remain **less than significant.**

Remainder Area

No changes to the pervious/impervious surfaces within the Remainder Area would occur under the proposed project. However, portions of the Remainder Area are proposed to be zoned for single-family residential development. As discussed above, the City has been implementing water conservation requirements to reduce per capita water consumption. These requirements would apply to new residential development within the Remainder Area. Additionally, the UWMP and other water planning documents include consideration of buildout of the SOI/SUDP, which includes the Remainder Area. Thus, future development within the Remainder Area would be subject to water conservation measures and would be consistent with the City's planned water supply capacity. This impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.8-4: Implementation of the proposed project may conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This would be a less than significant impact.

As discussed in Section 3.8.3, the applicable water quality control plan for the region is the Basin Plan and the applicable sustainable groundwater management plan is the Merced Groundwater Subbasin GSP. The Basin Plan identifies long-term degradation of water quality within the San Joaquin basin and in response to that degradation, the CVRWQCB adopted a control program for salt and boron with specific implementation actions to address subsurface agricultural drainage. The Merced Groundwater Subbasin GSP identifies that the subbasin has been in an overdraft condition for many years and identifies projects and management programs to ensure that the subbasin will attain a sustainable yield by 2040.

The Crossings

As discussed under Impact 3.8-2, the project would comply with the City's water quality plans and requirements, and thus would not conflict with the Basin Plan. The project would provide onsite water quality treatment and detention in compliance with the City's standards. As the Basin Plan focuses on reduction of agricultural-related water pollutants, many of the Basin Plan requirements would not be applicable to the proposed development of urban uses within the site.

As discussed under Impact 3.8-3, the project would be consistent with the Merced Groundwater Subbasin GSP because the project would be subject to the City's water conservation requirements and the projected population within the City's SOI/SUDP, which includes the project site, was accounted for in the regional groundwater sustainable yield budget. The project would also be subject to water-use reduction measures under the Building Code.

The demonstrated compliance with these regulatory programs, and the use of a detention basin and release of stormwater runoff into Black Rascal Creek, would ensure construction and operation of the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts would be **less than significant**.

Remainder Area

While development is not proposed to occur within the Remainder Area at this time, any development occurring in the future would be required to comply with the same NPDES stormwater permitting for construction activity through the preparation of a SWPPP, and would be required to comply with the City's Storm Water program, Post Construction Standards Plan, Introduction to Standard Designs, and the Small MS4 Permit issued by the SWRCB during operation of future uses. Additionally, the projected population within the City's SOI/SUDP, which includes the Remainder Area portion of the project site, was accounted for in the regional

groundwater sustainable yield budget. Compliance with the state and City water quality and water-use reduction requirements would ensure impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.8.5 Cumulative Impacts

Impact 3.8-5: Through compliance with federal, state, and local regulations, ongoing implementation of the City of Merced General Plan would not result in adverse cumulative effects on water quality, drainage patterns, flooding, or groundwater supply. This would be a less than significant impact.

The geographic scope of cumulative effects on hydrology, drainage, water quality, and groundwater supply is the San Joaquin/Merced River watershed within the City's SOI/SUDP. The more localized geographic scope of the cumulative hydrology and water quality analysis is the project vicinity, generally, areas within one mile of the project site for stormwater impacts due to natural drainage patterns, drainage infrastructure, and impervious surfaces, all of which contribute to limit the distance of stormwater flows. The cumulative development scenario for this area is the development anticipated in the City of Merced General Plan, particularly ongoing development within the SOI/SUDP.

Water Quality, Drainage, and Flooding

As development proceeds within the City and the SOI/SUDP, the amount of stormwater runoff would increase, which presents a potential impact to surface and groundwater quality. A greater percentage of the population would also be exposed to the risk from flooding of the 200-year floodplain, or from dam inundation. However, project level water quality and flooding impacts would be reduced to a less than significant level by proposed General Plan policies and through compliance with existing regulations. Similarly, other future development would be subject to the same requirements. Policies adopted in the General Plan address the evaluation of development to ensure adequate drainage facilities, the requirement for impact fees to fund storm drain improvements, and provision of storm drain master plans to guide development approvals include P-3.2, P-4.1, P-5.1, P-5.2, OS-1.5, and S-3.1.

On a larger scale, with the San Joaquin/Merced River watershed, development would also be required to comply with regional, State and federal regulations addressing stormwater runoff, water quality and flooding. The proposed project and other potential cumulative projects in the vicinity of the project site would be required to comply with the Construction General Permit. This permit requires projects to implement measures to prevent impacts, individual and cumulative, to

water quality during construction. In addition, projects would also be required to comply with the City's NPDES stormwater permit from the CVRWQCB and their Stormwater Management Plan which prevent impacts to water quality after construction of a project.

The General Plan EIR concludes that compliance with local, state, and federal regulations, plans, and policies designed to minimize individual and cumulative impacts related to stormwater runoff rates and flooding would ensure that the cumulative impacts would remain less than significant. Thus, there would not be a significant cumulative impact to water quality, changes in drainage patterns, or increases in flood risks to which the project could contribute, and this impact would remain **less than significant.**

Groundwater Supply and Recharge

As development proceeds within the City and the SOI/SUDP, the water demands in the City would increase. The General Plan EIR found that the impact to groundwater supply and recharge would be significant, however the General Plan EIR predates adoption of the Merced Groundwater Subbasin GSP and other recent water-planning documents discussed above. Based on the conclusions of the Merced Groundwater Subbasin GSP that a sustainable yield within this subbasin will be attained by 2040, including consideration of increased water demand due to ongoing development, the cumulative impact related to groundwater supply and recharge would be less than significant. All future development within the City would be required to meet the City's adopted water conservation measures as well as water-use reduction measures required under the Building Code, which would ensure that future development does not impede implementation of the Merced Groundwater Subbasin GSP. Thus, there would not be a significant cumulative impact to groundwater supply and recharge to which the project could contribute, and this impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

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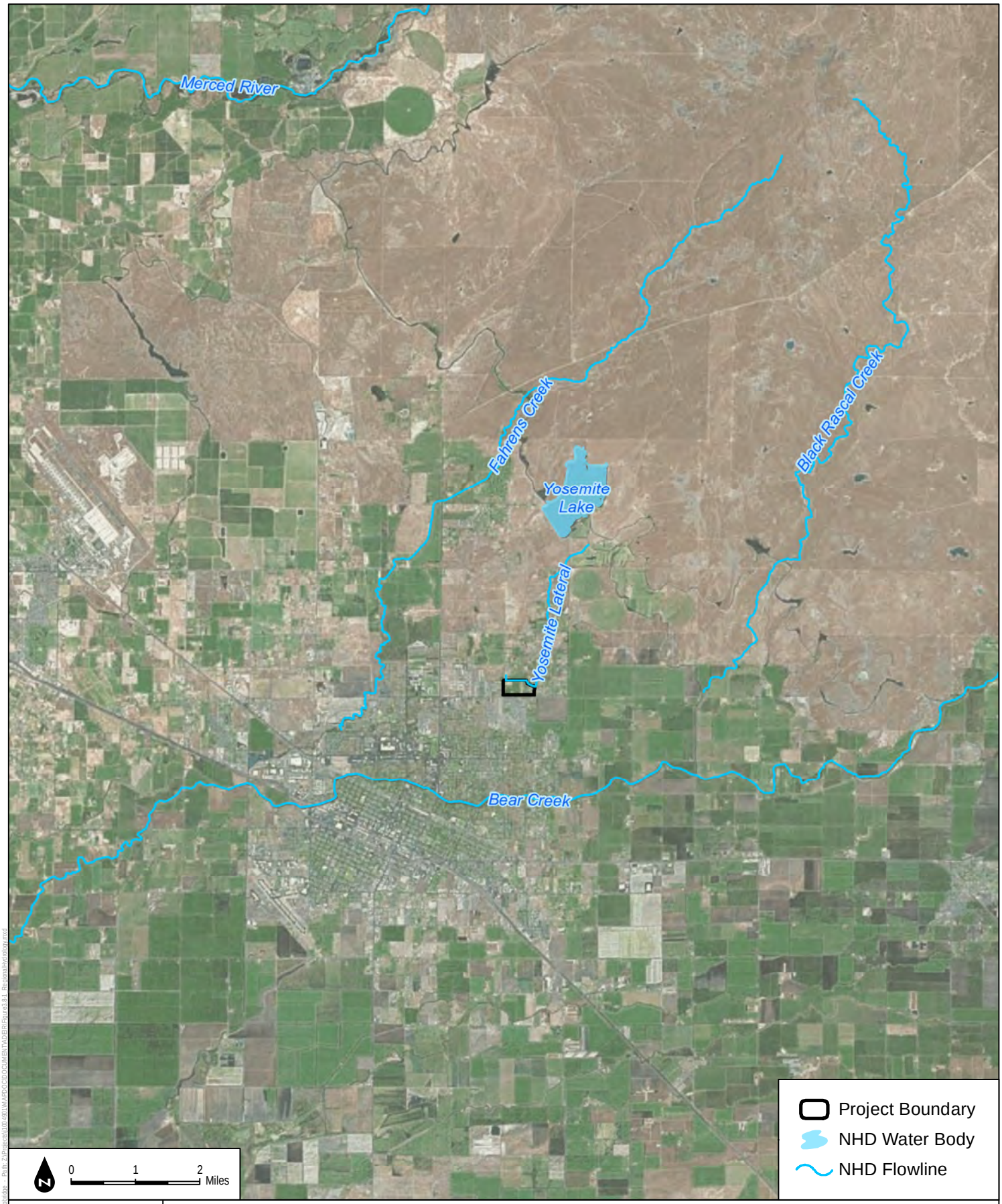
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SOURCE: Bing Maps (2016); County of Merced (2014); NHD

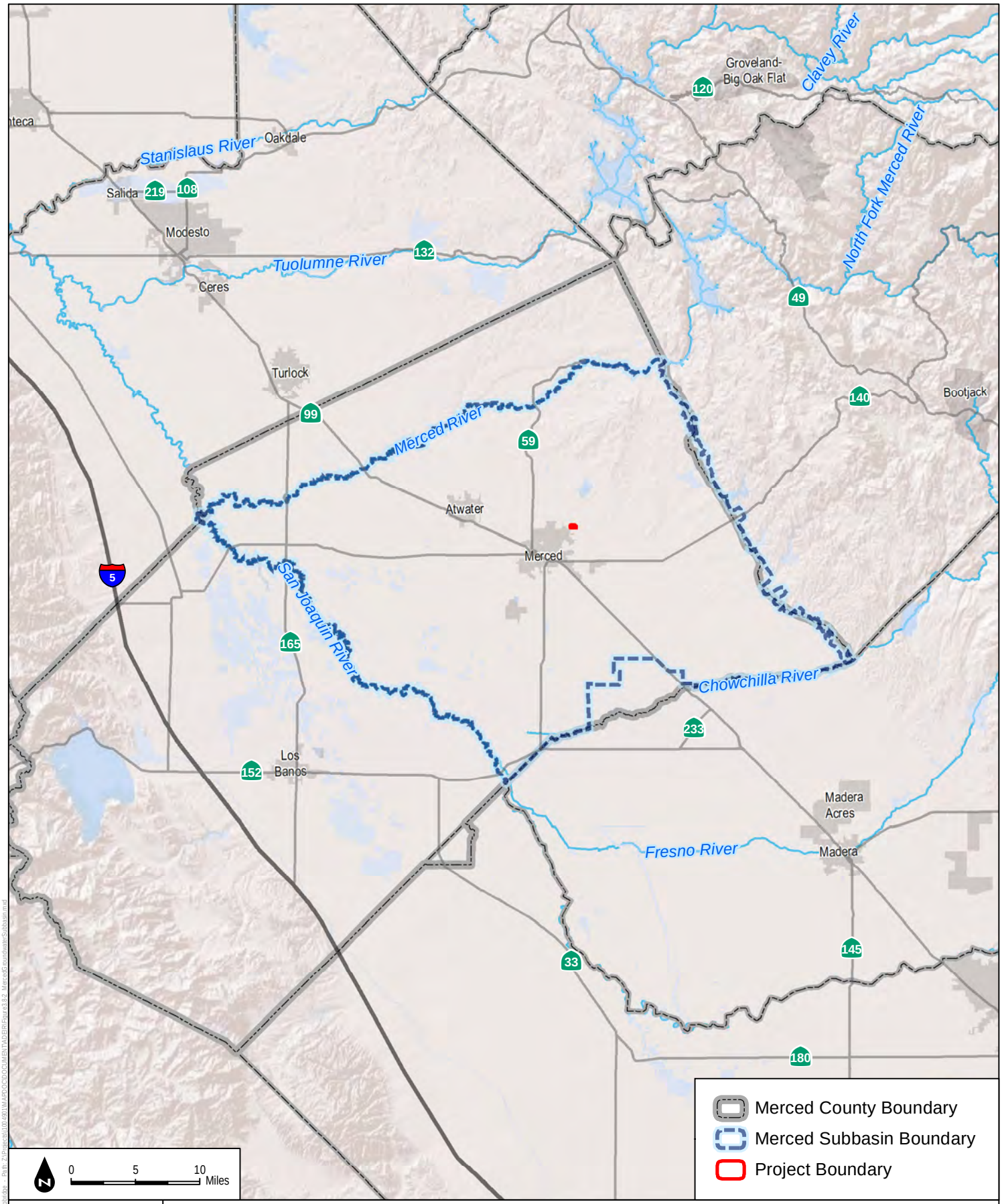
FIGURE 3.8-1

Regional Hydrology

DUDEK

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps (2016); County of Merced (2014); NHD

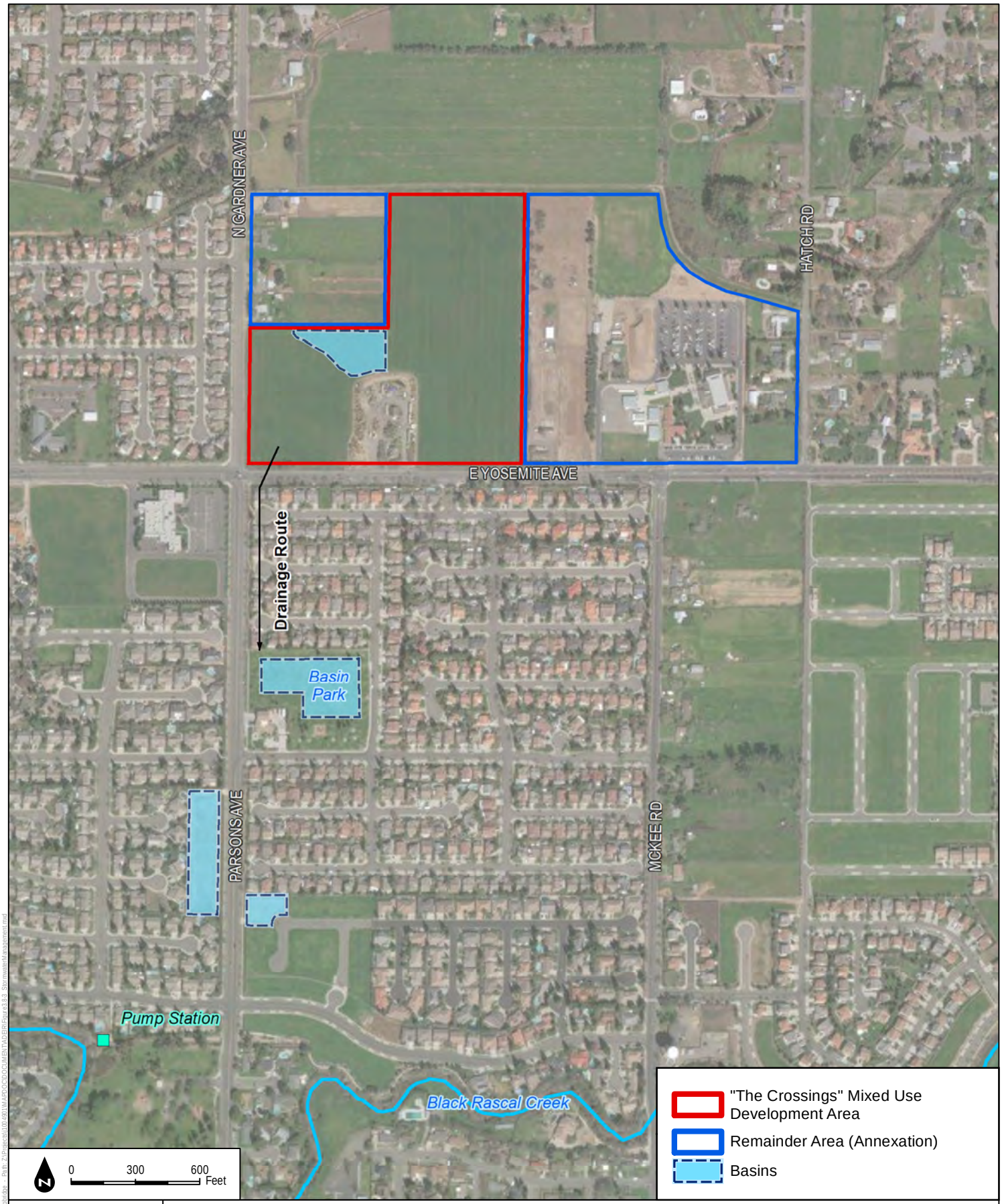
FIGURE 3.8-2

Merced Groundwater Subbasin

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps 2019, County of Merced 2014

FIGURE 3.8-3

Stormwater Management

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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3.9 Land Use and Planning

3.9.1 Introduction

This section describes the existing and proposed land use designations and zoning for the Yosemite Avenue – Gardner Avenue to Hatch Road Annexation project (proposed project) and evaluates the potential effects on general land use compatibility and consistency with the Merced Vision 2030 General Plan (City of Merced 2012) goals and policies and other relevant planning documents. As discussed in the Initial Study (Appendix B), the project would not divide an established community because the project site is not located within a contiguous community. The western, southern, and eastern project site boundaries are adjacent to public roadways, while the northern boundary is defined by an irrigation canal, with agricultural land present north of the canal. Therefore, this issue is not further addressed in this Environmental Impact Report (EIR).

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this EIR was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. Comments received in response to the NOPs pertaining to land use included a concern that the project is requesting a change in zoning and the potential effect on property values and quality of life in the area and overall compatibility with surrounding land uses. The California Environmental Quality Act (CEQA) does not require changes in property values be evaluated. Concerns regarding compatibility with surrounding land uses are addressed in this section of the EIR. This includes consideration of the potential for the project to indirectly affect adjacent agricultural lands, while the direct loss of agricultural land that would result from the project is addressed in Section 3.2, Agricultural Resources.

Another commenter requested that the City evaluate other potential locations for higher density housing where existing infrastructure is available and that the City plan future development in a transparent fashion to allow people to choose the neighborhoods they want to live in based on what type of development is proposed. These concerns are noted and to the extent these comments are related to policy inconsistencies and general land use compatibility with existing plans, these issues are addressed in this section. This suggestion is also addressed in Chapter 4, Project Alternatives. Both NOPs and all comment letters received in response to them are provided in Appendix A.

Primary information sources used to prepare this section include the Merced Vision 2030 General Plan Land Use Chapter (City of Merced 2015a), Merced County 2030 General Plan (Merced County 2013a), and the City of Merced Municipal Code Title 20 Zoning (Merced County 2020).

3.9.2 Environmental Setting

Existing Site Conditions

The approximately 68.6-acre project site is located in unincorporated Merced County contiguous to the City of Merced and within the City's Sphere of Influence (SOI) and Merced Specific Urban Development Plan (SUDP). The SUDP was originally identified in the prior version of the Merced County General Plan and was relied upon by the City in completing the last update to the City's General Plan, as discussed further in the Land Use and Zoning Designations section below. The project proposes to annex the project site to the City.

As shown in Figure 2-2, Project Location, the site is located between Gardner Avenue and Hatch Road and north of East Yosemite Avenue, approximately 3 miles north of downtown Merced and 2 miles southwest of the University of California, Merced (UC Merced) campus. Residential development in the City is located to the south and west, and a commercial center is located southwest of the site at the intersection of Gardner Avenue and East Yosemite Avenue. Land in the County under active agricultural use is located to the north and rural residential uses are located to the east, across Hatch Road.

Figure 2-2 also shows that the proposed project site consists of two primary components – The Crossings component which includes a 28.4-acre L-shaped portion that extends from the northeast corner of Gardner Avenue and East Yosemite Avenue to the approximate center of the site, excluding the approximately 9.4 acres in the northwest corner of the site, and the Remainder Area which includes the 9.4 acres in the northwest corner of the site and an additional 30.8 acres in the eastern portion of the site. The Crossings component of the project is proposed to support development of multi-family residential and commercial land uses. The 40.2-acre Remainder Area is proposed for annexation to the City but no development is proposed for this area at this time.

The 28.4-acre The Crossings component of the project site currently supports approximately 25.4 acres of active agricultural production for row crops and an approximately 3-acre area developed with a residence, barn and outbuildings. A Merced Irrigation District (MID) irrigation canal traverses the northern boundary of the project site and a second drainage ditch is located adjacent to East Yosemite Avenue along the southern boundary of the project site; this drainage ditch transitions to an underground pipe at Gardner Avenue to the west and at Yosemite Church to the east.

Project Site Land Use and Zoning Designations

The discussion below provides a brief overview of the County and City's General Plan land use designations for the project site, the County's zoning for the project site, and the proposed City zoning for the project site. The land use designations within and surrounding the project site are

shown on Figure 2-3, City of Merced Land Use Designations, and Figure 2-4, County of Merced Land Use Designations and both City and County zoning designations for the project site and surroundings are shown on Figure 2-5, Zoning Designations.

City of Merced

Although the project site is not currently within the City's boundaries, it is within the SOI and as such has been assigned a Land Use designation under the City's General Plan. As shown in Figure 2-3, the current City Land Use designation for the site is Rural Residential, which allows development of residential lots with a density of between 1 and 3 units per acre and is intended to serve as a buffer between the City's urbanized areas and agricultural land or other resource areas. The City has not applied any zoning designations to the site.

Merced County

As shown in Figure 2-4, Merced County includes the project site in the Merced Rural Residential Center planning area and assigns it a land use designation of Agricultural Residential - Rural Residential Center (Merced County 2010). The County General Plan defines that Rural Residential Centers are areas with a concentration of suburban housing that are typically on one-acre lots and lack full urban services while being adjacent to or near incorporated cities (Merced County 2013a). The County zoning designation for the site is Rural Residential (R-R) (Merced County 2010), which provides areas for rural residential development, hobby farming and limited animal raising operations with less than a full range of urban services. The County's zoning ordinance states that this zone is intended to serve as a transitional area between more dense urban communities and agricultural uses. This zone allows between one and three dwelling units per acre and implements the Agriculture Residential (AR) and Very Low Density Residential (VLDR) land use designations in the General Plan (Merced County 2020).

Surrounding Properties

Surrounding land uses include existing residential development in the City to the south across East Yosemite Avenue and to the west across Gardner Avenue, a medical office and surgery center to the southwest, agricultural land to the north in the County, and a mix of larger lot rural residential uses generally bounded by Hatch Road in the County to the east.

The properties immediately north and east of the project site are also within the City's SOI and are designated under the City's General Plan for Rural Residential land uses. The area further north is identified in the City's General Plan as the Bellevue Community Plan Area. UC Merced is located east of that community plan area. The existing City residential areas immediately south and west of the site are designated Low Density Residential and zoned R-1-6. The commercial center to the southwest is designated Commercial Office and zoned RP-D (20).

Merced County's designated Merced Rural Residential Center, which includes the project site, extends to the properties north and east of the project site. These areas are designated Rural Residential and zoned R-R.

Existing Population

Both the City and County General Plan anticipate increasing residential populations in the respective jurisdictions. The City's General Plan Urban Expansion Element reports on the City's existing and projected residential population based on data obtained from the Merced Council of Governments in 2010. At that time, the city's population was projected to be 107,600 people in 2020 (City of Merced 2015b). However, growth did not occur as rapidly as anticipated, based on the US Census Quick Facts data, which indicates that there were 83,676 residents in the City of Merced in 2019 (US Census 2020), and the California Department of Finance (DOF) data that reports 88,261 city residents in 2020 (DOF 2021a). Further, the DOF data shows that the City had an average household size of 3.2 people per household in 2020, which dropped to 3.18 people per household in 2021 (DOF 2021).

Further, there were approximately 283,352 people in Merced County in 2020 and 284,836 people in 2021 with an average household size of 3.39 people in both 2020 and 2021 (DOF 2021a). The County's population is projected to increase to 298,184 by 2025 and 314,690 by 2030 (DOF 2021b).

3.9.3 Regulatory Setting

Federal Regulations

There are no federal land use plans, policies, regulations or laws applicable to the proposed project.

State Regulations

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganizations Act authorizes creation of Local Government Formation Committees (LAFCOs) and assigns LAFCOs the responsibility of ensuring orderly and logical changes in land development, including protecting agricultural land resources by discouraging urban sprawl and coordinating logical changes in local government boundaries. Merced County LAFCO regulates boundary changes, annexations, and spheres of influence for cities, agencies and special districts within the county (Merced LAFCO 2015). Merced County LAFCO has discretionary approval over the City's request to annex the project site into the City of Merced city limits.

Local Regulations

The project site is currently within the boundaries of Merced County and within the City of Merced SOI. The project proposes to annex the site to the City; thus the City's regulations would apply to development of the site. The land north of the project site would remain in the County; thus this section also includes County policies that are relevant to consideration of the land use impacts the proposed project could have in relation to the adjacent properties.

County and City General Plan Overview

Under the County's 2030 General Plan, Merced County adopted polices and land use designations for development in the unincorporated areas of the County based on the "Urban Centered Concept," which is intended to ensure orderly and logical growth, efficient land use, reduced loss of productive agricultural land, County planning that is complementary to efforts within incorporated cities, and that urban development occurs where public infrastructure and services are available (Merced County 2013a). In practice, the Urban Centered Concept means that the County intends to meet urban expansion needs by focusing growth in cities and unincorporated communities or centers.

The City's General Plan is consistent with the County's Urban Centered Concept in that the City's General Plan relies on the SUDP to define the City's ultimate growth boundary and SOI, with the intent that areas within the SUDP would be developed with a mixture of urban and urban-related uses (City of Merced 2012).

Merced Vision 2030 General Plan

The City's Merced Vision 2030 General Plan was adopted January 3, 2012 and was last amended in 2015. The City's General Plan is a long-range planning document that guides the City's decisions about land development, redevelopment, and conservation.

As shown in Figure 2-3, the project proposes that The Crossings component of the project site be redesignated to Neighborhood Commercial and High Medium Density Residential. For the Remainder Area, the project proposes that the northwest corner be designated rural residential and the eastern portion of the project site be designated Low Density Residential. The City's General Plan includes the following descriptions of the proposed land use designations (City of Merced 2015a):

Neighborhood Commercial (CN). This land use designation is designed to provide sites for retail shopping areas, primarily in shopping centers, containing a wide variety of businesses including retail stores, eating and drinking establishments, commercial recreation, auto services, etc., to serve residential neighborhoods.

High Medium Density Residential (HMD). This land use designation provides areas for multi-family development such as apartments, higher density triplex/fourplex units and condominiums. The density range is between 12 and 24 dwelling units/acre (du/ac).

Low Density Residential (LD). This designation provides areas for single family residential dwellings served by City services throughout the City. Primarily single-family detached housing, but options such as condominiums and zero-lot-line units can be developed. The density range is between 2 and 6 du/ac.

Rural Residential (RR). This designation provides areas for single family residential dwellings on large lots in a semi-rural environment to serve as a buffer between the City's urbanized areas and sensitive areas such as agricultural land or environmental resource areas. The density range is between 1 and 3 du/ac.

The following policies and implementing actions from the Merced Vision 2030 General Plan Urban Expansion chapter (amended April 2015), Land Use chapter (amended April 2015) and Housing Element (adopted July 2016) are applicable to the proposed project.

Policy UE-1.1 Designate areas for new urban development that recognize the physical characteristics and environmental constraints of the planning area.

Implementing Actions:

1.1.a Direct development away from significant concentrations of "Prime" agricultural soils and give priority to the conversion of non-prime agricultural land if reasonable alternatives exist.

1.1.b Limit development and development related impacts on agricultural lands along the City's urban fringe.

Policy UE-1.3 Control the annexation, timing, density, and location of new land uses within the City's urban expansion boundaries.

Implementing Actions:

1.3.a The City should continue to require that all new urban development and annexations be contiguous to existing urban areas and have reasonable access to public services and facilities.

1.3.e The planning for land uses in newly developing areas should reflect a mix of land uses which will support a neighborhood, including a variety of residential densities and price

ranges, neighborhood and convenience shopping facilities, job creation, and public facilities such as schools and parks.

1.3.g Evaluate future annexation requests against the following conditions:

a) Is the area contiguous to the current City limits and within the City's Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI)? Do the annexed lands form a logical and efficient City limit and include older areas where appropriate to minimize the formation of unincorporated peninsulas?

b) Is the proposed development consistent with the land use classifications on the General Plan Land Use Diagram (Figure 2-3)?

c) Can the proposed development be served by the City water, sewer, storm drainage, fire and police protection, parks, and street systems to meet acceptable standards and service levels without requiring improvements and additional costs to the City beyond which the developer will consent to provide or mitigate?

d) Will this annexation result in the premature conversion of prime agricultural land as defined on the Important Farmland Map of the State Mapping and Monitoring Program? If so, are there alternative locations where this development could take place without converting prime soils?

e) Will a non-agricultural use create conflict with adjacent or nearby agricultural uses? If so, how can these conflicts be mitigated?

f) Does annexation of the area help the City reach one of the following goals?

1) Does annexation of the area bring the City closer to annexation of the UC Merced campus and University Community?

2) Does the area contain significant amounts of job-generating land uses, such as industrial, commercial, office, and business/research & development parks?

3) Does the project provide key infrastructure facilities or other desirable amenities, such as the extension of major roads, utility trunk lines, parks and recreational facilities, etc.?

Policy UE-1.5 Promote annexation of developed areas within the City's Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI) during the planning period.

Implementing Actions:

1.5.d Establish annexation policies and outreach program regarding the annexation of the existing Rural Residential Centers (existing development on one-acre lots)

Policy L-1.2 Encourage a diversity of building types, ownership, prices, designs, and site plans for residential areas throughout the City.

Policy L-1.5 Protect existing neighborhoods from incompatible developments.

Implementing Actions:

1.5.b Evaluate traffic and circulation generated by large scale development projects and seek to limit their impacts on residential areas to the extent feasible without sacrificing the need for connectivity between land uses.

Policy L-1.6 Continue to pursue quality single-family and higher density residential development.

Implementing Actions:

1.6.b Continue to require multi-family projects to comply, at minimum, with the adopted standards and design guidelines contained in the "City of Merced Multi-Family Design Standards and Guidelines."

Policy L-1.7 Encourage the location of multi-family developments on sites with good access to transportation, shopping, employment centers, and services.

Implementing Actions:

1.7.a Designate areas adjoining arterial streets, major transportation routes and commercial areas for multi-family development.

Policy L-1.9 Ensure connectivity between existing and planned urban areas.

Implementing Actions:

1.9.a Ensure multiple points of access for all new development.

Policy L-2.6 Provide neighborhood commercial centers in proportion to residential development in the City.

Implementing Actions:

2.6.a Neighborhood commercial centers should be located approximately one mile apart along major arterial streets adjacent to residential areas throughout the City.

Policy L-2.7 Locate and design new commercial development to provide good access from adjacent neighborhoods and reduce congestion on major streets.

Implementing Actions:

2.7.a New retail commercial designations shall be located along arterials at their intersections with collector streets (at 1/4 mile or 1/2 mile locations) in new growth areas. These commercial areas should not be located at the intersections of two arterials, except under very unique circumstances.

2.7.b Commercial centers shall be designed to provide direct vehicular and pedestrian access from surrounding neighborhoods. In no case shall trips which could be internal (from adjacent neighborhood to center) be forced onto an arterial.

2.7.e Commercial developments shall be designed to encourage pedestrian, bicycle, and transit access.

Policy H-1.1 Support increased densities in residential areas.

Implementing Actions:

1.1.c Expand the use of mixed-use residential/office/retail developments in the City's core downtown and other appropriate commercial centers to support both affordable housing and economic development goals through priority permit processing. The City will also amend the Zoning Ordinance to allow residential uses as a principally permitted use in deference to the Redevelopment Agency's Preferred Land Use Map and Downtown Strategy and when mixed with commercial uses.

The City will promote development consistent with the "Downtown Strategy."

In addition, the City will consider an ordinance amendment to reduce the parking requirements for residential developments within the downtown area. The use of other incentives such as reduced fees, density bonuses, and a streamlined development process will be reviewed.

1.1.g Work with UC Merced to Develop a Student Housing Plan

Action: City staff will work with representatives of UC Merced to consider the development of a Student Housing Plan. The plan should address issues of student housing within residential neighborhoods. It should include programs to educate students on being good neighbors. It should also address the need to locate fraternity/sorority housing within Medium-High and High Density Zones until such time as

they can be supported on campus. There are provisions in the draft Zoning Ordinance to regulate fraternities and sororities in the City.

City of Merced Zoning Ordinance (Chapter 20)

The City of Merced Zoning Ordinance is designed to implement the Merced Vision 2030 General Plan and to protect the public health, safety, and general welfare of the Merced community. Regulations include, but are not limited to, development standards, general site use regulations, regulation for the placement of buildings and structures, regulations for the provision of site improvements such as landscaping and parking, and procedures for administration of the ordinance. The Zoning Ordinance implements the goals and policies of the General Plan by regulating the uses of land and structures within the City.

The project proposes annexation of the 68.6-acre project site into the City, prezoning the 28.4-acre The Crossings component of the site as Planned Development, with a Site Utilization Plan land use designation consistent with R-4 zoning for the residential portion of the site and a Site Utilization Plan land use designation consistent with Neighborhood Commercial (C-N) for the mixed-use portion, prezoning 19.4 acres (the northwestern corner and the western third) of the Remainder Area as Urban Transition, and prezoning the eastern two-thirds (approximately 20.8 acres) of the Remainder Area as R-1-10. A description of the uses allowed in these zones described below.

Planned Development (P-D). The P-D zoning district requires permitted land uses to conform to the applicable General Plan designation, provided that such land uses are shown on the Official Site Utilization Plan for the particular P-D zone as approved by the City Council. The minimum project size in the P-D zoning district is 5 acres. As stated in Chapter 20 section 20.20.020, Planned Development Zoning District, “the purpose of the P-D zoning district is to allow for high quality development that deviates from standards and regulations applicable to other zoning districts within Merced. The planned development zoning districts are intended to promote creativity in building design, flexibility in permitted land uses, and innovation in development concepts. The planned development zoning districts are also intended to ensure project consistency with the general plan. Planned development zoning districts provide land owners with enhanced flexibility to take advantage of unique site characteristics to develop projects that will provide public benefits for residents, employees, and visitors to Merced” (City of Merced 2016).

High Density Residential (R-4). The R-4 zoning district provides an area for the highest density residential uses in Merced. Permitted uses include single-family dwellings, duplex homes, multi-family dwellings, single room occupancy housing, and other land uses typically compatible with a high-density residential setting in close proximity to shopping,

transportation, and other facilities. In this zone, the minimum lot size is 1,000 square feet per dwelling unit and the maximum building height is 40 feet.

Neighborhood Commercial (C-N). The C-N zoning district provides areas for shopping centers and other commercial uses that serve the day-to-day needs of residential neighborhoods. Further, this zone is required to be located only where analysis of the residential population demonstrates that the facilities are justified. The minimum lot size is 3 acres and maximum lot coverage is 65%. Further, when multiple buildings are constructed, they must be separated by at least 10 feet. When this zone is adjacent to residential zones, the maximum building height is 35 feet.

Low Density Residential (R-1-10). The R-1 zoning district is intended to stabilize, protect, and encourage the establishment and maintenance of a suitable environment for detached single-family dwellings and other land uses typically compatible with a low density residential setting. The R-1 zoning district is divided into four subzones (R-1-20, R-1-10, R-1-6, and R-1-5) allowing for a range of minimum lot sizes. The minimum allowable lot size in the R-1-10 district is 10,000 square feet.

Urban Transition (U-T). The purpose of the U-T zoning district is to allow the lawful continuation of land uses on land that is annexed to the City but not proposed for immediate urban development. Land in the U-T zoning district may continue with any legal and lawful use that existed in the county without time limit. However, this authority to continue such uses is not intended to legalize uses or structures operating or existing contrary to the terms of any other law or ordinance. Any major expansion in use, density, or other measurement of size or intensity shall require a change to a zoning district other than the U-T zoning district. The Director of Development Services shall determine whether a proposed change to an existing use will require a change to a zoning district other than the U-T zoning district.

In addition to the definition of the Planned Development zone district provided above, Section 20.20.20.J of the Zoning Ordinance states that the City Council can approve an application for planned development providing all of the following findings can be made:

1. The proposed development is consistent with the goals, policies, and actions of the general plan and any applicable specific plan and community plan.
2. The site for the proposed development is adequate in size and shape to accommodate proposed land uses.
3. The site for the proposed development has adequate access considering the limitations of existing and planned streets and highways.

4. Adequate public services exist or will be provided to serve the proposed development.
5. The proposed development will not have a substantial adverse effect on surrounding property, will be compatible with the existing and planned land use character of the surrounding area, and will enhance the desirability of the area and have a beneficial effect.
6. The proposed development carries out the intent of the planned development zoning district by providing a more efficient use of the land and an excellence of site design greater than that which could be achieved through the application of established zoning standards.
7. Each individual unit of the proposed development, in each phase as well as the total development can exist as an independent unit capable of creating a good environment in the locality and being in any stage as desirable and stable as the total development.
8. Any deviation from the standard ordinance requirements is warranted by the design and additional amenities incorporated in the development plan, which offer certain unusual redeeming features to compensate for any deviations that may be permitted.
9. The principles incorporated in the proposed development plan indicate certain unique or unusual features, which could not otherwise be achieved under the other zoning districts (Chapter 20, section 20.20.020 J).

Finally, the Section 20.46 of the Municipal Code includes the following design standards for multi-family dwellings:

20.46.030 - General design standards for multi-family dwellings.

B. Exterior Treatment.

1. Blank walls shall be treated with a variety of textures, use of projecting details that create shade/shadow and contrasting trim materials.
2. Any pipes, vents or tubes, etc., on the roof shall be painted or otherwise covered to match roof color or shall be screened.
3. Ground-mounted air conditioning units shall be screened from public view, using either landscaping or a combination of landscaping and screening comprised of the same materials as used on the buildings.

D. Parking.

1. Parking areas shall be screened from public right-of-way by landscaping, which may include berms or fencing/screening.

2. Parking areas shall be landscaped with a minimum of one (1) tree per every six (6) spaces.
3. Parking areas shall be lit at night for security reasons, but the lighting shall not spill over onto adjacent properties.

E. Trash Collection Area.

2. Refuse collection areas shall be screened with the same and/or complementary materials and colors used on the main buildings.

20.46.040 - Specific design standards for multi-family dwellings.

A. All Multi-Family Dwelling in the Planned Development Zoning District and Multi-Family Dwellings with Five (5) or more Units (or Three (3) or more Units on Corner Lots) in Non-Planned Development Zoning Districts. In addition to the standards in Section 20.46.040 above, such units shall comply with the following:

1. Building construction shall not exceed the plane established by 1:1 height and setback ratio from any exterior property line of a lot or parcel, for more than 50 percent of the allowable building area at any established distance from said exterior property line.
2. A minimum of 1 tree per 3 units is required, and foundation plantings with a minimum mean horizontal depth of 3 feet covering the equivalent of a minimum of 50 percent of the overall horizontal building frontage shall be required in the overall project area.
3. Fences.

a. Private balconies or patios shall be screened with solid or near-solid fencing/railings.

(1) Materials used shall be comparable quality and aesthetics to those used on the rest of the project.

(2) The color shall complement or match building trim.

b. Patio or Swimming Pool. Following standards exclude perimeter fencing.

(1) Fencing shall use the same materials, textures and colors as are used for the main building.

(2) Fencing shall not include chain link.

4. Parking, Garage, and Carports.

   a. Carports shall have fascia boards. Materials for the fascia board shall match building material(s) of main structures; both fascia boards and vertical members (supports, screening elements, etc.) shall be painted to match or complement building trim.

   b. A directory, with a list of all apartment unit identifications and a schematic or other locational device/site plan, shall be required in proximity to each parking lot entrance for use by emergency vehicles or visitors:

      (1) Materials and color(s) of the directory will match/complement the building(s).

      (2) City's approval is required for its placement and dimension, including orientation and lighting arrangements.

5. Mechanical and Utility Equipment and Trash Collection Area.

   a. No roof-mounted air-conditioning equipment shall be permitted.

   b. Trash Collection Areas.

      (1) The perimeter of trash enclosures shall be planted with landscaping, such as shrubs or climbing evergreen vines, unless otherwise required by the city.

      (2) Decorative gates shall enclose a trash area; walk-in access for tenants, other than the main gates to the trash area, shall be provided unless otherwise required by the city.

   c. Utility meters shall not be located within setback nor should they be visible from the public right-of-way, consistent with the following:

      (1) A 3-foot clear space shall be provided in front of the meters;

      (2) The meters shall be located near the front of the complex, but may be along the side of a unit;

      (3) The meters may be screened with plants or materials as long as the utility company can still reach the meters to read them;

      (4) Screening materials shall be the same as used on main buildings and shall be painted to match/complement building colors; and,

      (5) The meters shall be located away from parking areas where they could be hit or backed into.

B. Multi-Family Dwellings in the Planned Development Zoning District. In addition to the standards in Section 20.46.030 and 20.46.040.A above, such units shall comply with the

following: No composition roof materials shall be permitted except three-dimensional, architectural grade shingles.

Merced County 2030 General Plan

The Merced County 2030 General Plan, adopted December 2013, is a long-range planning document designed to guide land use in the unincorporated areas of the County including areas outside the Merced City limits, but within the City's planned SOI and the County's SUDP. Currently, the project site and lands immediately north and east are not within the City limits and are governed by the Merced County 2030 General Plan.

The 2030 Merced County General Plan Land Use Diagram identifies two rural land use designations and six urban land use boundaries, which include: City Planning Areas and Rural Residential Centers.

The County's General Plan (Merced County 2013a) defines the City Planning Area (which includes the City of Merced) and Rural Residential Centers as follows:

City Planning Area. Includes land located within the adopted sphere of influence of the cities of Atwater, Dos Palos, Gustine, Livingston, Los Banos, and Merced (where there is an adopted sphere of influence agreement). The land use and development within the cities is regulated by each City's general plan and the unincorporated fringe area outside the city limits is governed by the County General Plan and individual sphere of influence or land use agreements with each City.

Rural Residential Center. Includes areas in unincorporated Merced County that contain concentrations of suburban housing, typically on one acre lots that lack full urban services. These areas are typically located adjacent to or near incorporated cities and do not include commercial uses.

The following policies from the County's General Plan Land Use Element and Agricultural Element are applicable to the proposed project.

Policy LU-1.1 Countywide Development (RDR/MPSP) Direct urban development to areas within adopted urban boundaries of cities, Urban Communities, and Highway Interchange Centers in order to preserve productive agriculture, limit urban sprawl, and protect natural resources.

Policy LU-1.3 Rural Residential Centers (RDR) Limit the amount of new growth within existing Rural Centers by allowing only residential uses, limiting public services, and prohibiting commercial uses.

Policy LU-3.1 On-Site Agriculture-Related Uses (RDR) Maintain a rural character in Rural Residential Centers by allowing a limited amount of agricultural and animal husbandry activities.

Policy LU-3.3 Residential Densities (RDR) Maintain a minimum lot size commensurate with sanitation requirements by allowing one-acre minimum lots when Environmental Health Division approved on-site septic systems are installed, or a one-third-acre minimum when the lot has connection to a public sewer and water system.

Policy AG-3.1 Right-to-Farm Ordinance (RDR) Continue to implement the Right-to-Farm Ordinance to define and limit instances where agricultural operations may be considered a nuisance to surrounding residential or urban development.

Policy AG-3.2 Agricultural Buffer (RDR) Require buffers between proposed non-agricultural uses and adjacent productive agricultural operations to protect farms, dairies, and agricultural-related production facilities from conflicts with non-agricultural uses, specifically residential development.

Policy AG-3.3 Agricultural Buffer Standards (RDR) Establish agricultural buffer standards based on type of agricultural operation to be applied to residential development proposals adjacent to productive agricultural land and agricultural-related facilities.

Policy AG-3.4 Residential Buffers from Agriculture (RDR) Require a minimum 200-foot buffer between new residential development and existing agricultural operations, and establish design/maintenance guidelines for developers and property owners.

Merced County Zoning Ordinance (Title 18)

The Merced County Zoning Ordinance was last updated December 2016; it is contained within the Merced County Code (Merced County 2020). The Zoning Ordinance includes the zoning map and regulations governing the use of land and placement of improvements and buildings within various designations. Regulations include, but are not limited to, property development standards, general site use and regulations, parking standards and procedures for administering the ordinance.

The project site is currently zoned Rural Residential (R-R). The purpose of the R-R zone is to provide areas for rural residential development and hobby farming and limited animal raising operations with less than a full range of urban services. It is intended that this zone typically serve as a transitional area between more dense urban communities and agricultural uses with the option of allowing between one and three units per acre (Merced County 2020).

Merced County's Right-to-Farm Ordinance is administered by the Planning Department and has been in place since 1986. It requires a disclosure of the importance and protection of agriculture in the residential development process, when subdivisions or parcel splits are approved and building permits are issued. The disclosure is passed on to future property buyers through the title process.

3.9.4 Impacts

Methods of Analysis

Existing land uses in the vicinity of the project site were identified based on a site visit and review of aerial photography, roadway maps, and the City and County land use and zoning maps. Planned land uses were identified based on the City's General Plan and information provided by the City and the project applicant. The land use evaluation is based on a qualitative comparison of existing and proposed uses on the site and their compatibility with existing land uses and planned land uses surrounding the site, as defined in the Merced Vision 2030 General Plan as well as other applicable local planning documents.

Section 15125(d) of the CEQA Guidelines, (found in 14 CCR 15000 et seq.) states that the environmental setting of an EIR must discuss "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." An inconsistency with a general plan or other policy would not necessarily create an environmental impact. In some cases, a general plan policy lays out the standard by which an environmental impact is judged to be significant or less than significant. The determination of project consistency with the City's General Plan must be made by the City Council. The information provided in this section is intended to inform that decision.

The analysis below evaluates the proposed project's consistency with applicable goals and policies contained in the Merced Vision 2030 General Plan, as well as other relevant planning documents. This consistency analysis provides the reader with a general overview of whether the project is in harmony with the overall intent of the City's General Plan goals and policies. It is within the City's decision makers' purview to decide if the proposed project is consistent or inconsistent with any applicable City goals or policies.

Physical environmental impacts resulting from development of the project site are discussed in the applicable technical sections throughout Chapter 3 of this Draft EIR. CEQA does not treat project consequences relating solely to land use, socioeconomic or population, employment, or housing issues as direct physical impacts to the environment. An EIR may provide information regarding land use, planning, and socioeconomic effects; however, CEQA does not recognize these types of project consequences as typical impacts on the physical environment. The analysis

in this section evaluates land use compatibility as it relates to consistency with land use policies as well as potential physical effects on existing and planned land uses surrounding the project site. This analysis complies with Section 15125(d) of the CEQA Guidelines, as discussed above.

Implementation of The Crossings component would result in a change in land use as compared to existing conditions but would be consistent with the City's underlying land use designations to develop the site for residential and commercial uses. Changes in land use are regulated by the planning policies adopted by each local governmental jurisdiction in California. Therefore, this change in land use is evaluated in comparison to the planning goals and policies contained in the Merced Vision 2030 General Plan. General plans provide long-term goals, policies and standards for development, and all development proposals must be generally consistent with the overall land use guidance provided in a general plan. Additional land use controls are applied through the City's zoning, subdivision and grading requirements as well as other City regulations and ordinances. The project's consistency with the City's zoning ordinance associated with development of the project is discussed in this section. The analyses of consistency with other planning documents (e.g., regional air quality plans) are provided in the applicable technical sections throughout Chapter 3 of this Draft EIR.

Impacts Addressed in the Initial Study

As discussed in the Initial Study (Appendix B),The Crossings component is currently undeveloped and in active agricultural use. There are residential subdivisions south and west of The Crossings, but these communities are complete and have defined boundaries along East Yosemite Avenue and Gardner Avenue. They do not extend east and north into or beyond the project site. Therefore, development of this portion of the project site would not divide an established community and this issue is not further addressed. The Remainder Area supports rural residential uses, a church, a private school, and agricultural uses. The portions of the Remainder Area proposed to be pre-zoned U-T would support only continued operation of the existing land uses and new agricultural uses; the portions of the Remainder Area proposed to be pre-zoned R-1-10 would allow development of single-family residences on minimum 10,000-square-foot lots. The lands surrounding the Remainder Area do not comprise an established community because rural residential/agricultural use exists to the north while a separate area of rural residential exists to the east. Any future development within the Remainder Area subject to the proposed zoning designations would not divide any established communities, and there would be no impact. Therefore, this issue is not further addressed in this EIR.

Compatibility with Adjacent Uses

The CEQA Guidelines and the City of Merced do not include a standard or threshold of significance that requires evaluation of a project's compatibility with adjacent land uses. However,

this concern was raised in a comment letter received in response to the NOP; therefore, it is addressed in this section.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Create incompatibilities with existing or planned land uses in the project vicinity.
- Conflict with any regional 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.

Impacts and Mitigation Measures

Impact 3.9-1: Implementation of the proposed project would not create land use incompatibilities with adjacent properties. The project would have no impact.

The Crossings

As shown in Figure 2-2, The Crossings component of the project site is located just north and east of residential uses in the City of Merced along the west side of Gardner Avenue and along the south side of East Yosemite Avenue. A small medical office complex is located on the southwest corner of the intersection of Gardner Avenue and East Yosemite Avenue. Land in agricultural production in the County borders the northern boundary of this area of the project site as well as adjacent to the northeast corner.

As shown in Figure 2-6, Proposed Site Plan, the buildings within The Crossings component of the project would be surrounded by surface parking, a small planting strip, and a retention basin. Placing surface parking adjacent to the boundaries of the project provides a 60- to 65-foot buffer between the proposed residential and commercial uses and the adjacent agricultural land in the County to the north and northeast. Additionally, the proposed buildings are set back approximately 120 feet from both of the adjacent roadways to the west and south, thus buildings would be more than 200 feet from surrounding residences within the City.

The project's residential uses would be compatible with existing residential development along Gardner Avenue and East Yosemite Avenue. The project's neighborhood commercial uses would

be set back over 125-feet from nearby residential areas and the City does not consider neighborhood commercial uses incompatible with residential development.

The introduction of residential uses in proximity to agricultural activities can create land use incompatibilities by bringing a residential population to a site that may be exposed to nuisance effects from agricultural activities such as dust, odors, and noise. The Merced County General Plan EIR found that placement of urban uses "next to or in close proximity to intensely cultivated farmland" can lead to land use conflicts that reduce opportunities for agricultural activities (Merced County 2013b). The property north of the project site is used for row crops and is designated under the County General Plan as Agricultural Residential – Rural Residential Center, which allows single-family dwellings on large lots in a semi-rural environment and is typically applied to Rural Centers or at the edge of urban areas (Merced County 2013a); this property is zoned by the County as Rural Residential. Thus, this adjacent property is not intended to function as intensely cultivated farmland and is not a "primarily agricultural area" as defined in Merced County Ordinance 1213 (the county's right-to-farm ordinance) or the County's Zoning Code, Chapter 18.10.040, which requires that residential developments include specific setbacks from agricultural uses (Merced County 2020). Because the adjacent property to the north does not meet these definitions, neither the County's right-to-farm ordinance nor chapter 18.10.040 of the County Code apply to that parcel or the proposed project. The proposed residential uses for the project site are considered compatible with the existing agricultural use of the adjacent property. Refer to Section 3.2, Agricultural Resources, for further discussion of potential project impacts to agricultural land.

The proposed project is not expected to generate excessive noise, light, dust, odors, or air emissions that would be considered incompatible with adjacent residential and commercial uses, as evaluated in the technical sections included in Sections 3.1, Aesthetics, 3.3, Air Quality, and 3.10, Noise. The project has been designed to shield the surrounding residences from activities that could create a nuisance or a disturbance to residents by placing outdoor activity areas internal to the site.

Additionally, the project would not add a substantial volume of traffic to local roadways or intersections, as determined in the Transportation Impact Study (TIS, Appendix M) completed for the project. Although CEQA Guidelines Section 15064.3 prohibits consideration of traffic congestion as an environmental impact, the City's General Plan policies that define minimum acceptable levels of service for intersections can be used as one metric in considering whether the traffic generated by the project could result in roadway conditions that are not compatible with the existing and planned land uses in the project vicinity. The TIS evaluated the effect of the project on ten intersections located on primary routes accessing UC Merced and Merced College, routes likely to be used by project-related traffic as access to and from nearby commercial and residential areas and downtown Merced, and intersections where project-related traffic might cut

through residential neighborhoods. The TIS found that the City's transportation infrastructure would continue to operate acceptably under existing and cumulative conditions that include the proposed project (Appendix M). Thus, the project generated traffic is not expected to cause substantial changes in the character of roadway operations and thus would not create any traffic conditions that are incompatible with the surrounding residential and commercial land uses within the City or the rural residential and agricultural uses in the County.

Based on the analysis presented in Sections 3.1, 3.2, 3.3, 3.10, and 3.11 and in Appendix M, the project is not expected to create conditions that would be incompatible with existing and planned land uses surrounding the project site and in the project vicinity and thus the project would have **no impact** associated with land use compatibility.

Remainder Area

The Remainder Area is bifurcated by The Crossings component of the project. It includes approximately 9.4 acres in the northwest corner of the project site that consists of four rural residential parcels, which are proposed to be pre-zoned as U-T. It also includes 10.0 acres in the eastern portion of the site proposed to be pre-zoned as U-T and approximately 20.8 acres in the eastern portion of the site proposed to be pre-zoned as R-1-10. No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved. If residential uses are developed within the Remainder Area, the density would be greater than the residential density east of the project site (existing residences within Merced County) and slightly less dense than the residential density south of the project site (existing residences within the City of Merced). Ongoing or increased agricultural uses would be consistent with the existing development and land uses north of the site, within the County.

Based on the proposed land use and zoning designation for this portion of the site, it is expected that much of the existing land uses would continue to exist – specifically the rural residential uses in the northwest portion of the site, Yosemite Church ,and Stoneridge School. Areas that may be redeveloped would be developed with single-family residential uses, at a maximum density of 4.3 dwelling units per acre. This would provide a transition between the multi-family uses within The Crossings component of the project and the existing rural residential uses east of Hatch Road, which would remain within the County's boundaries.

As discussed in Sections 3.1, 3.2, 3.3, 3.10, and 3.11, future development of the Remainder Area is likely to result in similar or lesser potential impacts to surrounding properties in relation to aesthetics, agricultural resources, air quality, noise, public services, and transportation as the

proposed project. Thus, future development of the Remainder Area would result in **less than significant** impacts due to the compatibility of the future development with other existing land uses in the vicinity.

Mitigation Measures

No mitigation measures are required.

Impact 3.9-2: Implementation of the proposed project would not conflict with a regional land use plan, policy or regulation. This would be a less-than-significant impact.

The components of the Merced Vision 2030 General Plan and Merced County General Plan as well as the City's zoning ordinance that are applicable to the proposed project are identified in Section 3.9.3, Regulatory Setting.

The Crossings

Regional Land Use Plans

The project site is currently located in Merced County but is identified in both County and City planning documents as anticipated for annexation to the City and for future development. The project is consistent with the Urban Centered Concept expressed in the Merced County General Plan and the City's SOI/SUDP. In addition, the project meets several of the City's goals and policies by including a mix of residential and commercial uses where public services are available, ensuring that the City's boundaries remain contiguous, offering residences that provide housing diversity in the community, and providing adequate access for vehicles, busses, and pedestrians.

Implementing Action 1.3.g of the Merced Vision 2030 General Plan provides a specific list of criteria to be considered when evaluating a proposed annexation. Table 3.9-1 shows that the project is consistent with those criteria:

Table 3.9-1
Annexation Evaluation Criteria (Implementing Action 1.3.g)

Implementing Action Criteria	Project Analysis
a) Is the area contiguous to the current City limits and within the City's Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI)? Do the annexed lands form a logical and efficient City limit and include older	The project site is contiguous to the City boundaries on Gardner Avenue and East Yosemite Avenue and within the City's SOI/SUDP.

Table 3.9-1
Annexation Evaluation Criteria (Implementing Action 1.3.g)

Implementing Action Criteria	Project Analysis
areas where appropriate to minimize the formation of unincorporated peninsulas?	
b) Is the proposed development consistent with the land use classifications on the General Plan Land Use Diagram (Figure 2-3)?	The City's land use classification for the site is currently Rural Residential, which allows development of residential lots with a density of between 1 and 3 units. The project proposes to change the land use classification to Neighborhood Commercial and High Medium Density Residential, which allows a density of between 12 to 24 dwelling units per acre. While the project would change the land use classification for the project site, the project would extend the existing residential development that surrounds the site and contribute to meeting city goals for providing a diversity of housing types and integrating neighborhood-serving commercial uses. Further, the proposed project would develop medium density multi-family residential uses in a compact and concentrated land use pattern, rather than scattered or dispersed development. Thus, the project would contribute to the County's goals for supporting agricultural activities by reducing the extent to which residential development may encroach into agricultural areas.
c) Can the proposed development be served by the City water, sewer, storm drainage, fire and police protection, parks, and street systems to meet acceptable standards and service levels without requiring improvements and additional costs to the City beyond which the developer will consent to provide or mitigate?	As discussed in Section 3.11, the project would be served by City water, sewer, storm drainage, fire and police protection, parks, with no need for expansion of existing City facilities.
d) Will this annexation result in the premature conversion of prime agricultural land as defined on the Important Farmland Map of the State	As discussed in Section 3.2, the project would annex approximately 26.3 acres of prime farmland, which is located within The Crossings portion of the project site. The

Table 3.9-1
Annexation Evaluation Criteria (Implementing Action 1.3.g)

Implementing Action Criteria	Project Analysis
Mapping and Monitoring Program? If so, are there alternative locations where this development could take place without converting prime soils?	site is included in the City's SOI/SUDP and is anticipated for annexation and development. Chapter 4, Project Alternatives, includes a discussion of potential offsite alternatives to the proposed project, as well as an alternative that would reduce the amount of prime farmland that would be converted to urban land uses.
e) Will a non-agricultural use create conflict with adjacent or nearby agricultural uses? If so, how can these conflicts be mitigated?	As discussed in Impact 3.9-1 and Section 3.2, the project would not create conflict with adjacent or nearby agricultural uses and no mitigation is needed.
f) Does annexation of the area help the City reach one of the following goals? 1) Does annexation of the area bring the City closer to annexation of the UC Merced campus and University Community? 2) Does the area contain significant amounts of job-generating land uses, such as industrial, commercial, office, and business/research & development parks? 3) Does the project provide key infrastructure facilities or other desirable amenities, such as the extension of major roads, utility trunk lines, parks and recreational facilities, etc.?	1) Annexation of the project site would extend City boundaries slightly closer to the UC Merced campus and University Community. 2) The project site does not currently contain significant amounts of job-generating land uses. The project proposes to create limited job-generating land uses by developing 66,000 square feet of commercial land uses. 3) The project would not provide infrastructure that would serve any offsite uses.

As discussed above and shown in Table 3.9-1, the project is consistent with applicable General Plan goals and policies, particularly the City's General Plan but also including consideration of the County's General Plan, and the impact related to potential conflicts with these goals and policies is **less than significant**.

Regulations

Once annexed to the City, the project site must be zoned consistent with the General Plan and anticipated uses of the project site. The site is currently located in unincorporated Merced County and is zoned R-R. The project applicant is requesting that The Crossings component of the project site be zoned P-D. This zoning designation is consistent with the proposed General Plan land use designations. The proposed project has been designed to comply with the City's Zoning Ordinance and would not conflict with provisions contained in the City's Code. Therefore, the impact would be **less than significant**.

Remainder Area

The analysis in Table 3.9-1 regarding project consistency with the General Plan requirements for consideration of annexation proposals is also applicable to the Remainder Area. This portion of the project site is also within the City's SOI/SUDP and development at this location would be consistent with the County's Urban Centered Concept. Further, annexing this area to the City would result in contiguous city boundaries and a logical extension of urban levels of development to areas where public services are available, would be consistent with the existing land use classifications for the site, and would not conflict with adjacent agricultural activities. The City would review any specific development plans for this site to confirm consistency with the zoning ordinance and other applicable provisions of the Municipal Code. Thus, the Remainder Area component of the project is consistent with applicable General Plan goals and policies, particularly the City's General Plan but also including consideration of the County's General Plan, and the impact on conflicting with these goals and policies is **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.9.5 Cumulative Impacts

The land use analysis in an EIR does not typically include a discussion of cumulative impacts because the consistency analysis for applicable land use goals and policies and compatibility with existing adjacent uses is not an additive effect. The analysis of impacts 3.9-1 and 3.9-2 consider the proposed project's compatibility with surrounding land uses and consistency with the General Plan and other applicable land use regulations. Because the General Plan defines the City's anticipated long-range land use development and conservation scenario, the evaluation of project consistency with that plan addresses both project-specific and potential cumulative impacts.

3.9.6 References Cited

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3.10 Noise

3.10.1 Introduction

This section evaluates the potential effects on noise levels in the project area associated with development and operation of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This section describes the existing noise conditions around the project site; outlines applicable federal, state, and regional regulations pertaining to noise; and identifies potential project-specific and cumulative impacts on noise and measures to minimize these impacts. The ambient noise environment is described on the basis of short-term (i.e., less than one hour in duration) measurements completed in the vicinity of the project site, the results of which are presented in Appendix F. The analysis and findings are based on noise and vibration modeling, which can also be found in Appendix F. As discussed in the Initial Study prepared to define the scope of this EIR (Appendix B), the project site is more than 4 miles from the nearest airport and is not located within any Airport Influence Area or Noise Compatibly Zones. Therefore, implementation of the proposed project would result in a less-than-significant impact related to air traffic noise and this issue is not further evaluated in this EIR.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020 to disclose these project revisions. Three commenters responding to the NOPs expressed concern that the proposed residential and commercial uses could expose existing residents north of the site to increased noise levels due to on-site activities and off-site vehicle traffic. Both NOPs and the comments received in response to them are provided in Appendix A.

Resources referenced to prepare this section include the Merced Vision 2030 General Plan (City of Merced 2012), proposed project plans, the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) (FHWA 2008) and the FHWA Traffic Noise Model (TNM 2.5) (FHWA 2004) used to estimate project noise emissions, the California Department of Transportation (CalTrans) Technical Noise Supplement to the Traffic Noise Analysis Protocol (Caltrans 2013), and Federal Transit Authority (FTA) Transit Noise And Vibration Impact Assessment (FTA 2018).

3.10.2 Environmental Setting

This section summarizes background information and terminology relevant to noise and vibration assessment and then describes the existing ambient noise environment encompassing the project site and adjacent properties.

Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called "A" weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of dBA.

Community noise sources can vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL and other terminology used to describe noise is provided in Table 3.10-1.

Table 3.10.1
Definitions of Acoustical Terminology

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 two like quantities.

Table 3.10.1
Definitions of Acoustical Terminology

Term	Definition
Sound Pressure Level (SPL)	10 times the logarithm to the base 10 of the ratio between the square of the sound to the square of the reference sound pressure of 20 µPascals. Sound pressure level is the quantity that is directly measured by a sound level meter and expressed in dB.
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.
A-Weighted Sound Level (dBA)	SPL in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes low and high frequency components of frequency components of sound in a manner similar to the frequency response of the human ear and correlates well with subjective response to sound. All sound levels in this report are A-weighted.
Noise	Unwanted sound.
Equivalent Sound Level (Leq)	The sound level corresponding to a steady state sound level and containing the same total energy as a time varying signal over a given sample period. Leq is designed to average all of the loud and quiet sound levels occurring over a specific time period. Also known as the “Average Sound Level”. For this CEQA evaluation, Leq refers to a one-hour period unless otherwise stated.
Lmax, Lmin	The maximum and minimum A-weighted sound level during the measurement period.
L01, L10, L50, L90	The A-weighted sound levels that are exceeded l%, l0%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level (Ldn)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to the hourly Leq levels measured during the night between 10 pm and 7 am.
Community Noise Equivalent Level (CNEL)	The average A-weighted sound level during a 24-hour day, obtained after addition of 5 decibels to the hourly Leq levels in the evening from 7 p.m. to 10 p.m. and after addition of 10 decibels to the hourly Leq levels during the night between 10 p.m. and 7 a.m.
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.
Impulsive Noise	Noise loud enough to disrupt normal activities and usually lasting less than one second.

Perception of Loudness

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. “It is generally accepted that the average healthy ear…can barely perceive a noise level change of 3 dB” (Caltrans 2013). A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as twice or half as loud (Caltrans 2013).

The perceived loudness of sounds and corresponding reactions to noise are dependent on many factors, including sound pressure level, duration of intrusive sound, frequency of occurrence, time of occurrence, and frequency content. As mentioned above; however, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. Table 3.10.2 shows examples of noise levels for several common noise sources and environments.

Table 3.10.2
Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
—	110	Rock band
Jet flyover at 300 meters (1,000 feet)	100	—
Gas lawn mower at 1 meter (3 feet)	90	—
Diesel truck at 15 meters (50 feet), at 80 kph (50 mph)	80	Food blender at 1 meter (3 feet) Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime gas lawn mower at 30 meters (100 feet)	70	Vacuum cleaner at 3 meters (10 feet)
Commercial area, heavy traffic at 90 meters (300 feet)	60	Normal speech at 1 meter (3 feet)
Quiet urban daytime	50	Large business office Dishwasher, next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	30	Library
Quiet rural night time	20	Bedroom at night, concert hall (background)
—	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans 2013
Notes: kph = kilometers per hour; mph = miles per hour

Exterior Noise Attenuation

Noise sources are generally classified into two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway. Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites. Sound generated by a line source typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. For the purpose of sound attenuation discussion, a "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically "soft" or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Structural Noise Attenuation

Structures can provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures in California ranges between 17 to 30 dBA with open and closed windows, respectively, as shown in Table 3.10.3.

Table 3.10.3
Outside-to-Inside Noise Attenuation (dBA)

Building Type	Open Windows	Closed Windows[a]
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Offices/Hotels	17	25
Theaters	17	25

Source: Caltrans 2013

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is very complex. However, it is generally accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be

perceived by building occupants as perceptible vibration. It is also common for ground-borne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

When evaluating human response, ground-borne vibration is usually expressed in terms of root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. As for sound, it is common to express vibration amplitudes in terms of dB defined as:

$$L_v = 20 \log \left(\frac{v_{rms}}{v_{ref}} \right)$$

where vrms is the RMS vibration velocity amplitude in inches/second and vref is the dB reference of $1x10^{-6}$ inches per second (in/sec).

To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB (which is equivalent to 0.0018 in/sec RMS). Vibration levels in the 70 to 75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable (FTA 2018).

Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV) that describes particle movement over time (in terms of physical displacement of mass, expressed as in/sec). Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving and soil compacting, grading activity has the greatest potential for vibration impacts if large bulldozers, large trucks, or other heavy equipment are used. A conservative maximum vibration level standard is 0.2 in/sec PPV for the prevention of structural damage to sensitive structures (i.e., historic) while 0.5 in/sec PPV applies for the prevention of damage to typical residential buildings (FTA 2018).

Existing Noise Conditions

Noise-Sensitive Receptors

Several categories of land uses are considered to be noise-sensitive because excessive noise levels could cause adverse effects such as annoyance and interference with typical activities and operations. For example, excessive daytime noise levels can interfere with communication in residential, educational, commercial, and religious land uses while excessive nighttime noise can interrupt a resident's sleep patterns.

Noise-sensitive land uses in the project vicinity include single-family residences to the west (across Gardner Avenue), to the south (across East Yosemite Avenue), and within the Remainder Area, as well as Yosemite Church and Stoneridge Christian School within the Remainder Area of the project site, and the medical office/surgery center in the southwest quadrant of the Gardner/East Yosemite Avenue intersection. The nearest noise-sensitive receptor is the residence immediately east of the Crossings portion of the site, within the Remainder Area. This home is approximately 45 feet from the project site boundary. The next nearest sensitive receptors are approximately 75 feet from the project site boundary; these include the residences within the Remainder Area immediately north of the proposed commercial area of The Crossings as well as the residences within the City limits to the west and south. The nearest building corner of the medical office/surgery center to the southwest is approximately 350 feet from the project site boundary and the nearest buildings at Yosemite Church and Stoneridge Christian School are approximately 450 feet away.

Project Area Noise Levels

Roadway traffic is often a primary contributor to the noise environment in rural, suburban, and urban settings. This is true at the project site, where existing on-site noise levels are influenced by traffic along adjacent roadways and activities occurring on agricultural properties in the general vicinity.

Short-term noise measurements were conducted at three locations, as shown on Figure 3.10-1, Noise Measurement Locations. This included measurement locations proximate to each of the adjacent roadways (locations M1 and M2) to determine ambient traffic noise levels. The results of short-term noise measurements along with manual traffic counts completed during the sound level measurements are presented in Table 3.10.4. Refer to Appendix F for field data sheets containing all of the noise measurement data as well as information regarding the type of noise monitoring equipment used. No agricultural activity noise was observed at the time the noise measurements were conducted.

The noise measurements were obtained in December 2016, which was concurrent with preparation of the original NOP for this project. No major land development projects have been constructed since that time and no other changes in the community have resulted in substantial increases in traffic volumes on the roadways adjacent to the project site. Thus, this data remains applicable for defining existing conditions within the project area and evaluating potential noise level increases associated with the proposed project.

Table 3.10.4
Short Term Sound Level Measurements and Traffic Counts

Site	Description	Date/Time	L_{eq}[1]	Cars	Bus
M1	Gardner Avenue, 22 feet from centerline	12/19/2016 2:33 p.m. to 2:48 p.m.	63 dBA	23	1
M2	East Yosemite Avenue, 11 feet from edge of pavement	12/19/2016 2:53 p.m. to 3:08 p.m.	70 dBA	101	0
M3	Center of project site	12/19/2016 3:16 p.m. to 3:21 p.m.	43 dBA	n/a	n/a

Note:
1 Equivalent Continuous Sound Level (Time-Average Sound Level)
Source: Appendix F

The measured average noise level for the short-term measurement along Gardner Avenue (measurement location M1 at the western edge of the project site boundary, 22 feet from the roadway centerline) was 63 dBA. Along East Yosemite Avenue (measurement location M2 at the southern edge of the project site boundary, 11 feet from the edge of pavement), the measured average noise level was 70 dBA. At measurement location M3, near the center of the project site, the measured average noise level was 43 dBA.

Traffic noise is generally assessed using software provided by the FHWA, the current version of which is the TNM 2.5 (FHWA 2004). Dudek modeled the existing traffic noise (CNEL) associated with Gardner Avenue and East Yosemite based upon data for existing traffic trips on these roadways as provided by DKS Associates (Appendix M). Thus, the measured minimum, maximum, and average noise levels as well as traffic data from DKS Associates were used as inputs to the TNM 2.5 model. The modeled existing traffic noise level at M1 is 68 dBA CNEL and the modeled existing traffic noise level at M2 is 71 dBA CNEL. The modelled noise levels at the property boundaries along Gardner Avenue and East Yosemite Avenue are 63 and 66 dBA CNEL, respectively.

3.10.3 Regulatory Setting

Federal Regulations

Federal Transit Administration and Federal Railroad Administration Standards

Although the FTA standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2018) are routinely used for projects proposed by local jurisdictions.

The FTA has published guidelines for assessing the impacts of ground-borne vibration associated with construction; specifically, a damage threshold of 0.2 inch/second peak particle velocity (PPV) applies for vibration that could affect sensitive structures (i.e., historic structures), and 0.5 inch/second PPV applies for vibration affecting contemporary conventional construction.

State Regulations

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards (CCR Title 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multi-family residential buildings (CCR Title 24, Part 2). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a multi-family residential building or structure is proposed to be located in an area with CNEL (or Ldn) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or Ldn) of at least 45 dBA (California's Title 24 Noise Standards, Chap. 2-35).

Local Regulations

City of Merced Vision 2030 General Plan

The following Policies and Implementing Actions from the City's Vision 2030 General Plan, Chapter 10 Noise, are relevant to the assessment of noise effects associated with the proposed project.

Policy N-1.2 Reduce surface vehicle noise.

Implementing Actions

1.2.c New development of noise-sensitive land uses may not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table N-3, unless the project design includes effective mitigation measures to reduce exterior noise and noise level in interior spaces to the levels specified in Table N-3. [General Plan Table N-3 is reproduced below as Table 3.10.5]

1.2.e It is anticipated that roadway improvement projects will be needed to accommodate build-out of the General Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a results of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained Table N-3. Therefore, as an alternative, the following criteria may be used for roadway improvement projects:

- Where existing traffic noise levels are less than 60 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +5 dB Ldn increase in noise levels due to roadway improvement projects should be mitigated to the extent feasible; and,
- Where existing traffic noise levels range between 60 and 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in noise levels due to roadway improvement projects should be mitigated to the extent feasible; and,
- Where existing traffic noise levels are greater than 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +1.5 dB Ldn increase in noise levels due to roadway improvement projects should be mitigated to the extent feasible.

Table 3.10.5
Maximum Allowable Noise Exposure - Transportation Noise Sources

(Table N-3 of General Plan Chapter 10 Noise)

Land Use	Outdoor Activity Areas [1] Ldn/CNEL, dB			Interior Spaces	
	Roadways	***Railroads***	***Aircraft***	***Ldn/CNEL, dB***	***Ldn dB [2]***
Residential	60 / 65 [3]	65 [5]	60 [3]	45	- -
Transient Lodging	65 [4,5]	65 [4,5]	65 [4,5]	45	- -
Hospitals, Nursing Homes	60 [3]	65 [5]	60 [3]	45	- -
Theaters, Auditoriums, Music Halls	- -			- -	35
Churches, Meeting Halls	60 [3]	65 [5]	60 [3]	- -	40
Office Buildings	- -			- -	45
Schools, Libraries, Museums	- -			- -	45
Playgrounds, Neighborhood Parks	70		75	- -	- -

[1] Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.

[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table. For residential uses located adjacent to major roadways such as S.R. 99, S.R. 59, and S.R. 140, the normally acceptable exterior noise level is 65 dB Ldn/CNEL.

[4] In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.

[5] Where it is not possible to reduce noise in outdoor activity areas to 65 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 70 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

The above Implementing Actions will be used in the City development process in order to ensure that noise impacts are mitigated to the greatest extent feasible by incorporating noise abatement into project conditions and mitigation measures.

Policy N-1.3 Reduce equipment noise levels.

Implementing Actions

1.3.a Limit operating hours for noisy construction equipment used in the City of Merced.

Policy N-1.4 Reduce noise levels at the receiver where noise reduction at the source is not possible.

Implementing Actions

1.4.a Require new residential projects to meet acceptable noise level standards as follows:

- A maximum of 45 dB Ldn/CNEL for interior noise level for residential projects.
- A maximum of 65 dB Ldn/CNEL for exterior noise level for residential projects proximate to major road way and railroad corridors. For other arterial, collector and local streets a maximum of 60 dB Ldn/CNEL exterior noise with a maximum of 65 dB Ldn/CNEL when all the best available noise-reduction techniques have been exhausted without achieving 60 dB, and the strict application of such maximum becomes a hindrance to development needed or typical for an area.

Policy N-1.5 Coordinate planning efforts so that noise-sensitive land uses are not located near major noise sources.

Implementing Actions

1.5.a New development of noise-sensitive uses should not be allowed where the noise level due to noise sources will exceed the exterior noise level standards of Table N-1 as measured immediately within the property line or within a designated outdoor activity area (at the discretion of the Director of Development Services) of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table N-1.

1.5.b Noise created by new proposed non-transportation noise sources should be mitigated to the extent feasible so as not to exceed the exterior noise level standards of Table N-1 as measured immediately within the property line of lands designated for noise-sensitive uses.

1.5.c The City of Merced shall also apply an interior maximum nighttime noise level criterion (Lmax) of 50 dB in bedrooms for new residential uses affected by a non-transportation noise sources.

Policy N-1.6 Mitigate all significant noise impacts as a condition of project approval for sensitive land uses.

Implementing Actions

1.6.a Where noise mitigation measures are required to achieve the standards of Table N-1 and N-3, the emphasis of such measures should be placed upon site planning on project design. The use of noise barriers should be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

1.6.b Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table N-3 or the performance standards or Table N-1, an acoustical analysis may be required as part of the environmental review process so that noise mitigation may be included in the project design. [General Plan Table N-1 is reproduced below as Table 3.10.6]

Table 3.10.6
Exterior Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources

(Table N-1 of General Plan Chapter 10 Noise)

Noise Level Descriptor	Daytime (7a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, dB	55	45

City of Merced Code of Ordinances

The City of Merced Code of Ordinances mentions noise in various sections but does not have a full section focused on noise. The references to noise in the Code include discussions of noise from parties, use of landscaping to attenuate noise, and noise from industrial zones. Because the Code does not identify specific noise standards, the impact analysis presented in this section relies on the City of Merced General Plan standards to determine the significance of potential project impacts.

Merced County Code - Chapter 10.60 Noise Control

Although the project proposes to annex the project site to the City of Merced, and thus noise levels within the project site would be subject to the City's noise standards, the properties to the north and east of the project site are located within Merced County. Therefore, noise generated

by the project and experienced at nearby residential properties would be subject to the County Code noise limits. The following text presents the Merced County Code noise level limits as defined in County Code Chapter 10.60 Noise Control.

A. No person shall cause, suffer, allow, or permit the operation of any sound source on private property in such a manner as to create a sound level that results in any of the following, when measured at or within the real property line of the receiving property:

    1. Exceeds the background sound level by at least ten (10) dBA during daytime hours (seven a.m. to ten p.m.) and by at least five dBA during nighttime hours (ten p.m. to seven a.m.). The background sound level for purposes of this section shall be determined as set forth in Section 10.60.060; or

    2. Exceeds sixty-five (65) dBA Ldn on residential real property or seventy (70) dBA Ldn on nonresidential real property; or

    3. Exceeds seventy-five (75) dBA Lmax on residential real property or eighty (80) dBA Lmax on nonresidential real property.

B. The following are exempt from the sound level limits of Section 10.60.030(A):

    1. Noise from emergency signaling devices;

    2. Noise from an exterior burglar alarm of any building provided such burglar alarm shall terminate its operation within five minutes of its activation;

    3. Noise from domestic power tools, lawn mowers, and agricultural equipment when operated between seven a.m. and eight p.m. on weekdays and between eight a.m. and eight p.m. on weekends and legal holidays, provided they generate less than eighty-five (85) dBA at or within any real property line of a residential property;

    4. Sound from church bells and chimes when a part of a religious observance or service;

    5. Noise from construction activity, provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between seven a.m. and six p.m., and all construction equipment shall be properly muffled and maintained.

C. When the source being analyzed is a stereo system with low frequency signals as part of its output, the stereo shall not cause a C-weighted level of ten (10) dB or greater above the C-weighted ambient level at a distance of ten (10) feet from the source, or the complainant's real property line, whichever is greater. (Ord. 1869 § 2, 2009; Ord. 1726 § 1, 2004).

3.10.4 Impacts

Methods of Analysis

The analysis of the existing and future noise environments is based on observations, noise level measurements, published data, and computer modeling. Existing noise levels were monitored in the vicinity of the site using an ANSI Type I sound level meter. Traffic noise modeling involved calculation of existing and future traffic noise levels along roadway sections to which the project would substantially contribute traffic trips (Gardner Avenue and East Yosemite Avenue, as shown in Appendix M), using the FHWA TNM 2.5 modeling software. Vibration from transportation sources was not evaluated in detail because it is not common for vibration from motor vehicles traveling on paved roads to cause disturbance or substantial annoyance.

On-site stationary noise sources, primarily associated with heating, ventilation, and air conditioning (HVAC) equipment was modelled using an excel-based noise prediction model (Dudek noise tool). The Dudek noise tool uses the same International Organization of Standardization 9613-2 sound propagation algorithms and reference data utilized by commercially available software like CadnaA.

Construction noise and vibration levels were determined using equipment noise and vibration reference levels developed by the FTA. For construction noise, a concept called the “acoustic center” is useful in describing average noise levels across the entire construction period for adjacent receivers. The acoustic center is the idealized point from which the energy sum of all construction activity noise within the site would originate, and it is derived by taking the square root of the product of the shortest distance multiplied by the furthest distance.

For construction vibration, this analysis uses the FTA’s vibration impact thresholds for annoyance within residences. In summary, these thresholds are: for damage, in existing and/or planned residential and commercial structures, vibration PPV greater than 0.5 in/sec; for annoyance, 80 VdB at residences and buildings where people normally sleep, for infrequent events.

Items Addressed in the Initial Study

As discussed in the Initial Study (Appendix B), the project site is more than 4 miles from the nearest airport and is not located within any Airport Influence Area or Noise Compatibly Zones. Therefore, implementation of the proposed project would result in a less-than-significant impact related to air traffic noise and this issue is not further evaluated in this EIR.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Result in construction that occurs outside the daytime hours between seven a.m. and six p.m. daily (in accordance with Merced County Code); or
- Result in residential exterior noise levels greater than 55 dBA L_{eq} (daytime – 7 a.m. to 10 p.m.) or 45 dBA L_{eq} (nighttime – 10 p.m. to 7 a.m.) at residences within the City of Merced;
- Result in residential exterior noise levels greater than 65 dBA Ldn or 75 dBA L_{max} at residences within Merced County;
- Result in noise levels within Merced County that exceed background noise levels by at least 10 dBA during daytime hours (7 a.m to 10 p.m) or by at least 5 dBA during nightime hours (10 p.m to 7 a.m.);
- Result in off-site traffic noise increases greater than 3 dBA CNEL which represents a noticeable increase for the average community member;
- Expose existing residences to vibration peak-particle velocities greater than 0.5-inch per second or vibration levels greater than 80 VdB due to project construction and/or operation.

Impacts and Mitigation Measures

Impact 3.10-1: Noise from construction of the project could impact existing noise sensitive uses in the project vicinity, resulting in a *potentially significant* impact.

The Crossings

Construction of the proposed project would generate noise that could expose nearby sensitive receptors to elevated noise levels that may disrupt routine activities. The magnitude of the impact depends on the type of construction activity, construction equipment used, duration of the construction phase, distance between the noise source and receiver, and the presence or absence of intervening structures (which can provide noise attenuation). Noise from construction equipment generally exhibits point source acoustical characteristics. As described in the Exterior Noise Distance Attenuation section above, a point source sound is attenuated (reduced) at a rate of 6 dB per doubling of distance from the source for "hard site" conditions and at 7.5 dB per doubling of distance for "soft site" conditions. These rules apply to the propagation of sound waves

with no obstacles between source and receivers, such as topography (ridges or berms) or structures.

The range of maximum noise levels for various types of construction equipment is depicted in Table 3.10.7. These levels reflect a single piece of equipment operating at maximum power. Actual noise levels from a given piece of equipment usually fluctuate because typical operating cycles for construction equipment often involves two minutes of full power, followed by three or four minutes at lower levels. The noise levels shown in Table 3.10.7 are based on surveys conducted by the United States Environmental Protection Agency in 1971. In the time since 1971, regulations have been adopted to reduce noise generated by certain types of equipment to meet worker noise exposure standards. Also, because of stringent air quality emissions standards, newer, cleaner, and quieter equipment is used on most construction projects in California. Thus, the construction equipment noise levels indicated in Table 3.10.7 represent "worst-case" conditions.

Table 3.10.7
Construction Equipment Noise Emission Levels

Equipment	Typical Maximum Sound Level (dB) at 50 feet from Source
All Other Equipment > 5 HP	85
Auger Drill Rig	84
Backhoe	78
Compressor (air)	78
Concrete Pump Truck	81
Crane	81
Dozer	82
Dump Truck	76
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Generator	81
Generator (<25KVA, VMS signs)	73
Man Lift	75
Pickup Truck	75
Pneumatic Tools	85
Pumps	81
Roller	80

Table 3.10.7
Construction Equipment Noise Emission Levels

Equipment	Typical Maximum Sound Level (dB) at 50 feet from Source
Sand Blasting (Single Nozzle)	96
Scraper	84
Welder / Torch	74

Source: FHWA RCNM 2008

Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on project development information and values generated in the air quality modeling completed using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017). Complete detailed construction assumptions are included in Appendix F. Implementation of the proposed project would include construction of 540-unit apartment village including a 13,700 square foot clubhouse and associated outdoor recreation space. The Crossings also includes five mixed-use buildings consisting of 66,000 square feet of retail space on the ground level and 45,000 square feet of residential space on the second level, totaling 30 additional units (12 apartments and 18 extended stay units), and 1,223 parking spaces.

The types of construction equipment assumed to be used onsite are shown in Table 3.10.8. Because specific information regarding the construction equipment fleet is unknown at the time of this analysis, the analysis is based on the default construction equipment fleet provided by CalEEMod, based on the project information summarized above. As described in Section 3.3 Air Quality, construction is expected to take approximately 27 months in several discrete phases.

Table 3.10.8
Construction Equipment List by Phase

Construction Phase	Equipment	Quantity
Demolition	Concrete Saw	1
	Excavators	3
	Rubber Tired Dozers	2
Site Preparation	Rubber Tired Dozers	3
	Tractors/Backhoes	4

Table 3.10.8
Construction Equipment List by Phase

Construction Phase	Equipment	Quantity
Grading	Excavators	2
	Graders	1
	Rubber Tired Dozers	1
	Scrapers	2
	Tractors/Backhoes	2
Building Construction	Cranes	1
	Forklifts/Gradealls	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating	Air Compressors	3

The nearest point of construction activities to the closest noise-sensitive receivers (residences located to the north within the Remainder Area and offsite to the west and south) would be approximately 75 feet and the furthest would be approximately 1,425 feet. Thus, the distance to the nearest construction activities would be approximately 75 feet, but average construction noise levels at the closest residential receivers would be approximated by the acoustic center (as defined in the Methods of Analysis section above) 325 feet away, because equipment would be operated across the whole site rather than remaining only along the closest boundary to adjacent receivers.

The FHWA RCNM (FHWA 2008) was used to estimate construction noise levels at these noise-sensitive land uses. RCNM is often used for non-roadway projects because the same types of construction equipment used for roadway projects are also used to construct other project types. Input variables for RCNM consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of each hour the equipment typically works per day), and the distance between the construction activity and noise-sensitive receivers. Given the relatively flat project site and limited number of structures adjacent to The Crossings component of the site, no topographical or structural shielding was assumed in the modeling of construction noise (i.e., the receivers are modelled with no obstacles impeding the travel of sound between the construction activity and

receiver location). The noise levels from the proposed construction activities are summarized in Table 3.10.9. The complete set of RCNM input and output data for construction noise is provided in Appendix F.

As shown in Table 3.10.9, noise levels at the nearest receptors would range from approximately 75 to 84 dBA L_{eq} when construction is taking place at or near the project site boundary. More typical construction noise levels (represented by the noise levels based on the distance to the acoustic center) at the closest sensitive receptors would range from approximately 62 to 71 dBA L_{eq}. As the table shows, the highest noise levels are expected to occur during the grading and building construction phases of project implementation.

Table 3.10.9
Outdoor Construction Noise Levels at Exteriors of Nearest Residences and Construction Phase Duration

Construction Phase	Adjacent Residences 75 Feet (dBA L_{eq})	Acoustic Center 325 Feet (dBA L_{eq})	Approximate Duration
Demolition	82	70	1.5 months
Site Prep	81	68	1 month
Grading	84	71	2 months
Building Construction	83	70	20 months
Paving	78	65	1.5 months
Architectural Coating	75	62	Periodic during building construction

Source: RCNM, Appendix F

As shown in Table 3.10.3, the exterior noise levels shown in Table 3.10.9 would be reduced by approximately 25 dBA when windows in nearby residences are closed. Thus, the nearest existing residences would experience maximum interior noise levels ranging between 50 dBA L_{eq} and 59 dBA L_{eq} and average noise levels ranging between 37 dBA L_{eq} and 46 dBA L_{eq} The phase with the highest average noise level is grading, which is estimated to require 2 months to complete. During all other phases, the average interior noise level would be 45 dBA L_{eq} or less. Although these noise levels would not interfere with conversations or other typical residential activities during the daytime, they could result in sleep disruption if construction were to occur during the nighttime. The potential for nighttime construction to result in sleep disruption or interference with relaxation in the evening period, would be a **potentially significant impact**.

Remainder Area

Future development that would be allowed in the Remainder Area after annexation to the City would be anticipated to involve construction activities using a suite of heavy construction equipment that is similar in intensity to The Crossings component. The nearest sensitive receptors to the Remainder Area are the residences west of Gardner Avenue, which are approximately 75 feet from the Remainder Area, and the residences east of Hatch Road, the closest of which is approximately 90 feet from the Remainder Area. Thus, the distance between construction activities and the nearest sensitive receptors would be the same as for the Crossings component, and therefore construction noise levels at sensitive receptors would be similar. The impact would be **potentially significant** due to the potential for nighttime construction to result in sleep disruption or interference.

Mitigation Measures

Implementation of Mitigation Measures 3.10a through 3.10c would reduce construction noise effects on adjacent residents from development of The Crossings component, making the impact to sensitive receptors **less than significant** and implementation of Mitigation Measures 3.10d and 3.10e would reduce construction noise impacts from development of the Remainder Area upon adjacent residents to **less than significant.**

The Crossings

3.10a Noise generating construction activities for the project (including demolition, excavation, and building construction), shall be restricted to the hours between 7 a.m. and 6 p.m. daily unless attenuation measures are implemented to reduce exterior noise levels at the nearest sensitive receptors to a maximum of 65 dBA L_{eq}.

3.10b All construction equipment employing an internal combustion engine shall be equipped with suitable exhaust and intake silencers which are in good working order.

3.10c Stationary construction equipment such as generators or compressors shall be located on-site as far away from adjacent residential property boundaries as is practicable.

Remainder Area

3.10d Prior to approval of any discretionary entitlements for the Remainder Area, the applicant shall submit a site-specific construction noise evaluation that determines the likely maximum and average construction noise levels at the nearest sensitive

receptors and identifies noise attenuation measures where necessary to ensure that exterior noise levels at the nearest sensitive receptor would remain below a maximum of 85 dBA L_{eq} and remain below an average, as measured by determining the acoustic center of the construction area, of 75 dBA L_{eq}.

3.10e Prior to issuance of permits for building demolition, grading, and/or construction for any future project within the Remainder Area, the City of Merced shall ensure that construction plans demonstrate that Mitigation Measures 3.10a, 3.10b, and 3.10c will be implemented throughout all construction activities.

Impact 3.10-2: Operational noise from roof-mounted mechanical equipment within The Crossings component would not result in noise levels at adjacent residential properties that exceed exterior noise exposure limits, however operational equipment noise levels from the Remainder Area cannot be determined and the impact is *potentially significant.*

The Crossings

The primary mechanical equipment for the proposed project that could affect exterior noise levels on adjacent properties is roof-mounted HVAC equipment. Each of the residential structures would include 27 residences. Each residential apartment is expected to have one HVAC unit. Although specific units and their placement has not been determined, and the City of Merced Municipal Code prohibits roof-top HVAC units for multi-family dwellings within a Planned Development zone, Dudek assumed a 3-ton capacity HVAC unit for each apartment (Carrier 036-30) and a total of 27 of these HVAC units mounted on the roof-top of each residential structure to ensure a conservative analysis. For the mixed-use buildings proposed for the western portion of the project site, one 48-ton capacity HVAC unit was assumed for each building (Carrier 48TC-06). Dudek used published sound power ratings for these representative HVAC package units.

Dudek used the project site plan and noise specifications for the HVAC equipment assumed to be installed within the project site to create an Excel-based model of the operational noise levels from the HVAC equipment at the nearest noise sensitive receivers (the Dudek noise tool). The model uses the published sound level for each piece of equipment; standard outdoor distance attenuation rates for point sources and hard-site conditions (most conservative), the distance between each equipment location and the receiver locations, and the logarithmic sum of individual equipment noise levels at each receiver point. The modeling determined the operational noise exposures for the nearest sensitive receptors shown in Table 3.10.10.

Table 3.10.10
Operational Equipment Noise Summary

Receiver Location, Description	Sound Pressure Levels at Receivers (dBA L_{eq})
Residences west of Gardner Avenue	38
Residences south East Yosemite Avenue	41
Closest residences east of the site, across Hatch Road	42

Source: Appendix F

The results in Table 3.10.10 show that the predicted operational noise would be less than the most restrictive City noise level standard of 45 dBA L_{eq} at the nearest noise-sensitive receptors (the nighttime limit between 10:00 p.m. to 7:00 a.m., City of Merced 2012). Calculated operational noise would also be less than the ambient sound levels associated with roadways adjacent to the project site. Additionally, the maximum operational noise level at and adjacent to the project boundary would be 50 dBA (Appendix F). While this analysis focuses on noise exposure for residences within the City of Merced, it also demonstrates that noise levels for residences within Merced County would remain at acceptable levels because the County's maximum acceptable exterior noise levels are 65 dBA L_{dn} and 75 dBA L_{max}, and residences within Merced County are located further from the project site than the nearest residences which are located in the City or within the project site, which is proposed for annexation to the City.

Because operational noise levels would be within the limits prescribed by the City General Plan Noise Element and within the limits prescribed by the Merced County Code of Ordinances, and because operational noise levels would not represent a substantial increase compared to ambient noise levels, operational noise is considered to be a **less-than-significant** impact.

Remainder Area

Portions of the 40.2-acre Remainder Area are currently developed with rural residences, a church, and private school. Under-developed or vacant land within the remainder area currently supports agriculture practices, which often can be a substantial noise source in the community.

The project proposes to pre-zone the Remainder Area with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new development to occur on that portion of the site.

As discussed above, The Crossings component of the project, which includes multi-family residential and commercial development, is not expected to generate noise that would exceed the City's thresholds. The residential development possible within the portion of the Remainder Area proposed to be designated R-1-10 would be less dense than that of The Crossings but would likely require mechanical equipment that is of similar sizes to that assumed for the multi-family apartments portion of The Crossings. Thus future residential development within the Remainder Area would be expected to generate noise levels that are similar to or less than those of The Crossings component and this future development within the Remainder Area would be unlikely to result in noise levels that exceed the adopted standards of either the City or the County. However, depending on the specific details of proposed uses and site layout, in particular the distance between noise sources and nearby sensitive receptors, there is a potential for noise levels to exceed the City's standards, thus this impact is considered **potentially significant.**

Mitigation Measures

The Crossings

No mitigation measures are required.

Remainder Area

3.10f Prior to approval of any discretionary entitlements for the Remainder Area, the applicant shall submit a site-specific operational noise evaluation that determines the likely maximum operational noise levels at the nearest sensitive receptors and identifies noise attenuation measures where necessary to ensure that exterior noise levels at the nearest sensitive receptor would remain below a maximum of 55 dBA L_{eq} during daytime (7 a.m. to 10 p.m.) and 45 dBA L_{eq} during nighttime (10 p.m. to 7 a.m.).

Impact 3.10-3: Project vehicle trip generation from The Crossings project component would not result in off-site roadway noise level increases that impact noise sensitive land uses located along such roadways. Vehicle trip generation from future residential development under the proposed zoning designations for the Remainder Area would be less than the traffic generated by The Crossings component and thus would also not result in off-site roadway noise level increases that impact noise sensitive land uses located along such roadways. The impact is *less than significant.*

The Crossings

Typically, the primary off-site noise-related effect from development of residential and commercial land uses is due to increases in traffic. Project-related traffic noise levels were examined along the roadways to which the project would principally contribute traffic trips and for which DKS provided trip volume calculations (Appendix M), including Gardner Avenue and East Yosemite Avenue.

The FHWA TNM 2.5 noise prediction model was employed to model roadway traffic noise levels for the following scenarios: Existing, Existing Plus Project, Year 2030 (General Plan Build-out), and Year 2030 Plus Project. Inputs for the TNM 2.5 model include the posted vehicle speed, average daily traffic volumes for each scenario, and the estimated vehicle mix (i.e., automobiles, medium and heavy trucks). The model assumed “pavement” propagation conditions, or a hard surface site. Noise levels are indicated at the back of sidewalk for each road segment, which is generally either the location of the closest property boundary for residences along the roadways or is slightly closer to the roadway than the property boundary, and thus provides a conservative assessment of maximum noise exposure for those residences. Noise levels at greater distances from the roadway centerline would be lower due to attenuation provided by increased distance from the noise source. Generally, noise from heavily traveled roadways would experience a decrease of approximately 3 dBA for every doubling of distance from the roadway. The noise model does not take into account the sound-attenuating effect of intervening structures, barriers, vegetation, or topography. Therefore, the noise levels predicted by the model are conservative with respect to potential exterior exposure levels at noise-sensitive uses located along these roadways. Future increases in traffic with and without the proposed project are provided in Table 3.10.11.

Table 3.10.11
Project Related Traffic Noise Levels

Roadway Segment	Existing Conditions			General Plan Buildout		
	Current dBA CNEL	***Plus Project dBA CNEL***	***Change due to project***	***Year 2030 dBA CNEL***	***Plus Project dBA CNEL***	***Change due to project***
West side of Gardner Avenue, north of East Yosemite	65.1	65.3	0.2	68.4	68.5	0.1
East side of Gardner Avenue, south of East Yosemite	62.7	62.8	0.1	66.0	66.0	0.0
North side of East Yosemite Avenue, west of Gardner	66.3	67.1	0.8	65.6	66.1	0.6
South side of East Yosemite Avenue, east of Gardner	63.6	64.3	0.7	68.4	68.9	0.5

Source: Appendix F

Ordinarily dBA values are reported as whole numbers, because the human ear cannot distinguish between noise levels that are less than 1 dBA apart, even in a controlled lab environment. But for the purpose of illustrating the small change in noise levels attributed to project-related traffic, the values in Table 3.10.11 are reported to the tenths level.

Proposed project-related traffic noise increases would be less than 1 dBA in each case for Existing versus Existing Plus Project scenarios, well below the perceptible threshold of 3 dBA for all the evaluated roadways. The proposed project would also increase the roadway noise level by less than 1 dBA in the Year 2030 versus Year 2030 Plus Project scenarios. As such, traffic noise level increases for Year 2030 Plus Project scenario would also remain far below the perceptible threshold of 3 dBA for all the evaluated roadways. Therefore, the proposed project would have a **less than significant** impact upon off-site roadway traffic noise levels.

Remainder Area

Portions of the 40.2-acre Remainder Area are currently developed with rural residences, a church, and a private school. These uses contribute to local traffic and associated existing traffic noise

levels. The project proposes to pre-zone the Remainder Area with approximately 19.4 acres of Urban Transition (U-T) and approximately 20.8 acres of Low Density Residential (R-1-10). No new development within the Remainder Area is proposed at this time, however the portion of the Remainder Area that is proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. This would likely increase the traffic generation and associated traffic noise levels from this portion of the Remainder Area. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved, and thus the proposed project would not result in the potential for new development to occur on that portion of the site.

As discussed above, The Crossings component of the project includes 570 dwelling and extended stay units as well as commercial uses. The portion of the Remainder Area proposed to be designated R-1-10 could support approximately 90 dwelling units and thus would generate substantially less traffic than The Crossings component. Thus, the contribution of future residential development within the Remainder Area to traffic noise levels would be less than that of The Crossings and this impact is considered **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.10-4: Vibration from construction of the project would not exceed applicable thresholds and thus would not adversely affect vibration sensitive uses (residences) in the project vicinity. The impact is *less than significant*.

The Crossings

Ground-borne vibration could be produced by heavy duty construction equipment used during demolition, land clearing, and construction activities for the proposed project . The most important equipment relative to generation of vibration, and the vibration levels produced by such equipment, is illustrated in Table 3.10.12.

Table 3.10.12
Vibration Velocities for Typical Construction Equipment

Equipment	PPV at 25 Feet (Inches Per Second)	Approximate Ground Vibration Level 25 feet (VdB)
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86

Table 3.10.12
Vibration Velocities for Typical Construction Equipment

Equipment	PPV at 25 Feet (Inches Per Second)	Approximate Ground Vibration Level 25 feet (VdB)
Drill Rig / Auger	0.089	58
Jackhammer	0.035	87
Small Bulldozer	0.003	79

Source: FTA 2018

As shown in Table 3.10-12, use of heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.089 in/sec PPV at a distance of 25 feet. The nearest residential structures to the project site would be approximately 75 feet from the most substantial and periodic heavy equipment activity and could experience vibration levels of 0.02 in/sec PPV. Vibration levels at these receptors would not exceed the FTA building damage threshold of 0.5 in/sec PPV. A large bulldozer has a vibration level of 87 VdB measured at 25 feet, at the nearest residences (75 feet) this level would be attenuated to approximately 74 VdB, which is less than the FTA threshold of 80 VdB. As such, construction-related vibration associated with the proposed project would result in a **less-than-significant** impact.

Remainder Area

As noted above, no new development other than agricultural activities would be permitted on the portion of the Remainder Area proposed to be zoned U-T while the portion proposed to be zoned R-1-10 could support development of single-family residences. The demolition and construction activities associated with development of single-family residences would be similar to the activities associated with construction of The Crossings component of the project and thus would generate similar levels of vibration. Further, the distance between sensitive receptors and the Remainder Area is the same or larger than the distance between sensitive receptors and The Crossings component. Thus, construction-related vibration associated with future residential development in the Remainder Area would not exceed the FTA building damage threshold and the impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.10-5: Long-term project operations could result in vibration impacts to vicinity residences. Based on the analysis below, the impact is *less than significant*.

The Crossings

The proposed project would not include significant stationary sources of ground-borne vibration, such as industrial equipment, manufacturing operations, or heavy equipment use. Operational ground-borne vibration on-site and in the project vicinity would be generated by vehicular traffic. Project-related off-site traffic-related vibration levels would not be perceptible at sensitive receptors. Heavy-duty vehicles do not typically generate perceptible vibration because of rubber tires and suspension systems (FTA 2006). Most issues associated with heavy-duty vehicle vibration are related to a potholes, bumps, expansion joints, or other discontinuities in the roadway surface. Assuming that on-site paving and the surrounding local roadways are maintained in adequate condition, vibration levels associated with heavy-duty truck deliveries to the project would not be perceptible at sensitive receptors. Thus, project-related operational vibration would result in a **less-than-significant** impact.

Remainder Area

The approximately 22 acres of the Remainder Area located in the eastern portion of the project site are developed with a church, private school, and three rural residential properties. As noted above, no new development other than agricultural activities would be permitted on the portion of the Remainder Area proposed to be zoned U-T while the portion proposed to be zoned R-1-10 could support development of single-family residences. Agriculture is already a permitted use within the Remainder Area thus the project would not increase the potential for agricultural activities requiring the use of heavy-duty trucks or equipment to occur onsite. Potential future development of single-family residential uses within the portion of the Remainder Area proposed to be zoned R-1-10 would also not involve the long-term use of heavy-duty trucks or equipment. Thus, project-related operational vibration would result in a **less-than-significant** impact.

Mitigation Measures

No mitigation measures are required.

3.10.5 Cumulative Impacts

Impact 3.10-6: The proposed project could contribute to cumulative changes in ambient community noise levels in the area but would not create a cumulatively considerable increase in noise levels. The impact is *less than significant*.

The geographic region for consideration of cumulative noise impacts is the area within 2 miles of the project site (which is the approximate distance between the project site and University of California, Merced (UC Merced). This distance was chosen based on several factors, including:

- the expectation that approximately 35% of residential traffic generated by the project would travel to and from UC Merced,
- the proposed project would not contribute substantial traffic volumes to roadways located more than 1.5 miles from the project site (Appendix M),
- noise levels attenuate as the distance from a noise source increases, and
- the onsite operational noise sources would generate noise levels of 50 dB or less at the property boundaries and thus would not contribute to excessive community noise levels beyond the project site.

The land development scenario for consideration of cumulative noise impacts is buildout of the City of Merced General Plan. Properties to the south and west of the project site are currently developed and no major redevelopment projects are reasonably foreseeable in those areas. A single-family residential subdivision and an apartment complex are currently under construction to the southeast of the site, along East Yosemite Avenue, between Perch Lane and Lake Road. These projects are expected to increase traffic volumes on East Yosemite Avenue and other area roadways, as reflected in the Year 2030 analysis included in the project's Traffic Impact Study (Appendix M) and reflected in the Year 2030 noise analysis presented in Impact 3.10-3 above.

Properties to the north and east of the project site are located within the City's Sphere of Influence and currently designated Rural Residential in the General Plan Land Use Diagram (City of Merced 2015). There are no reasonably foreseeable development projects for any of the properties north and east of the project site.

The City of Merced is currently engaged in a planning and feasibility study evaluating possible annexation of an approximately 7,600-acre area north of the City and the project site. This effort is known as the North Merced Annexation Feasibility Study. The study includes the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation project site and extends to include UC Merced as well as lands north of Old Lake Road and west of Hillcrest Road (City of Merced 2020). The City has received applications for three other annexation and development projects within

the North Merced Annexation Feasibility Study area; these applications are all for properties located 2.5 miles or more from the project site and thus they are beyond the geographic range for consideration of cumulative noise impacts.

The General Plan EIR found that buildout of the General Plan would result in significant and unavoidable impacts due to increased traffic noise on several roadway segments. This includes noise levels on East Yosemite Avenue from Gardner Avenue east to the planned extension of Campus Parkway and Gardner Avenue from East Yosemite Avenue north to Cardella Road. However, as shown in Table 3.10.11, the proposed project would contribute less than 1 dBA to the noise levels associated with these roadways. Because an increase of less than 1 dBA cannot be distinguished by the human ear, the project's contribution to noise levels on these roadways would be less than cumulatively considerable and the project impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.10.6 References Cited

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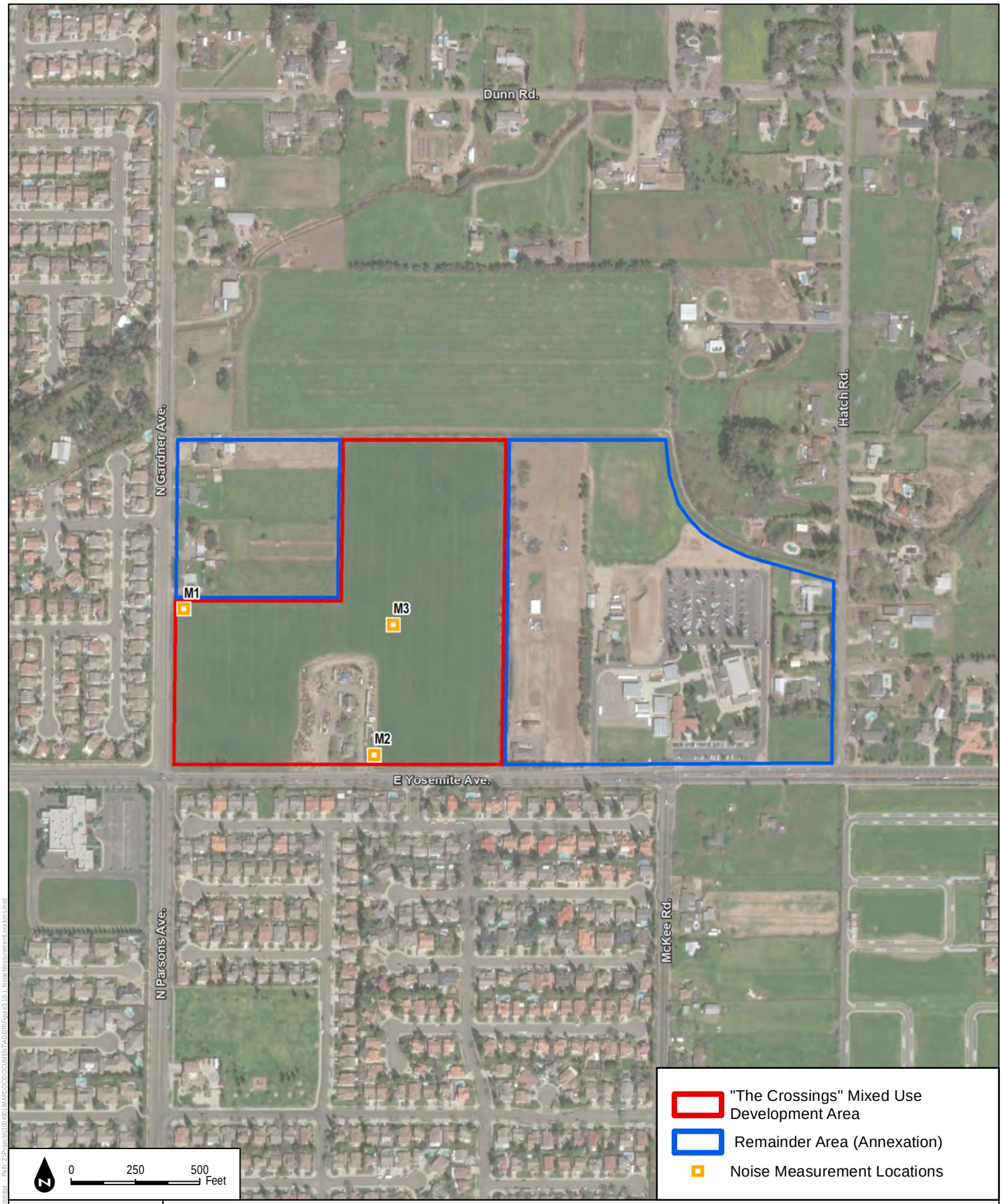
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SOURCE: Bing Maps 2019, County of Merced 2014

FIGURE 3.10-1

Noise Measurement Locations

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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3.11 Public Services and Utilities

3.11.1 Introduction

This section describes the regulatory setting and environmental setting for public services (fire and police protection, schools, and libraries) and public utilities (water, wastewater, stormwater, and solid waste), and analyzes potential impacts that could result from implementation of the proposed project.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. Six comment letters were received in response to the NOP that addressed public utilities. A number of comments received addressed infrastructure needs such as water and sewer line capacity. One such comment letter was received from the Merced County Local Agency Formation Commission (LAFCO) requesting more information regarding the City's long-term plans for extension of public services into the Rural Residential Center located north of the project site, including planned trunk line capacity for annexation for sewer, water and stormwater facilities, and whether a water supply assessment (WSA) would be required for the project. Additionally, the Merced Irrigation District (MID) requested that the City adopt conditions of approval requiring the Yosemite Lateral canal be placed in an underground pipeline and that the project enter into a Subdivision Drainage Agreement if the Yosemite Lateral would be the recipient of the project's storm drainage. The project's potential effects related to stormwater runoff are addressed in Section 3.8, Hydrology and Water Quality. Both NOPs and the comment letters received in response to them are provided in Appendix A.

References used to prepare this section include the City of Merced General Plan (City of Merced 2012), City of Merced Water Master Plan (City of Merced 2014), City of Merced Wastewater Collection System Master Plan (City of Merced 2017) personal communication with City staff, the City of Merced Public Facilities Financing Plan (Merced 2012), the WSA prepared for the proposed project (Quad Knopf 2020, Appendix L), the project's Storm Drainage Report (Quad Knopf 2018), and information from CalRecycle, the U.S. Environmental Protection Agency (U.S. EPA), and the U.S. Census Bureau.

3.11.2 Environmental Setting

The project site is located within the City's Sphere of Influence and is designated Rural Residential in the City's Merced Vision 2030 General Plan. The project site consists of approximately 68.6

acres. The project proposes to construct a multi-family residential and mixed-use development called The Crossings on approximately 28.4 acres in the western portion of the project site. This area excludes approximately 9.4 acres in the northwestern corner of the site and 30.8 acres in the eastern portion of the site that are proposed to be annexed to the City, but no development is currently proposed. Those areas are referred to throughout this EIR as the Remainder Area. The project proposes to change the General Plan land use designations for The Crossings component of the site from Rural Residential (RR) to Neighborhood Commercial (CN) and High-Medium Density Residential (HMD) and proposes to change the land use designation for the eastern portion of the Remainder Area to Low Density Residential. The approximately 9.4 acres in the northwest corner of the site are currently designated RR. No change to this designation is proposed and this area is proposed to be pre-zoned as Urban-Transition (U-T). The 10 acres in the center of the site, immediately east of The Crossings component of the project, are also proposed to be pre-zoned as U-T while the easternmost approximately 20.8 acres of the site proposed are to be pre-zoned as R-1-10. The portions of the Remainder Area proposed to be pre-zoned U-T would support only continued operation of the existing land uses and new agricultural uses; the portions of the Remainder Area proposed to be pre-zoned R-1-10 would allow development of single-family residences on minimum 10,000-square-foot lots. As discussed below, most of the public services and utility services at the project site are provided through Merced County. With the proposed annexation of the site to the City, most public and utility services would then be provided to the site through the City.

Water Supply

The City's sole source of water supply is groundwater. The City's system consists of 22 active groundwater wells, and 340 miles of distribution pipeline, as well as other related equipment, such as hydrants, meters, valves, fluoridation and chlorination systems, pumps, motors, , supplying approximately seven billion gallons of water annually (City of Merced 2016).

The City's water system has historically expanded to keep pace with population growth. Water production increased by approximately 2 percent per year, from approximately 16,500 acre-feet per year (AFY) in 1990 to 25,899 AFY in 2012, consistent with the 2 percent annual population growth rate over the same period (City of Merced 2014). The service area population (which includes UC Merced) is projected to grow by approximately 94 percent from 87,575 people in 2012 to 169,585 people by 2030, as shown in Table 3.11-1 below. This represents an average growth rate of approximately 3.7 percent per year, (City of Merced 2015). Additionally, in 2012, the average water usage was 23.4 million gallons per day (mgd).The City's projected 2030 population and associated water use is shown in Table 3.11-1.

Table 3.11-1
Water Use Projections by Year

	2012	2030
Population	87,575	169,585
Projected Annual Demand (AFY)	23,661	44,596
Average Day (mgd)	23.4	40.3
Neighborhood Commercial District (AFY)	1.8	1.7
Village Residential (AFY)	0.5	0.5

Source: City of Merced 2015

Water Infrastructure

In the project area, two 16-inch water mains run along East Yosemite Avenue and Gardner Avenue. The 16-inch water main on East Yosemite Avenue is approximately 20 feet south of the centerline and is looped with a 12-inch line going south on Parsons Avenue, a 16-inch line going south on McKee Road, and a 12-inch line going north on Paulson Road. The 16-inch main on Gardner Avenue is approximately 8 feet east of centerline and is looped with a 12-inch line going west on Dunn Road (connecting with the 12-inch line on Paulson Road). On the project site, water is currently supplied by an onsite well (Nelson Enviro 2016).

Wastewater

Wastewater collection and treatment for the Merced area is provided by the City of Merced. Wastewater sources in the City of Merced include residential customers, commercial users, industrial users and public uses (such as City administrative offices and public service facilities, libraries, parks, schools and airports). A majority of the wastewater generated within the service area originates from residential customers.

The wastewater collection and conveyance system is subject to infiltration and inflow (I/I) of stormwater and groundwater which enters the collection system through different mechanisms. Infiltration enters the collection system from subsurface sources such as defective pipes, pipe joints, connections or leaky manholes. Infiltration can occur during periods of wet weather when soil becomes saturated and shallow groundwater becomes elevated or during dry weather if local conditions are such that groundwater is sufficiently high. Inflow is a term used to describe non-wastewater sources which are more direct connections, such as leaky manhole lids that allow storm runoff to enter the collection system.

City Wastewater Treatment Plant

The City Wastewater Treatment Plant (WWTP) is located southwest of the City, about two miles south of the airport. It is periodically expanded and upgraded to meet the needs of the City's growing population and new industry (City of Merced 2012). The project site would be served by the City's wastewater infrastructure if the project is approved and the site is annexed into the City. The WWTP currently provides secondary level treatment and disinfection of wastewater and most of its treated effluent is discharged to Hartley Slough.

The City WWTP has a design capacity of 12 mgd and in 2017 the average dry weather flows were 8 mgd (City of Merced 2017). The WWTP is planned to be expanded to treat 20 mgd by buildout in 2024, which is sufficient to meet the demands from development of the City's Specific Urban Development Plan (SUDP) area and UC Merced campus planned wastewater loads that would be generated at that time (City of Merced 2017). The design capacity of 20 mgd could support a population of 150,000 (City of Merced 2012). The capacity improvements would be installed in phases corresponding to continued population growth and development in the Merced SUDP area and the UC Merced campus (City of Merced 2006). The City WWTP is permitted under National Pollution Discharge Elimination System (NPDES) permit No. CA0079219 [California Regional Water Quality Control Board (RWQCB) 2014].

Wastewater Infrastructure

Wastewater generated within the City is collected in a series of pipelines which the City owns, operates, and maintains. The system includes over 400 miles of gravity sewers ranging in size from 6 to 48 inches in diameter.

The existing City sewer trunk system consists of three primary branches, which convey flows from three distinct sewer sub-sheds. These include:

1. The 48-inch trunk sewer "Interceptor." The Interceptor dates from the 1980s and replaced a pump station and portions of the West Avenue Trunk. The Interceptor conveys flow from the northern portion of the City's system.
2. The West Avenue Trunk serving the southwestern portion of the City.
3. The Gerard Trunk serving the southern portion of the City system, east of the West Avenue Trunk sewer shed. The Gerard Trunk intersects with the West Avenue Trunk and continues as a 42-inch gravity trunk to the City's WWTP.

Near the proposed project, an existing 18-inch gravity sewer line in East Yosemite Avenue (20 feet north of centerline) flows west from Gardner Avenue to G Street. On the project site, sewage

is currently handled with onsite septic systems (Nelson Enviro 2016). The Crossings portion of the project site is primarily agricultural land with only a small area along East Yosemite Avenue that contains four buildings currently served by an existing septic system. The existing development within the Remainder Area, which includes a church, a private school, nine single-family residences, and agricultural land, is also served by individual septic systems.

The existing North Merced sewer system has two primary locations of Level of Service failures (City of Merced 2017):

- 1,042 feet of 21-inch diameter sewer along West Olive Avenue from R Street to Meadows Avenue. The sewer is predicted to have minor surcharge (<0.1 feet).
- 1,900 feet of 24-inch diameter sewer and 400 feet of 21-inch diameter sewer along Highway 59, from West Olive Avenue (discharge of the Highway 59 Pump Station) to approximately 600 feet north of Holiday Mobile Estates.

Current peak wet weather flows in the system are approximately 23.4 mgd. In recent years, peak flows into the WWTP have been measured around 14 mgd while average dry weather flows are around 8 mgd (City of Merced 2017).

The Wastewater Collection System Master Plan identifies capacity under an Interim Conditions scenario, which assesses impacts to existing sewers from full buildout of areas that are considered likely to develop prior to construction of new trunk sewers. The interim condition includes properties entitled to develop, largely within the North Merced area. These areas are defined by the North Merced Sewer Assessment District (NMSAD) and properties identified by the City on the Tentative Subdivision Activity Map (TSAM) as of July 2017, as well as full build-out of the UC Merced campus as envisioned in the UC Merced and University Community Project EIS/EIR (UC Merced 2009). Under this scenario, segments of the Yosemite Avenue trunk are predicted be at or over capacity when the projects entitled to connect to that facility are built. Similarly, portions of the G Street trunk north of Black Rascal Creek and the 42-inch Interceptor along Devonwood Drive and Austin Avenue are predicted to be at or over capacity. These segments would serve the proposed project. Additionally, the portion of the Highway 59 trunk downstream of the pump station located north of Fehren's Creek is predicted to be over capacity along the entire length of the alignment southward to the intersection with the 42-inch Interceptor. (City of Merced 2017)

The City has selected a preferred approach to upgrading the City's sewer infrastructure to serve the entire SUDP at current build-out flow estimates. Servicing the North Merced area would occur via a large new trunk starting in the vicinity of the intersection of Cardella Road and Lake Road, north of the project site, running east to west along Cardella Road, then south along Thornton

Road to a pump station just north of Black Rascal Creek. A force main discharging from the new pump station north of Sante Fe Drive would extend to just south of State Route 140, then transition to a new 60-inch gravity trunk from that point south to the WWTP. Additionally, flow from the existing Highway 59 Pump Station would be diverted to the new pump station along Thornton Road. South Merced would be serviced via a new trunk running east to west along East Mission Avenue which would intersect with a new trunk sewer running north to south west of Highway 59. This trunk would then turn west on Reilly Road and continue westward to the WWTP (City of Merced 2017).

Schools

The public school system in Merced is served by four districts: Merced City School District (elementary and middle schools), Merced Union High School District, Weaver Union School District (serving a small area in the southeastern part of the city with elementary schools), and McSwain Union Elementary School District (serving a small area in the southwestern portion of the Area of Interest). The Merced City School District (MCSD) and Merced Union High School District (MUHSD) would serve the project site. Public school districts operate independently from the City and are supported by their own funding and development fees (City of Merced 2012).

The City of Merced General Plan states that as the city grows, new schools will need to be built to serve its growing population. To accommodate such growth, the school districts periodically prepare development fee justification studies which show student generation rates for various types of development (City of Merced 2012). Both MCSD and MUHSD adopted Development Fee Justification Studies in May 2020. Because the school districts are not unified (meaning that elementary and middle schools are in one district and high schools are in a separate district), the development fees must be split between the two districts. The MCSD Development Fee Justification Study identifies that MCSD would receive two-thirds of the Level 1 fees ($2.72 per square foot for residential development and $0.44 for commercial/industrial development) and the MUHSD would receive one-third of the fees ($1.36 per square foot for residential development and $0.22 for commercial/industrial development) (MCSD 2020). The study also notes that the increasing pace of new residential construction observed between 2015 and 2019, in which an average of 96 single-family dwelling units and 19 multi-family dwelling units were constructed each year, “reflects a new housing market recovery in the Merced area after the significant financial impacts of the housing market collapse that began in 2008. Much of the housing market recovery appears to be related to the ongoing expansion of the UC Merced campus and the related need for housing for staff and students.”

The MCSD operates 14 elementary schools and four middle schools. The closest schools to the project site are Peterson Elementary, Chenoweth Elementary, and Cruickshank Middle (all less

than a mile from the project site). According to the MCSD My School Locator (MCSD 2021), Ada Givens Elementary School, which is located approximately 1.9 miles away from the proposed project site, would principally serve the kindergarten through sixth grade students living at the project site, while Cruikshank Middle School would serve the seventh and eighth grade students living at the project site. Enrollment for the 2019-2020 school year at Ada Givens Elementary School was 607 students (Ed-Data 2020), which is less than the school's maximum capacity of 672 students as identified in the MCSD 2014 Long Range Facilities Master Plan. For the 2019-2020 school year, Cruickshank Middle School had an enrollment of 597 students.

The MUHSD operates nine high schools. The closest schools to the project site are Merced High (1.5 miles from the project site) and El Capitan High (approximately 2.5 miles from the project site). According to the MUHSD School Locator, El Capitan High would serve the high school students living at the project site (MUHSD 2021). In the 2019-2020 school year El Capitan High had an enrollment of 1,702 students. The MUHSD Development Fee Justification Study (MUHSD 2020) states that El Capitan High School can accommodate 2,158 students.

Fire Protection and Emergency Medical Services

The project site currently lies within the Merced County Fire District. The nearest station is the Franklin/Beachwood/McSwain Fire Station 61, located approximately 6 miles from the project site.

The proposed project requests that the project site be annexed to the City, which would bring the site into the service area of the City of Merced Fire Department (MFD). Fire Station 55 is the closest fire station to the project site. It is located at 3520 N. Parsons Avenue, less than one mile from the project site. The City of Merced Fire Department staff consists of 63 public safety members and 3 support personnel. The operations personnel are divided between three shifts/platoons consisting of 19 personnel staffing five engines and one truck company, responding to emergency calls from five strategically located fire stations within the City, 24 hours per day. In 2020, the department responded to 11,230 calls. In 2013 and 2014, the department responded to an average of 17 calls per day, with an average response time of approximately 5 minutes (City of Merced 2021).

Law Enforcement

The Merced County Sheriff's Department provides general law enforcement services to the project area and project site. The nearest station, the Merced Main Station, is located at 700 West 22nd Street, approximately 2.5 miles from the project site.

With proposed annexation to the City of Merced, the proposed project would be served by the City of Merced Police Department. The closest station is located at 611 West 22nd Street, slightly

more than 2 miles from the project site. A south station, located at 470 West 11th Street, also serves the community. The service standard used for planning future police facilities is approximately 1.32 sworn officers per 1,000 population. In 2017, the City employed 87 sworn officers (Eber 2017) for a population estimated in 2015 of 82,436 (US Census 2017). Therefore, the department does not currently meet its service standard goal. The Merced Vision 2030 General Plan Policy P-S6.2 requires the police force to be sufficiently staffed to ensure quick response times to emergency calls (City of Merced 2012).

Library Services

The Merced County Library System provides library service to the region and operates 12 branches throughout the county. The Merced main branch is located at 2100 O St, about 2.5 miles from the project site. The Merced main branch is 44,050 square feet and in 2015, served the city's population of 82,436 (Merced County Library System 2014).

Parks and Recreation Facilities

The City owns and operates 24 parks on 328.6 acres (3 Community Parks, 7 Neighborhood Parks, 10 Mini Parks, 4 Linear parks, and 5 other sites). The City uses a ratio of 5 acres per 1,000 population to ensure there is sufficient parkland to meet the needs of City residents (City of Merced 2012).

Solid Waste

The City of Merced Department of Public Works provides trash and recycling services to properties within city limits. City waste goes to the Highway 59 Landfill; this site also serves most of eastern Merced County. Solid waste in other areas of the County is disposed of at the Billy Wright Landfill in Los Banos. Both of these regional landfills are owned and operated by the Merced County Regional Waste Management Authority (MCRWMA). The MCRWMA is a joint-powers authority comprised of the Cities of Atwater, Dos Palos, Gustine, Livingston, Los Banos and Merced, and the County of Merced. Additionally, recyclable material can be dropped off at the Billy Wright Landfill and Highway 59 Landfill, as well as the Gustine and Livingston Drop Off facilities (MercedRecycles 2015).

The Highway 59 Landfill (Solid Waste Facilities Permit 24-AA-0001) has a permitted daily capacity of 2,200 tons between 2020 and 2024; this will increase to 2,450 tons per day (tpd) in 2025, 2,700 tpd in 2030, and 3,000 tpd in 2035 (Merced County 2019). However, the actual amount of solid waste received daily has been much lower. Between January 2016 and March 2017, the Highway 59 Landfill received approximately 850 tpd, which corresponds to approximately 302,600 tons

annually. The average daily inflow expected between 2019 and 2024 was estimated to be approximately 1,020 tpd, which corresponds to 363,191 tons per year (MCRWMA 2019).

An EIR (SCH# 2014061081) for a project to modify the Highway 59 Landfill was certified on May 20, 2016. The project would extend the operational life of the landfill to sometime between 2076 and 2080 and would increase the permitted design capacity by 6,857,000 cubic yards. The EIR states that a discrepancy in the design capacity for the landfill incorrectly stated the total capacity as 30,012,352 cubic yards, with a closure date of 2030. The EIR states the actual existing capacity is 36,358,000 cubic yards, with an estimated closure date of 2065 (MCRWMA 2015), whereas the Solid Waste Facility Permit issued by Merced County in 2019 states the existing capacity is 30,012,352 cubic yards with a closure date of 2055.

In 2019, the statewide average disposal rate was 6.7 PPD per capita with a total of approximately 42.2 million tons of solid waste landfilled (CalRecycle 2021a), while the average disposal rate in the Merced County Solid Waste Regional Agency area between 2016 and 2019 was 5.4 PPD per capita (CalRecycle 2021b, CalRecycle 2021c). Further, CalRecycle estimates that 28.9 million tons of material were recycled (through source reduction, recycling, and composting) in 2019, resulting in a statewide recycling rate of 37 percent (CalRecycle 2021a).

3.11.3 Regulatory Setting

Federal Regulations

Wastewater

National Pollution Discharge Elimination System Permit

Discharge of treated wastewater to surface water(s) of the United States, including wetlands, require a NDPES permit. In California, the RWQCB administers the issuance of these federal permits. Detailed information is required to obtain a NDPES permit, including characterization of wastewater sources, treatment and processes, and effluent quality. Whether or not a permit may be issued and the condition of a permit are subject to many factors such as basin plan water quality objectives, impaired water body status of the receiving water, historical flow rates of the receiving water, effluent quality and flow, the air quality State Implementation Plan (SIP), the California Toxics Rule, and established total maximum daily loading rates for various pollutants.

Clean Water Act

The Clean Water Act (CWA; 33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987, is the major legislation governing water quality. The main objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level this includes the EPA, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the major federal land management agencies such as the U.S. Forest Service and the Bureau of Land Management. At the state level, with the exception of tribal lands, the California EPA and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Water Supply

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) is the main federal law that regulates the quality of potable water for the public. The SDWA authorizes the U.S. Environmental Protection Agency (EPA) to establish national health-based standards for drinking water quality. These standards may apply to naturally occurring and human-caused constituents in drinking water. The national standards are established using scientific methods to evaluate health risks and consider available technology and costs to achieve the standards. The National Primary Drinking Water Regulations establish maximum contaminant levels or mandated methods for water treatment to remove contaminants, and requirements for regular water quality testing to make sure standards are achieved. In addition to setting these standards, the EPA provides guidance, assistance, and public information about drinking water, collects drinking water data, and oversees state drinking water programs. States can apply to the EPA for authority to implement SDWA within their jurisdictions by showing that they will adopt standards at least as stringent as the national standards and adequately enforce these standards. California has been granted this authority, and the California Department of Public Health establishes and enforces statewide drinking water standards.

The SDWA was passed by Congress in 1974 and amended in 1986 and 1996. The original focus of the law was on treatment of water supplies as a means of providing safe drinking water. However, the 1996 amendments expanded the focus to recognize protection of water quality at the source. Under this expanded focus, SDWA requires many actions to protect rivers, lakes, reservoirs, springs, and ground water wells that provide sources of drinking water supplies. The 1996 amendments also recognized operator training, funding for water system improvements, and public information as important components of safe drinking water.

State Regulations

Water Supply

California Safe Drinking Water Act

The California Department of Public Health administers the state's SDWA through the Drinking Water Program. This program implements the regulatory authority of the Department of Public Health over public water systems in the state. Public water system operators are required to regularly monitor their drinking water sources and supplies for microbiological, chemical, and radiological contaminants to demonstrate that the water meets the regulatory requirements regarding primary maximum contaminant levels (MCLs) listed in Title 22 of the California Code of Regulations. MCLs have been established for ±80 specific inorganic and organic contaminants and six radiological contaminants. Monitoring is also required for a number of other contaminants and characteristics that deal with the aesthetic properties of drinking water, such as taste, odor, and appearance. These are known as secondary MCLs.

Department of Public Health staff at three Field Operations Branches perform field inspections; issue operating permits; review plans and specifications for new facilities; take enforcement actions for non-compliance with laws and regulations; review water quality monitoring results; and support and promote water system security. The Drinking Water Program also works toward funding infrastructure improvements, conducting source water assessments, and evaluating projects using recycled treated wastewater. The Drinking Water Program is implemented by the Department of Public Health in cooperation with the EPA, the State Water Resources Control Board, RWQCBs, and other state and local agencies, including county health departments, planning departments, and boards of supervisors.

Urban Water Management Planning Act

California Water Code Section 10610 et seq. requires that all public water systems that provide water to more than 3,000 customers or supply more than 3,000 AFY must prepare an Urban Water Management Plan. The California Department of Water Resources provides guidance to urban water suppliers in the preparation and implementation of Urban Water Management Plans. These plans must be updated at least every 5 years. The current Merced Urban Water Management Plan was adopted in 2017; it is discussed in the Local Regulations section.

Senate Bill 610 – Water Supply Assessments

Senate Bill (SB) 610, adopted in 2001, requires analysis of water supplies for projects that meet certain size requirements. For residential projects, the requirements of SB 610 apply to projects consisting of 500 or more new residences.

Model Water Efficient Landscape Ordinance

New development and retrofitted landscape water efficiency standards are governed by the Model Water Efficient Landscape Ordinance (MWELO). In 2015, as required by Executive Order B-29-15 (EO), the California Department of Water Resources (DWR) revised the 2010 MWELO to increase water efficiency standards for new and retrofitted landscapes through encouraging the use of more efficient irrigation systems, graywater usage, and onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. The current 2015 MWELO was developed in accordance with affected agencies, interested groups, and the public to improve landscape irrigation water savings in accordance with the EO. All agencies must adopt, implement, and enforce the MWELO or a more stringent ordinance.

Wastewater

General Waste Discharge Requirements for Sanitary Sewer Systems

The General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems were adopted by the SWRCB in May 2006. These WDRs require local jurisdictions to develop a sewer system management plan (SSMP) that addresses the necessary operation and emergency response plans to reduce sanitary sewer overflows. The WDRs require that the local jurisdiction approve the SSMP; the City of Merced SSMP was prepared in 2014 (City of Merced 2014). The City also prepared a Wastewater Collection System Master Plan in 2017 (City of Merced 2017).

Waste Discharge requirements included in NPDES permits issued by the Central Valley RWQCB are based on the following guidance documents:

- Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan)
- California Toxics Rule
- Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan)
- California Safe Drinking Water Act Title 22 requirements
- Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan)

Schools

California Education Code – Section 17620 and Senate Bill 50

The California Senate Bill 50 (SB 50), the School Facilities Act of 1998, and the bond procedures under Proposition 1A of 1998 amended Education Code Section 17620 to regulate school facilities financing and the mitigation of land use through the implementation of fee caps, the removal of development application denial authority from lead agencies, and setting the California Environmental Quality Act standard for full and complete mitigation for school facilities. Prior to enactment of the legislation, a local agency had the authority to deny or require full mitigation for projects that required an amendment to a General Plan and/or a zone change. State law now prohibits a local agency from either denying approval of a land use project because of inadequate school facilities, or imposing school impact mitigation measures other than the designated fees provided for in the Government Code. Effective January 2006, if a statewide bond measure fails, SB 50 would again permit a City or County to deny a development approval that requires a legislative act on the basis of the inadequacy of school facilities.

As amended by SB 50, Education Code Section 17620 authorizes school districts to levy a fee against new development within the district to fund the construction, reconstruction, or modernization of school facilities. The district must demonstrate that the need for school construction or reconstruction results from development and that the fee does not exceed the cost of construction or reconstruction necessary to meet this need.

California Education Code – Sections 35500 and 35700

School district reorganizations are governed by Sections 35500 and 35700 of the California Education Code. District boundary reorganization may be initiated by “petition” by a developer or group of citizens, as well as by the majority of a school district governing body. A developer may initiate proceedings for a reorganization of a school district boundary for an uninhabited area. The more common form of school district boundary reorganization is through a petition of a majority vote of the governing body of one or more school districts that have jurisdiction in the area proposed to be reorganized.

Parks

Quimby Act

In 1975, the Quimby Act (California Government Code Section 66477, as amended in 1982) granted cities and counties authority to pass ordinances requiring developers to set aside land, donate conservation easements, or pay fees for park improvements through in-lieu fees. The goal

of the Quimby Act was to require developers to help mitigate the impacts of their developments. Special districts must work with cities, and/or counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services to the affected community. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities.

Fire Protection

California Code of Regulations

Effective January 1, 2005, California Government Code Section 51182 and Public Resources Code Section 4291 were modified with respect to fire risk reduction measures required to be enforced by local agencies and CAL FIRE for occupied dwellings or structures. These measures require the following:

- Maintaining a fire break made by removing and clearing away, for a distance of not less than 100 feet on each side of a dwelling or structure, or to the property line whichever is nearer, all flammable vegetation or other combustible growth. This does not apply to single specimen trees, ornamental shrubbery, or similar plants that are used as ground cover, if they do not form a means of rapidly transmitting fire from the native growth to any dwelling or structure.
- Maintaining additional fire protection or firebreaks made by removing all brush, flammable vegetation, or combustible growth that is located within 100 feet from an occupied dwelling or occupied structure or to the property line, or at a greater distance if required by State law, or local ordinance, rule, or regulation. Grass and other vegetation located more than 100 feet from a dwelling or structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.
- Removal of that portion of any tree that extends within 10 feet of the outlet of any chimney or stovepipe.
- Maintaining any tree adjacent to or overhanging any building free of dead or dying wood.
- Maintaining the roof of any structure free of leaves, needles, or other dead vegetative material.
- Providing and maintaining at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed and installed in accordance with the California Building Standards Code.

- Prior to constructing a new dwelling or structure that will be occupied or rebuilding an occupied dwelling or occupied structure damaged by a fire, the construction or rebuilding of which requires a building permit, the owner shall obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable State and local building standards.

Solid Waste

California Integrated Solid Waste Management Act – Assembly Bill 939 (AB 939) and Senate Bill 1016

AB 939, passed in 1989, mandated a focus on the conservation of natural resources. Cities and counties were required to create comprehensive source reduction, recycling, and composting programs and to prepare an Integrated Solid Waste Management Plan. The goal of these programs is to reduce the amount of waste sent to landfills by 50 percent.

SB 1016, enacted in 2007, updated the Integrated Solid Waste Management Act by changing the process for bi-annual review of a jurisdiction's source reduction and recycling element, and by replacing the 50-percent diversion rate with a per capita disposal rate.

The focus of AB 939 was a major change, shifting the emphasis from landfill disposal toward waste reduction, recycling and composting whenever possible. This approach conserves natural resources and saves energy, decreases pollution, and provides new jobs in the waste industry.

AB 939 established the following priorities for waste management:

- Waste reduction
- Recycling and composting
- Controlled combustion of waste to generate electricity
- Landfilling

Senate Bill 1383

SB 1383, adopted in 2016, established methane emissions reduction targets for various sectors of California's economy in an effort to reduce emissions of short-lived climate pollutants, which make a considerable contribution to greenhouse gas emissions and associated climate change effects. Decomposing food waste in landfills is a substantial contributor to methane emissions. Thus, as part of achieving the methane emissions reduction targets, starting January 1, 2022, the State requires jurisdictions to provide collection service to all residential and commercial generators to divert organic waste (including food waste, green waste, food-soiled paper, and

other organic materials, as defined) from landfill disposal. The State also require that jurisdictions conduct education and outreach about organics recycling to all residents, businesses (including those that generate edible food that can be donated) haulers, solid waste facilities, and local food banks and other food recovery organizations.

The MCRWMA has prepared a draft SB 1383 Action Plan that details recommended steps for each of the jurisdictions within the MCRWMA to comply with SB 1383. This draft plan notes that City of Merced residents in single-family and multi-family dwellings and commercial land uses are offered refuse, recycling, and green waste collection. As noted above, refuse collected in the City of Merced is disposed of at the Highway 59 Landfill; green waste collected in the City is also composted at the Highway 59 Landfill composting facility. Further, source-separated food waste is being collected from the commercial sector but is not currently being processed as such because there are no facilities permitted for composting food waste. However, MCRWMA is developing plans to expand the Highway 59 Landfill composting site to accept comingled organic waste which could then receive food waste from the City of Merced (MCRWMA 2021).

The MCRWMA's Draft SB 1383 Action Plan recommends that the City implement a three-container collection system under which residents and commercial land uses would separate their solid waste into trash, recycling, and composting (MCRWMA 2021).

Local Regulations

City of Merced Vision 2030 General Plan

Public Facilities

Policy P-1.1 Provide adequate public infrastructure and municipal services to meet the needs of future development.

Policy P-1.2 Utilize existing infrastructure and public service capacities to the maximum extent possible and provide for the logical, timely and economically efficient extension of municipal infrastructure and services where necessary.

Policy P1.1 Provide adequate public infrastructure and municipal services to meet the needs of future development.

Implementing Actions:

1.1.a: Through development review and long range planning efforts, ensure that utilities are adequately sized to accommodate the proposed development and, if

applicable, allow for extensions for future developments, consistent with master plans.

1.1.d: Construct the storm water drainage, water and sewer systems in accordance with adopted master plans.

Policy P-1.2 Utilize existing infrastructure and public service capacities to the maximum extent possible and provide for the logical, timely and economically efficient extension of municipal infrastructure and services where necessary.

Policy P-1.3 Require new development to provide or pay for its fair share of municipal public facility and infrastructure improvements.

Implementing Actions:

1.3.a: Prepare and adopt adequate fee schedules commensurate with the cost of planned improvements and services, with annual review and update.

1.3.c: All new development shall contribute its fair share of the cost of on-site and off-site public infrastructure and municipal services as appropriate.

1.3.d: The City may require developments to install off-site facilities, which also benefit other properties.

1.3.e: Master Plans, Community Plans, General Plan amendments, pre-zoning, and annexation proposals, through the Development Agreement process, shall ensure that infrastructure development and public facilities and municipal services are consistent with overall local public agency plans, and that the local public agencies can reasonably provide and/or extend services within the proposed development time frame of implementation.

Public Safety

Policy S-4.1 Promote the Concept of Fire Protection Master Planning with Fire Safety Goals, Missions, and Supporting Objectives for the Community.

Implementing Actions:

4.1.a: Provide additional fire station locations as expansion of the City occurs in order to maintain a response time objective of 4 to 6 minutes citywide 90 percent of the time, within the financial constraints of the City.

Policy S-6.2 Provide Services and Personnel Necessary to Maintain Community Order and Public Safety.

Implementing Actions:

6.2a: Maintain a police force sufficiently staffed and deployed to ensure quick response times to emergency calls, within the financial constraints of the City.

Policy P-2.1 Maintain and enhance public protection facilities, equipment, and personnel to the maximum extent feasible within the resource constraints of the City to serve the City's needs.

Implementing Actions:

2.1.a: Periodically review existing and potential station facilities, equipment and staffing levels in light of protection service needs.

2.1.b: Determine that new development is adequately served by fire and police protection services.

2.1.c: Fire station sites should be selected based on the distribution of land uses and population projected when the area is fully developed.

2.1.h: Assure that new development utilizes modern public protection concepts in their design and development.

Water

Policy P-3.1 Ensure that adequate water supply can be provided within the City's service area, concurrent with service expansion and population growth.

Policy P-3.1 Ensure that adequate water supply can be provided within the City's service area, concurrent with service expansion and population growth.

Policy P-3.2 In cooperation with the County and the Merced Irrigation District, work to stabilize the region's aquifer.

Wastewater

Policy P-4.1 Provide adequate wastewater collection, treatment and disposal capacity for existing and projected future needs.

Policy P-4.1 Provide adequate wastewater collection, treatment and disposal capacity for existing and projected future needs.

Policy P-4.2 Consider the use of reclaimed water to reduce non-potable water demands whenever practical.

Solid Waste

Policy P-6.1 Establish programs to recover recyclable materials and energy from solid wastes generated within the City.

Policy P-6.2 Minimize the potential impacts of waste collection, transportation and disposal facilities upon the residents of Merced.

Implementing Actions:

6.2.b: Cooperate with Merced County Regional Waste Management Authority to implement recommendations for source reduction programs which have the least environmental and economic impacts on the City and its residents.

Schools

Policy P-7.1 Cooperate with Merced area school districts to provide elementary, intermediate and high school sites that are centrally located to the populations they serve and adequate to serve community growth.

Library

Policy P-8.3 Work with Others to Study Innovative Ways of Delivering Library Services at the Neighborhood Level to Promote Community Education and Provide a Focus for Community Activity and Cultural Development.

Implementing Actions:

8.3.b Work with the County of Merced to define an efficient means of maintaining and delivering library services within the Merced urban area. In early 1997, the City and County adopted a property tax sharing agreement in which the County will receive a share of the tax increment from Redevelopment Project Area #2 specifically for library purposes. The County could receive up to $8 million from this source through the year 2014. The City will continue to work with the County to explore other options for maintaining library services for Merced residents.

Parks and Open Space

Policy OS-3.1 Provide High-Quality Park and Open Space Facilities to Serve the Needs of a Growing Population

Implementing Actions:

3.1.a Continue efforts to acquire new park sites within future growth areas in advance of development to meet the recreation open space needs of an expanding population.

Overall, a total of five (5) acres of parkland should be provided per 1,000 residents in the City, of which 1.5 acres should be in community park and 3.5 acres should be in various forms of neighborhood parks, including village greens, school parks and other neighborhood parks. "Greenway" trails should provide bicycle and pedestrian access throughout the City and its growth areas.

3.1.c Continue to implement the City's 2004 Parks and Open Space Master Plan and any subsequent updates.

City of Merced Sewer System Master Plan and Wastewater Collection System Master Plan

The Sewer Master Plan addresses wastewater collection system capacity, identifies necessary improvements to eliminate system deficiencies and provides a plan for locating and sizing trunk sewers to service areas within the existing City Limits, as well as the balance of areas within the Specific Urban Development Plan (SUDP) boundary contained in the City of Merced Vision 2030 General Plan (Vision 2030 General Plan).

Integrated Regional Water Management Plan

The Merced Integrated Regional Water Management program (MIRWMP) is a collaborative effort to identify water management issues, needs, objectives, actions, and priorities to meet the long-term water needs of the Merced Region, which is the area of Merced County east of the San Joaquin River. The City of Merced, County of Merced, and the Merced Irrigation District joined together to lead the program, which is funded by a grant from the California Department of Water Resources under Proposition 50. The plan describes the water management needs and objectives for the Merced region and lists more than 70 projects to address water supply, water quality, groundwater and wastewater management, flood control, conservation, natural resources, and recreation. The 2018 MIRWMP Update was finalized in February 2019.

Urban Water Management Plan

The City of Merced UWMP, last updated in 2017, identifies the amount of groundwater available to the City and the existing and projected amounts of water demand in the City. It identifies that the City's water supply comes from two sources: 79 percent from groundwater in the Merced Subbasin and 21 percent from recycled water. Year 2035 projections of water supplies include exchanges and transfers with MID, but groundwater and recycled water remain the top two sources of water supply. Total water demands are expected to increase from 22,741 AF per year (AFY) in 2015 to 37,829 AFY in 2035. The UWMP demonstrates that the City would be able to meet water demand during normal, dry, and multiple-dry years through the year 2035 (City of Merced 2017).

The UWMP recognizes that the Merced Subbasin experiences overdraft conditions. It also found that the rate of groundwater extraction was reduced between 2013 and 2017 in response to drought conditions and is expected not to rebound to pre-drought levels because water metering had been implemented throughout the city and water conservation measures would remain in effect regardless of any increases in precipitation over time (City of Merced 2017).

The project site is located within the Planning Area for the City's current UWMP and the UWMP considers the ability of the City to meet future water demands of the projected population within the City, including the SOI/SUDP, determined by the Merced County Association of Governments.

Municipal Code 18.40, Parkland

Pursuant to the authority granted by Section 66477 of the Government Code of the state. At the time of approval of a tentative map or parcel map, the director of recreation and parks shall determine pursuant to this chapter the land required for dedication or in-lieu fee payment. As a condition of approval of a final subdivision map or parcel map, the subdivider shall dedicate land, pay a fee in lieu thereof, or both, at the option of the city, for neighborhood and community park or recreational purposes at the time and according to the standards and formula contained in this code. It is found and determined that the public interest, convenience, health, welfare, and safety require that five acres of property for each one thousand persons residing within this city be devoted to neighborhood and community park and recreation purposes.

Municipal Code 17.48, Flood Damage Prevention

The City's Flood Damage Prevention Ordinance restricts developments in floodplain areas unless special construction requirements have been met and includes drainage standards for construction.

Chapter 17.62, Public Facilities Impact Fees

To implement the goals and objectives of the City of Merced's General Plan and to mitigate the impacts caused by future development in Merced, certain public facilities must be or have been required to be constructed, and/or compensation measures must be or have been required to be taken to offset resources lost due to the future development. The City Council has determined that public facilities impact fees are needed to finance these public facilities, and/or compensation measures, and to pay for each development's fair share of the construction costs of these improvements, and/or the costs of the compensation measures. In establishing the fees, the City Council has found the fees to be consistent with its General Plan.

A public facilities impact fee is established on issuance of building permits for development in the City of Merced to pay for municipally owned public facilities, including, but not limited to, fire stations, police stations, community recreation facilities, traffic-related improvements, and bikeways facilities.

3.11.4 Impacts

Methods of Analysis

This section evaluates project impacts on existing public services and utilities and service systems that would serve the project site. For public services and utility and service systems, the impact analysis is based on consideration of the increase in demand for those services and utilities that would be generated by the proposed project compared to the thresholds of significance listed below. The analysis includes consideration of whether existing service systems are adequate to accommodate the proposed project's demand and whether the proposed project would require modifications to existing facilities or construction of new facilities.

Water

The analysis of impacts to water supply was based on water demand generated by the proposed project compared to the thresholds of significance listed below. The expected water demand for the proposed project was determined in the WSA based on typical water demand factors for the project region of 65 gallons of water per day per capita for residential uses and 40 gallons per day per employee, the City's average population per household of 3.2 people, and the estimated project employment generation of 147 employees. The WSA also notes that as the proposed project is located approximately 2 miles from UC Merced, it is likely that some of the residents would be students, which consume substantially less water, with an average per capita consumption of 39 gallons per day (Quad Knopf 2020). Thus, the projected water demand is conservative.

The WSA also calculated the water demand for Irrigation of the 10.3 acres of landscaping (the non-impervious surface on the site, non- hard surfaced area) has been calculated to require 24 AFY, which would be in conformance with the Model Water Efficient Landscape Ordinance's (MELO).

The total annual project water usage is summarized in Table 3.11-2:

Table 3.11-2
The Crossings Water Demand

Source	Water Usage
Residential/Commercial	133 acre ft/yr
Employee Water Usage	4 acre ft/yr
Landscape Irrigation	24 acre ft/yr
Total	**161 acre ft/yr**

Source: Appendix L

The WSA also notes that the project site is currently in agricultural production and that intensive agricultural typically uses 2.5 to 4.0 acre-feet of water per acre.

Wastewater

The analysis of impacts to wastewater treatment services is based on a wastewater treatment demand generated by the proposed project compared to the thresholds of significance listed below. Wastewater demand for the proposed project was quantified based on the planned land uses and wastewater flow generation rates specified in the City's *Sewer Master Plan* (City of Merced 2017). The project site is currently served by individual septic systems and thus does not contribute any wastewater to the City's wastewater collection and treatment system. As shown in Table 3.11-3, development of The Crossings component of the project is estimated to generate 149,235 gpd (0.149 mgd) for the 28.4-acre site.

Table 3.11-3
The Crossings Wastewater Generation

Proposed Development	Parcel Acres	Land Use		Flow Factor		Average Dry Weather Flows (gpd)[1]
		Quantity	*Units*	*Value*	*Units*	
Dwelling Units		570	Du	257	gpd/du	146,490
Commercial[2]	1.52			1,500	gpd/acre	2,280
Clubhouse[3]	0.31			1,500	gpd/acre	465
Totals						**149,235**

Notes:
1 gpd = gallons per day
2 66,000 sf (one story) = 1.52 acres
3 13,700 sf (one story) = 0.31 acres; Assuming Public General Use wastewater generation rate from City's Sewer Master Plan (City of Merced 2017)City of Merced 2017

Schools

The number of students generated by the proposed project is estimated by multiplying the student generation rates for residential development in the MCSD and MUHSD (used in their 2020 Development Fee Justification Studies) by the number of units projected (MCSD 2020, MUHSD 2020). Based on the 570 proposed multi-family units, 66,000 square feet of neighborhood commercial land uses, and the associated student generation rates, the proposed project would generate approximately 117 students in Transitional Kindergarten (TK) through 8th grade (TK-8) and 46 high school students. However, this is a conservative estimate given that the unit count of 570 includes 18 extended stay units, which are less likely to support permanent residents. Additionally, it is likely that a number of future occupants would be college students, which could lower the expected generation of K-8 and high school students.

Table 3.11-4
Student Generation Rates

Grade Level	Single Family Units	Multiple Family Units	Neighborhood Shopping Center (per 1,000 square feet)
TK-6	0.351	0.149	0.143
7-8	0.095	0.039	
9-12	0.223	0.072	0.081

Source: MCSD 2020, MUHSD 2020

Solid Waste

The analysis of impacts to landfill capacity is based on the amount of solid waste that would be generated by the proposed project compared to the thresholds of significance listed below. Solid waste generation was calculated for the project site based on the County's demand rate for solid waste of 5.4 pounds per resident per day (CalRecycle 2021c) and US Census data showing that the City has an average household size of 3.2 persons (US Census 2020). With the proposed 552 multi-family units and 18 extended stay units, the project would support a residential population of 1,824 residents. The project's total solid waste generation during construction and operation is calculated in Tables 3.11-5 and 3.11-6.

Table 3.11-5
Proposed Project Solid Waste Generation (Construction)

Proposed Use	Size	Demand Factor	Solid Waste Generation (lbs)	Solid Waste Generation (tons)
Residential	684,980 sf	4.38 lbs/sf	3,000,212.4	1,500.11
Commercial/ Retail	66,000 sf	3.89 lbs/sf	256,740	128.37
Total				**1,628.48**

Source: EPA 2003

Table 3.11-6
Proposed Project Solid Waste Generation (Operations)

Proposed Use	Size	Demand Factor	Solid Waste Generation (lbs/day)	Solid Waste Generation (lbs/year)	Solid Waste Generation (tons/year)
Residential	1,824 residents	5.4 PPD	9,850	3,595,250	1,798
Commercial/ Retail	66,000 sf/147 employees	18.6 PPD	2,734	683,550[1]	342
Total					**2,140**

Note: 1 - Assumes employees are present 250 days per year (5 days per week for 50 weeks)
Sources: US Census 2019, CalRecycle 2021b, CalRecycle 2021c

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, and other public facilities.
- Require or result in the relocation or construction of new or expanded water, wastewater treatment, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.
- Require development of new water supplies to ensure sufficient available supply to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, or that does not comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

As noted in Section 3.11.1, Introduction, the project's potential effects related to stormwater runoff and storm drainage systems are addressed in Section 3.8, Hydrology and Water Quality.

Impacts and Mitigation Measures

Impact 3.11-1: The project would increase demand for public services and utilities but would not require provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, and other public facilities. This would be a *less-than-significant* impact.

The Crossings

Fire Protection and Emergency Medical Services

Upon annexation, the City of Merced Fire Department would serve the project site. Fire Station 55 is the closest fire station to the project site, located at 3520 N. Parsons Avenue, less than one mile from the project site. Policy S-4.1 in the City of Merced 2030 General Plan requires sufficient fire station locations as expansion of the City occurs in order to maintain a response time of 4 to 6 minutes citywide 90 percent of the time. In 2020, the department responded to 11,230 calls. The Merced Fire Department has an Insurance Services Office (ISO) rating of 2. The ISO rating scale is from 1 to 10 with 1 being the highest (best) rating. Because of the close proximity of the nearest fire station to the project site, and the existing ISO rating for the Merced Fire Department, it is anticipated that the City General Plan requirements for fire protection would continue to be met. No new fire protection facilities would be needed. Additionally, as is typical for most three-story buildings in Merced, the project's apartment buildings will include interior fire sprinklers and a fire booster pump for the fire sprinkler systems. Impacts associated with fire protection services would be **less than significant**.

Police Protection

Upon annexation, the City of Merced Police Department would serve the project site. The closest station is located at 611 W. 22nd Street, slightly more than 2 miles from the project site. The Merced Vision 2030 General Plan Policy S6.2 requires the police force to be sufficiently staffed to ensure quick response times to emergency calls (City of Merced 2012). The City's service standard used for planning future police facilities is approximately 1.32 sworn officers per 1,000 population (City of Merced 2012). The City employed 87 sworn officers (Eber 2017) for a population estimated in 2019 of 83,676 (US Census 2019), a decrease from a police force of 111 officers in 2009 (City of Merced 2012). The proposed project would add approximately 1,824 residents to the city's population which would require the equivalent of 2.4 new sworn officers. Funding for staffing emergency services is obtained through taxes and other local government

funding that the project would contribute to, not through developer fees. The need for 2.4 new sworn officers would not require any expansion of existing or construction of new police department facilities. Though the project would add to the need for police staff, the addition of population would not require the addition of any new or expanded facilities and thus there would not be any environmental effects related to construction of such facilities. Therefore, environmental impacts associated with police protection services would be **less than significant**.

Schools

The proposed project would provide for new housing, which could be occupied by families with grade-school age children. Upon annexation, the MCSD would serve TK-8 students living at the project site and the MUHSD would serve high school students living at the project site. According to the MCSD School Boundaries Map (MCSD 2020), Ada Givens Elementary School located approximately 1.9 miles away from the proposed project site would principally serve the TK through sixth grade students, while Cruikshank Middle School would serve the seventh and eighth grade students. According to the MUHSD School Locator, El Capitan High would serve the high school students living at the project site (MUHSD 2020).

As described in the Methods of Analysis section, the number of students generated by the proposed project is estimated by multiplying the student generation rates for residential and commercial development in the MCSD and MUHSD Districts by the proposed number of units and commercial square footage. Based on the 570 proposed units and 66,000 square feet of commercial space, the proposed project would generate about 117 TK-8 students (92 K-6 students and 254 7th-8th grade students) and 46 high school students. However, this is a conservative estimate given that the unit count of 570 includes 18 extended stay units, which are not expected to house permanent residents. Additionally, given the proximity of the site to the UC Merced campus, it is reasonably expected that a portion of future occupants would be college students, which would lower the expected generation of TK-8 and high school students.

As part of the MCSD 2014 Long Range Facilities Master Plan, there are plans to expand capacity to 672 students at Ada Givens Elementary School. For the 2019-2020 school year, 607 students were enrolled, which is 65 fewer students than the planned capacity. The proposed project would generate approximately 92 TK-6 students, which would result in enrollment that is over-capacity by 26 students. Per the MCSD 2014 Long Range Facilities Master Plan, there is no need for expanded capacity for Cruickshank Middle School. Additionally, El Capitan High School had an enrollment of 1,702 students for the 2019-2020 school year, which is less than its designed student capacity of 2,158 (MUHSD 2020).

Pursuant to SB 50, the project applicant would be required to pay school impact fees. This payment is considered full mitigation for any impacts to school services that would result from a project. Currently, the shared school development fees for the MCSD and MUHSD is $4.08 per square foot of new residential development and $0.66 for commercial development (MCSD 2020). Payment of the school impact fees would provide funding for new school construction, improvements, and expansion to existing schools. Payment of the required school impact fees would ensure satisfaction of the Proposition 1A/SB 50 statutory requirements and the impact would be **less than significant**.

Parks

The City owns and operates 24 parks on 380 acres (3 Community Parks, 7 Neighborhood Parks, 10 Mini Parks, 4 Linear parks, and 5 other sites (City of Merced 2012). Under Municipal Code Section 18.40, the City requires developers to comply with a ratio of providing 5 acres per 1,000 population to develop parkland or pay an in-lieu fee. In 2019, the city's population totaled 83,676. Given this population, the city should have 418 acres of parks to meet the ratio. The project does not include any parkland but would include network of pedestrian paths and outdoor space that could be used for passive recreation. The project also includes a private clubhouse that could include a gymnasium facility. Central plazas created would be provided between the buildings clusters, for recreation and other passive activities. An outdoor plaza is proposed central to the retail portion to be used for evening events and outdoor activities, such as music events, craft fairs, and a farmers' market. Based on the City's average household size of 3.2 people, the project is assumed to generate about 1,824 new residents. To meet General Plan Policy OS-3.1, the proposed project would need to include 9.12 acres of parks for the anticipated additional 1,824 residents. In lieu of dedicating sufficient parkland, the developer can pay the appropriate fee, as provided in Municipal Code Section 18.40. Compliance with the Municipal Code would ensure that this impact would be **less than significant**.

Libraries

The Merced County Library System provides library service to the region. The Merced main branch is located at 2100 O St, about 2.5 miles from the project site. This branch is 44,050 square feet and in 2019, served the city's population of 83,676. The Merced County Library System does not maintain a service ratio. However, library planning standards frequently use a range from 0.4 to 0.5 square feet per capita. Using the conservative high end of this standard, the existing library size is sufficient to serve the population with a current ratio of 0.53. Even with the additional 1,824 residents anticipated under the proposed project, the existing library size would be sufficient with a ratio of 0.52. Therefore, no new or expanded library facilities would be needed. Impacts to libraries would be **less than significant**.

Remainder Area

The approximately 22 acres of the Remainder Area located in the eastern portion of the project site are developed with a church, private school, and three rural residential properties. . The existing development is currently served by the county sheriff and county fire department, the City of Merced library system, and MCSD and MUHSD. The proposed project does not include any new development or alterations to the remaining 40 acres. However, the portions of the Remainder Area that are proposed to be zoned R-1-10 could support single-family residential lots with a minimum size of 10,000 square feet. The portion of the Remainder Area zoned U-T would only allow new agricultural development unless further rezoning is approved. Once annexed into the City, the existing church, existing private school as well as the three existing residences would create a minor increase in demand on the city's police and fire protection services, which could be further increased if additional single-family residential development occurs. The vacant land within the Remainder Area that is proposed to be zoned R-1-10 could support approximately 29 new single-family residences, generating a new population within the City of 93 people. This new population would not exceed the population projections for the City, which are based on planned development within the SUDP, including the Remainder Area. The potential increased population in the Remainder Area plus the existing residential population would correlate to a demand for the equivalent of 0.16 of a new sworn police officer. The potential increased population would corelate to a demand for 37.2 square feet of library space and 0.7 acres of parks. The potential 29 new single-family residences would generate 10 new TK-6 students, 3 new grade 7 and 8 students, and 6 new high school students.

Public facility impact fees, school impact fees, and parkland dedication and/or in-lieu fees would be required to be paid at the time that building permits for any new residences within the Remainder Area are issued. The increased demand for sworn police officers and library space would not require expansion or construction of police facilities. Thus, there would be no need for new or physically altered governmental facilities and **less than significant impacts** would occur regarding public services: fire protection, police protection, schools, parks, and other public facilities.

Mitigation Measures

No mitigation measures are required.

Impact 3.11-2: The proposed project would not exceed existing wastewater capacity to serve the project's demand in addition to existing commitments and would not result in either the relocation or construction of new or expanded wastewater treatment facilities. this impact is *less than significant.*

The Crossings

Wastewater Treatment Facilities

The City's WWTP is located in the southwest part of Merced and provides treatment for all wastewater in the Merced urban area. It has periodically undergone upgrades and expansions to meet the needs of the City's growing population. The plant's current capacity is 12 mgd. The WWTP is permitted to expand in increments of 4 mgd to 16 mgd and then 20 mgd by 2025 (City of Merced 2006).

Based on the City's wastewater generation rates, The Crossings component of the proposed project would generate an average of 149,235 gpd, or 0.149 mgd, as shown in Table 3.11-4. The WWTP currently treats an average of 7.7 mgd (Elwin 2017). Therefore, the additional 0.149 mgd combined with a current average of 7.7 mgd would not exceed the plant's permitted average dry weather flow effluent limit of 12 mgd.

The constituents in wastewater flows from the proposed project to the WWTP would be typical of residential and commercial uses, similar to flows from other residential and commercial development in the vicinity, and would not contain new or substantially different chemical constituents that would be anticipated to cause permitted effluent limitations for chemical parameters to be exceeded.

Wastewater Conveyance Facilities

The proposed project would connect to existing sewer infrastructure to convey waste to the WWTP. The proposed project would construct runs of 6" and 8" sewer lines on the project site. An existing 18" gravity sewer line lies south of the project site in East Yosemite Avenue (20 feet north of centerline) and flows west from Gardner Avenue to G Street. The project proposes to connect to this line at the terminal manhole at the intersection of Gardner Avenue and East Yosemite Avenue. Flow monitoring completed in December 2019 shows that this line is currently carrying flows that equal approximately 60 percent of its maximum capacity, thus, there is sufficient capacity in this line sufficient to accommodate the approximately 150,000 gallons per day of wastewater that would be generated by the project at full build out.

As described in the Environmental Setting section, the existing North Merced sewer system has two Level of Service failures along W. Olive Avenue and along Highway 59 where the hydraulic system can experience bottleneck. Wastewater from the project site would not flow through either of those segments to reach the WWTP and would not impact those existing bottlenecks. Therefore, no new or expanded wastewater conveyance facilities would be required.

Conclusion

Because the existing sewer line within East Yosemite Avenue and the WWTP have adequate capacity to serve the project and the project would not introduce any wastewater constituents that would require modified or new treatment facilities or procedures, no new or expanded conveyance or treatment facilities would be required and this impact would be **less than significant**.

Remainder Area

The proposed project does not include any development or alterations to the remaining 40 acres, and therefore not generate the need for any new wastewater conveyance of treatment. However, as discussed in Impact 3.11-1, the areas within the Remainder Area that are proposed to be zoned R-1-10 could be developed with single-family housing. The vacant land within the Remainder Area that is proposed to be zoned R-1-10 could support approximately 29 new single-family residences, generating a new population within the City of 93 people. Further, while the existing residences are expected to continue to rely on their individual septic systems, if additional residential development occurs within the Remainder Area, it is possible that existing residents would choose to connect to the City's wastewater collection and treatment system. The potential increased population in the Remainder Area plus the existing residential population would generate approximately 31,300 gallons of wastewater per day. There is sufficient capacity in the existing sewer line in East Yosemite Avenue and at the City's WWTP to accommodate this additional wastewater without requiring modified or new treatment facilities or procedures and this impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.11-3: The proposed project would not require or result in the relocation or construction of new or expanded water treatment facilities, the construction of which could cause significant environmental effects, and the City would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. This would be a *less-than-significant* impact.

The Crossings

The City of Merced's water service area includes the City as well as UC Merced. The estimated 2019 population of the served community is 83,676 people; the buildout (2035) population within existing city boundaries is estimated to be 110,000 plus 32,000 UC Merced on-campus students. The 1,824 residents that could reside within the project site as a result of this project would not result in an exceedance of the City's population projections.

The City of Merced has prepared analyses in its UWMP to address the sufficiency of its water supply in normal, dry and multiple-dry years. The UWMP includes water conservation measures that the City would enforce during drought years to enable maintenance of the zero-impact conclusions of its supply and demand. Per the UWMP, the City would be able to meet water demand during normal, dry, and multiple-dry years through the year 2035, including with the additional population that could reside within the project site. The WSA for the project found that it would generate a demand for 161 AFY of water. This is approximately 0.63% of the City's 2020 projected groundwater supply of 25,486 AFY, and approximately 0.59% of the City's projected 2025 groundwater supply of 27,408 AFY (City of Merced 2017).

As stated in the WSA, the City's pumped water supply and distribution system have historically proven reliable, with continued effective operation and maintenance of the system. District engineering design standards are in place that meet or exceed American Water Works Association Standards, ensuring that system reliability does not diminish as it is expanded. Funds to maintain and expand the system to meet the continued growth in water demand are collected through State and federal grants, water rates and development fees. The adequacy of both pumped water supply and water distribution were also demonstrated during a recent five-year drought period and during the recent record single-dry year in that period. Thus, impacts would be **less than significant**.

<u>Water Conveyance</u>

The two 16-inch water mains running along East Yosemite Avenue and Gardner Avenue would adequately supply the anticipated flow requirements for fire, domestic, and landscape irrigation systems. A 12-inch onsite line is proposed to tie into this 16-inch water main in two locations and

be looped through the project with a 12-inch backflow prevention device at each point of connection with the 16-inch main. Smaller mains and individual service lines to the various buildings will be fed from the 12-inch on site loop where appropriate. The number, location, and spacing of onsite fire hydrants will be determined during the design phase of the project in accordance with City and code requirements.

Conclusion

Because there is sufficient capacity in the existing water main in East Yosemite Avenue and the City's water treatment system to serve the project, and because the project's demand for water supply would be consistent with the City's projected water supply under the UWMP and the Merced Subbasin Groundwater Management Plan, the project would not require construction of new or expanded water conveyance or treatment facilities and this impact would be **less than significant**.

Remainder Area

The proposed project does not include any development or alterations to the remaining 40 acres, and therefore not generate the need for any new water supplies, treatment, or conveyance. However, as discussed in Impact 3.11-1, the areas within the Remainder Area that are proposed to be zoned R-1-10 could be developed with single-family housing. The vacant land within the Remainder Area that is proposed to be zoned R-1-10 could support approximately 29 new single-family residences, generating a new population within the City of 93 people. The potential increased population in the Remainder Area would generate a demand for approximately 7,905 gpd, which is equivalent to 0.02 AFY. This demand for water supply would be consistent with the City's projected water supply under the UWMP and the Merced Subbasin Groundwater Management Plan, and there is sufficient capacity in the existing water main in East Yosemite Avenue and the City's water treatment system to serve this potential future development. Thus development of the Remainder Area would not require increases in the City's water supply or construction of new or expanded water conveyance or treatment facilities and this impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.11-4: The proposed project would not generate solid waste that would exceed the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals, and would not generate any type of waste not typically associated with residential and commercial land uses. This would be a less-than-significant impact.

The Crossings

As discussed in Section 3.11.2, Environmental Setting, solid waste generated in the project area would be transferred to the Highway 59 Landfill in Merced County, approximately 6 miles north of the City of Merced. The proposed project would be required to comply with all federal, state, and local statutes and regulations related to solid waste during its construction and operation. These statutes and regulations include those discussed in Section 3.11.3, Regulatory Setting. This would ensure the City can continue to comply with state-required solid waste diversion requirements.

The Highway 59 Landfill is permitted to accept up to 2,200 tons of refuse per day between 2020 and 2025, increasing to 2,700 TPD in 2030. The facility currently has an expected closure year of 2055 but MCRWMA is currently working towards implementing the Highway 59 Landfill Valley Fill Project, which would increase capacity at the landfill and extend the anticipated closure year to 2076. The facility was estimated to receive an average daily inflow between 2019 and 2024 of approximately 1,020 tpd, which corresponds to 363,191 tons per year (MCRWMA 2019).

The proposed project would generate solid waste associated with construction activities as well as during project operation. It is estimated that project construction would generate a total of approximately 1,629 tons of solid waste, as shown in Table 3.11-5. This would be generated over the course of the approximately 27-month construction period, but daily amounts of solid waste would vary. Overall, project construction would generate less than 800 tons of solid waste per year and thus would not exceed the daily maximum disposal rate or the overall landfill capacity.

During operation, the project would generate approximately 1,798 tons of residential solid waste and approximately 342 tons of commercial solid waste per year, totaling about 2,140 tons per year (5.9 tons per day), as shown in Table 3.11-6. Solid waste pick-up service to the site would be provided weekly for residents and may occur more frequently for commercial land uses depending on the specific needs of the commercial businesses and their contracts with a solid waste collection provider. However, if all waste generated within the site were picked up weekly for transport to the landfill, the project would contribute approximately 41 tons of solid waste to the daily waste received at the landfill once per week. This would be approximately 1.8 percent of the landfill's permitted maximum daily refuse acceptance of 2,200 tons per day. Thus, project

operation would not exceed the daily maximum disposal rate and would not shorten the landfill's expected lifetime.

Additionally, the proposed project would comply with all federal, State and local statues and regulations related to solid waste and recycling requirements during construction activities as well as during operation of the proposed project and would not generate hazardous wastes that are not typically associated with residential and commercial land uses, resulting in no impact on waste disposal requirements.

Therefore, the Highway 59 Landfill would have sufficient capacity to accommodate the proposed project and to accommodate the types of waste generated during construction and operation and this impact would be **less than significant**.

Remainder Area

As discussed above, no development within the Remainder Area is currently proposed, however the areas proposed to be zoned R-1-10 could support single-family residences. Any future development within the Remainder Area would be required to comply with all federal, state, and local statutes and regulations related to solid waste, as discussed in Section 3.11.3, during construction and operation, which would ensure the County can continue to comply with state-required solid waste diversion requirements. If 29 new residences were developed in the Remainder Area, they would be expected to support 93 new residents. Based on the solid waste generation rates provided in Table 3.11-5 and 3.11-6, construction of 29 new single-family residences with an assumed size of 2,000 square feet each would generate 127 tons of solid waste, and the 93 new residents would generate 91.7 tons of solid waste per year, or 1.8 tons per week. The construction waste would be generated over several weeks or months, but if it were generated in a single week it would represent approximately 5 percent of the landfill's permitted maximum daily refuse acceptance. The waste generated during a single week of project operation would be less than would be approximately 0.08 percent of the landfill's permitted maximum daily refuse acceptance of 2,200 tons per day. Thus, project operation would not exceed the daily maximum disposal rate and would not shorten the landfill's expected lifetime. This potential future development within the Remainder Area would not have an adverse effect on the landfill capacity or lifetime and thus the impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.11.5 Cumulative Impacts

The cumulative impact analysis includes projected buildout (including the City's Sphere of Influence and the SUDP) under the City of Merced Vision 2030 General Plan. In addition to buildout of the General Plan, the cumulative context for wastewater treatment, solid waste, and energy includes buildout of the specific service area for each utility provided including recently approved and reasonably foreseeable development within the boundaries of Merced County's solid waste service area.

Impact 3.11-5: The proposed project could contribute to a cumulative increase in demand for police and fire protection services, parks, and other government facilities but would not result in the need for new or physically altered facilities. This would be a less-than-significant impact.

Fire Protection and Emergency Medical Services

Implementation of the proposed project would contribute toward a slight cumulative increase in demand for fire protection and emergency services within the City of Merced. Action 4.1a under the City's General Plan requires the City to provide additional fire station locations as expansion of the City occurs in order to maintain desired response times of 4 to 6 minutes. With implementation of City goals and policies that ensure availability of adequate services for buildout, the increase in demand for fire protection and emergency services would be **less than significant** Therefore, the proposed project would not contribute to an existing cumulative impact.

Police

Implementation of the proposed project would contribute toward a slight cumulative increase in demand for police services within the City of Merced. According to the 2030 General Plan Policy S-6.2, the City must provide services and personnel necessary to maintain public safety. While there would be an increase in demand for police protection services for the 1,824 residents estimated under the proposed project, with implementation of City goals and policies that ensure availability of adequate services for buildout, cumulative impacts to police protection would be **less than significant**. Therefore, the proposed project would not contribute to an existing cumulative impact.

Parks

Development of the proposed project could result in an increased demand for park and recreation facilities. The City owns and operates 380 acres of parks. The City requires developers to comply with a ratio of 5 acres per 1,000 population to develop parkland or pay an in-lieu fee, as written in

Municipal Code 18.40 (City of Merced 2012). With a 2019 population of 83,676, the City is not meeting its goal of 5 acres per 1,000 population. With payment of the in-lieu fee as required by the Municipal Code, each development project within the City would contribute a fair share amount towards development of parks and thus there would not be a significant cumulative impact to which the project could contribute.

Libraries

Development of the proposed project could result in a slightly increased demand for library services. The additional 1,824 residents from the proposed project would increase the City's 2019 population by 2.2 percent. The existing Merced Main Branch, with 44,050 square feet, is the closest library to the project site. Using common library planning ratios, libraries should maintain 0.4 to 0.5 square feet per capita. The Merced main branch has a current service ratio of 0.52 and could therefore accommodate a larger population. Additionally, Policy P-8.3 requires the City to work with the County to maintain and deliver library services. With implementation of City goals and policies that ensure availability of adequate services for buildout, cumulative impacts to library services would be **less than significant**. Therefore, the proposed project would not contribute to an existing cumulative impact.

Public facility impact fees, school impact fees, and parkland dedication and/or in-lieu fees would be required to be paid at the time that building permits for any new residences within the Remainder Area are issued. The increased demand for sworn police officers and library space would not require expansion or construction of police facilities. Thus, there would be no need for new or physically altered governmental facilities and **less than significant impacts** would occur regarding public services: fire protection, police protection, schools, parks, and other public facilities.

Mitigation Measures

No mitigation measures are required.

Impact 3.11-6: The proposed project would contribute to a cumulative increase in demand on wastewater treatment facilities, which could result in inadequate capacity and require either the relocation or construction of new or expansion of existing wastewater treatment facilities. This impact would be *less than significant.*

Wastewater Treatment Facilities

The City WWTP is permitted under National Pollution Discharge Elimination System (NPDES) permit No. CA0079219 (CA RWQCB 2014). This permit allows the WWTP to treat 12 mgd currently, 16 mgd upon its first expansion, and 20 mgd upon its second expansion. The City planned the expansions to served planned population growth and development in the City Specific Urban Development Plan (SUDP) area and adjacent UC-Merced Campus Long-Range Development Plan (LRDP) area. The combined wastewater volume to be generated from planned land uses within the SUDP and UC-Merced campus planning area equals about 19.35 mgd (City of Merced 2006). Assuming that full development of the SUDP and LRDP occur, the project's contribution of 0.149 mgd combined with the total planned wastewater volume of 19.35 mgd would not exceed the plant's permitted capacity of 20 mgd at buildout. The project's incremental contribution to the existing cumulative impact would not be cumulatively considerable.

The project would not require construction of new wastewater treatment plants or expansions to existing facilities. Therefore, the project's contribution would not be considerable, and the cumulative impact is considered **less than significant**.

Wastewater Conveyance Facilities

As described in Section 3.11.2, Environmental Setting, the Sewer Master Plan identifies capacity of existing lines during an Interim Conditions scenario in which some approved projects are built, but prior to any City sewer upgrades. Wastewater from the proposed project would travel west along the Yosemite Avenue trunk, south along the G Street trunk, west along the West Olive Drive trunk to a force main that delivers the flow to the Highway 59 pump station. From there it would flow south along the West Avenue trunk to the 48-inch interceptor. During Interim Conditions, many pieces of the system would be over capacity. Segments of the Yosemite Avenue trunk are predicted be at or over capacity when the projects entitled to connect to that facility are built. Specifically, in the cumulative condition, the existing 18-inch sewer line in East Yosemite Avenue is projected to reach 90 percent of its capacity, which exceeds the City's standard of maintaining sewer lines with 70 percent available capacity. Similarly, portions of the G Street trunk north of Black Rascal Creek are predicted to be at or over capacity, as well as segments along West Avenue. (City of Merced 2017) As these lines are predicted to exceed capacity with the

development of already approved and planned projects, the proposed project's contribution would be a significant cumulative impact.

The City is currently updating its Sewer Master Plan, which would identify necessary improvements to wastewater infrastructure. As described in the Draft Sewer Master Plan, the City has selected an approach to upgrades that would serve the entire SUDP at current build-out flow estimates. To serve the North Merced area, the City would construct a large new trunk starting in the vicinity of the intersection of Cardella Road and Lake Road, running east to west along Cardella Road, then south along Thornton Road to a pump station just north of Black Rascal Creek. A force main discharging from the new pump station north of Sante Fe Drive would extend to just south of CA 140, then transition to a new 60-inch gravity trunk from that point south to the WWTP. Additionally, flow from the existing Highway 59 Pump Station would be diverted to the new pump station along Thornton Road, eliminating the long-term need to upgrade the existing forcemain and sewer along Highway 59 south of W Olive Drive. The City's upgrades would be phased according to the City's buildout needs (City of Merced 2017). Completion of the project would be required in order for the system to have adequate capacity for the project's wastewater to not contribute to cumulative impacts. However, the project site is located within the North Merced Sewer Improvement Assessment District Fund and thus the project developer would be required to pay sewer connection fees determined by the City's Department of Utilities and specified in the North Merced Sewer Improvement Assessment District Fund. These fees would be used by the City to fund improvements to the wastewater conveyance and treatment infrastructure sufficient to ensure that adequate wastewater service is provided to all areas of the City and thus the project's contribution to cumulative impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 3.11-7: The proposed project would contribute to a cumulative increase in demand on water treatment facilities but would not require relocation or construction of new or expanded water treatment facilities or expansion of existing facilities; and the City would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. This would be a *less-than-significant* impact.

As discussed in Impact 3.11-3, the City has prepared analyses in its UWMP to address the sufficiency of its water supply in normal, dry and multiple-dry years. Per the UWMP, the City would be able to meet water demand during normal, dry, and multiple-dry years through the year 2035,

including the demand associated with population growth in the City consistent with the Vision 2030 General Plan.

As stated in the WSA, the City's pumped water supply and distribution system have historically proven reliable and district engineering design standards are in place that meet or exceed American Water Works Association Standards, ensuring that system reliability does not diminish as it is expanded. Funds to maintain and expand the system to meet the continued growth in water demand are collected through State and federal grants, water rates and development fees. Further project engineering analysis will evaluate whether any modifications in the distribution system are required to satisfy project buildout, water delivery volumes, and pressures. The City will finance any required wells and distribution system modifications with development impact fees, State or federal grants, or rate adjustments.

Thus the cumulative impact associated with water supply would remain less than significant and there would not be a significant cumulative impact to which the project could contribute.

Mitigation Measures

No mitigation measures are required.

Impact 3.11-8: The proposed project could contribute to a cumulative increase in solid waste in excess of State of local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. This would be a less-than-significant impact.

As described in Impact 3.11-4, the Highway 59 Landfill currently has an expected closure year of 2055 but that would be extended to 2076 with implementation of the approved Valley Fill Project, which will increase the landfill capacity by 6,857,000 cubic yards (a 19 percent increase) without expanding the facility boundary. Thus, the MCRWMA has planned for ongoing development within the service boundary of the Highway 59 Landfill. Buildout of the City of Merced General Plan as well as the General Plans for the cities of Livingston and Atwater and for Merced County would generate an increase in the daily and annual volume of solid waste disposed of at this landfill but would not exceed the landfill's daily tonnage limits or overall capacity. Thus, there would not be a significant cumulative impact to which this project could contribute.

Mitigation Measures

No mitigation measures are required.

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3.12 TRANSPORTATION AND CIRCULATION

3.12.1 Introduction

This section evaluates the potential transportation-related effects associated with development and operation of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This section describes the existing transportation conditions around the project site; outlines applicable federal, state, and regional regulations pertaining to transportation; and identifies potential project-specific and cumulative impacts on transportation and measures to minimize these impacts.

As discussed in Chapter 1, Introduction, a Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was initially published in December 2016 based on the original project applications. In 2019, the project applicant submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the amount of onsite parking. The City issued a revised NOP in May 2020. Five comments received in response to the NOPs raised concerns regarding traffic. The comments discussed concerns regarding traffic hazards, increased traffic volumes, and the potential need for signalizing the Parsons/Gardner/Yosemite intersection. Both NOPs and the comments received in response to them are provided in Appendix A.

Resources referenced to prepare this section include the Traffic Impact Study (TIS) prepared for the project by DKS Associates (DKS 2021), which is provided in Appendix M, the Merced Vision 2030 General Plan (City of Merced 2012a) and the Merced Vision 2030 General Plan EIR (City of Merced 2012b).

Metrics for Analysis of Transportation Impacts

Until July 2020, environmental review documents prepared in compliance with the California Environmental Quality Act (CEQA) typically relied upon an analysis of how a project would alter the Level of Service (LOS) for intersections and roadway segments in a project vicinity. LOS is a measurement of the degree of congestion at intersections and a measurement of the ratio of traffic volume to roadway capacity on roadway segments. With the passage of Senate Bill 743, which modified CEQA (Public Resources Code Sections 21000 et. seq.) and adoption of the new CEQA Guidelines Section 15064.3(a)-(c), use of metrics that relate to roadway congestion for the purpose of identifying transportation impacts under CEQA is now precluded. Specifically, California Public Resources Code section 21099(b)(2) and CEQA Guidelines Section 15064.3 stated “a project’s effect on automobile delay shall not constitute a significant environmental impact.” Instead, the Guidelines provide that vehicle miles traveled (VMT) is generally the most appropriate measure of transportation impacts and set forth criteria for analyzing such impacts for land use and transportation projects.

An analysis of the project's effects related to LOS within the study area is presented in the TIS to address the project's consistency with General Plan standards for transportation infrastructure operations and to address community concerns but that analysis is not included in this EIR based on the direction in CEQA that automobile delay does not constitute an environmental effect.

3.12.2 Environmental Setting

Study Area and Roadway/Intersection Network

As shown on Figure 3.12-1, Transportation Study Area, the Study Area for the TIS prepared for the proposed project includes eight roadways within the City and County of Merced. Residential and limited commercial development within the City of Merced is present south and west of the project site, while rural residential and agricultural uses within Merced County are present north and east of the project site. The project site can be accessed by two-lane roads, including Gardner Avenue along the site's western boundary and Yosemite Avenue along the site's southern boundary. Descriptions of the local and regional roadways in the study area, as well as the Study Area intersections, are provided below.

Study Area Roadways

G Street is a north-south roadway located west of the project site, extending from Highway 99 to La Paloma Road, where it turns into Snelling Road. G Street is a four-lane roadway south of Yosemite Avenue, narrowing to two lanes north of Yosemite Avenue. G Street carries almost 26,000 vehicles per day within the City, and 6,700 daily vehicles north of the city limits.

East Bellevue Road is a two-lane east-west road located north of the project site, extending from Fox Road to its eastern terminus at Lake Road. This roadway currently carries approximately 3,700 vehicles per day, west of Lake Road. Bellevue Road provides access between newly developing portions of Merced and the UC Merced campus.

East Yosemite Avenue is a two-lane east-west road and passes along the project site's southern boundary. It extends from R Street to its eastern terminus at Arboleda Drive. This roadway carries between 15,100 vehicles per day east of G Street, decreasing to 2,150 vehicles per day east of Kibby Road. West of G Street, West Yosemite Avenue provides access to Merced College. East of G Street, East Yosemite Avenue provides access to Lake Road.

Lake Road is a two-lane north-south road extending from Yosemite Avenue to its northern terminus at Lake Yosemite. Lake Road is planned to become a local access road in the future. Campus Parkway would replace its function for through access. Lake Road currently provides primary access to the UC Merced campus.

Mercy Avenue is a two-lane east-west collector street that provides primary access to Mercy Medical Center. Mercy Avenue begins at G Street and continues east to just east of Paulson Road. West of G Street, Mercy Avenue becomes Community College Drive North and provides access to the northern portions of Merced College.

North Parsons Avenue is a north-south two lane minor arterial roadway between East Bear Creek Drive to the south and East Yosemite Avenue to the north. Parsons Avenue becomes Gardner Avenue north of East Yosemite Avenue, starting at the southwest corner of the project site.

Gardner Avenue is currently a two-lane north-south road designated as a minor arterial in the City's General Plan. It currently acts as an extension of Parsons Avenue from East Yosemite Avenue to its terminus approximately one-half mile north of Dunn Road. In the future, the City's General Plan designates this street as a four-lane minor arterial extending north to connect to East Bellevue Road.

Dunn Road is a two-lane east-west street between Paulson Road to the west and Lake Road to the east. The segment between Gardner Avenue and Lake Road is currently in Merced County. Dunn Road serves predominantly rural residential land uses and consists of a narrow (24 feet) unimproved road (without curb, gutter and sidewalk) with moderate to poor pavement conditions. In the future, the adopted UC Merced Community Plan identifies Dunn Road connecting to the planned Campus Parkway east of Lake Road.

Transit and Rail Facilities

Amtrak provides train service to the City of Merced and vicinity on its San Joaquin route. The San Joaquin route runs multiple times daily between the San Francisco Bay Area (or Sacramento) and Bakersfield, where Amtrak Thruway buses connect to Southern California destinations. Stops in addition to Merced include Stockton, Modesto, Martinez, and Fresno. The northbound and southbound trains currently stop in Merced seven times daily. The Amtrak station is located in downtown City of Merced, approximately 3.5 miles from the project site.

The local bus transit, The Bus, is operated by the Transit Joint Powers Authority for Merced County and provides regular fixed-route bus service within Merced County. The Bus currently operates nearly thirty bus lines throughout the County, seven of which serve the City and surrounding communities. Other routes connect the City with other cities located further away in the County. The existing transit routes within the project vicinity are shown on Figure 3.12-2, Existing Merced Transit Routes. Six bus routes provide either direct service or nearly direct service to the project site.

- **Route M1** (Merced West): This bus route provides access to Merced College and its nearest stop is at the western edge of Merced College (on M Street), approximately 1.5 miles from the project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south and west.
- **Route M2** (R Street Shuttle): This bus route also provides access to Merced College and its nearest stop is at the western edge of Merced College (on M Street), approximately 1.5 miles from the project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south.
- **Route M3** (M Street Shuttle): This bus route provides access to Merced College and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Paulson Road, approximately ½ mile from the proposed project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south.
- **Route M4** (G Street Shuttle): This bus route provides access to Merced College and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Paulson Road, approximately ½ mile from the proposed project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south.
- **Route M6** (Olive Loops) provides access to Merced College and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Parsons Avenue, across the street from the proposed project site. This route operates every 30 minutes throughout the day.
- **Route UC** (UC Merced) provides access to UC Merced, Merced College, and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Parsons Avenue, across the street from the proposed project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced.

Other bus options within the project vicinity include CatTracks, which is a bus system funded by the UC Merced campus. It connects the campus and surrounding areas, including downtown Merced and research facilities located on the closed Castle Air Force base. CatTracks operates a number of routes in the vicinity of the proposed project. A number of CatTracks routes include on-demand stops along East Yosemite Avenue within walking distance of the proposed project. The StaRT (Stanislaus Regional Transit) bus system provides one round trip each direction daily between Modesto, Turlock, and Merced along State Route 99. It connects with The Bus in the City of Merced. The YARTS (Yosemite Area Regional Transit) bus system connects the City of Merced to Yosemite National Park.

Bicycle and Pedestrian Facilities

The Merced Vision 2030 General Plan notes that the climate and terrain in the City and surrounding areas encourage the use of bicycles for both recreation and transportation, and the City is committed to providing bicycle facilities to meet the community's transportation needs (City of Merced 2012a). The City adopted a Bicycle Transportation Plan in 2008 and updated it in 2013 (City of Merced 2013), and the City's Development Services Department partners with the Merced County Association of Governments to implement the plan. While overall development of non-motorized facilities is a responsibility of local government, Caltrans provides state-level funds through the Bicycle Transportation Account and Safe Routes to School programs.

The City's existing bikeway system consists of Class I paths (separated from roadways) and Class II on-street bike lanes. Most of the Class II bike lanes are on streets within the urban area of Merced, while the Class I bike paths run along portions of Black Rascal Creek and Bear Creek. Few dedicated bicycle facilities exist in the unincorporated areas of Merced County.

The County does have one Class I Bike Path (Lake Road) and plans to construct an additional Class I Bike Path along Segments 2 and 3 of Campus Parkway. Figure 3.12-3, Existing Bicycle Facilities, shows existing bicycle facilities in the vicinity of the proposed project.

The city's Bicycle Transportation Plan identifies several improvements to the bikeway system to be developed over time to improve bicycle accessibility, particularly within five target areas: the Western Industrial Area; Merced College area and UC Merced; South Merced, including the Airport Industrial Park; Southeast Merced, including Golden Valley High School; and local government centers in the downtown area. A variety of new bicycle facilities and improvements to existing bicycle facilities are proposed throughout the city and particularly within these target areas (City of Merced 2013).

Pedestrian facilities surrounding the project site include sidewalks along the southern side of East Yosemite Avenue, and along the western side of Gardner Avenue. The eastern side of Gardner Avenue and the northern side of East Yosemite Avenue, which border the project site, do not contain existing sidewalks.

3.12.3 Regulatory Setting

Federal Regulations

There are no federal standards that inform the analysis of the project's transportation and circulation impacts.

State Regulations

Senate Bill 375

Senate Bill 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional greenhouse gas (GHG) reduction targets, and land use and housing allocations. Senate Bill 375 requires each metropolitan planning organization, such as the Sacramento Area Council of Governments, to adopt a sustainable communities strategy or alternative planning strategy that will prescribe land use allocation in that metropolitan planning organization's Regional Transportation Plan.

The California Air Resources Board, in consultation with metropolitan planning organizations, provides each region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for 2020 and 2035. These reduction targets are updated every 8 years, but can be updated every 4 years, if needed, based on changing technology.

Technical Advisory on Evaluating Transportation Impacts in CEQA

California Senate Bill 743 (SB 743) was signed in 2013 and later incorporated into CEQA in 2018. Starting July 1, 2020, all new land-use development and transportation projects are expected to evaluate transportation impacts under CEQA using VMT instead of LOS, as discussed in Section 3.12.1. Calculating baseline VMT for SB 743 requires data on the amount of vehicle trips, trip lengths, and vehicle occupant classification (resident vs. employee).

The California Governor's Office of Planning and Research (OPR) published the Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) to provide technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. This technical advisory is one in a series of advisories provided by the Governor's Office of Planning and Research (OPR) as a service to professional planners, land use officials, and CEQA practitioners. OPR issues technical assistance on issues that broadly affect the practice of land use planning and the California Environmental Quality Act (CEQA). .

Local Regulations

Merced Vision 2030 General Plan

The City of Merced adopted its Merced Vision 2030 General Plan in January 2012. The Transportation and Circulation chapter of the City's General Plan includes goals and policies intended to plan for circulation while enhancing the community and protecting the environment. The Plan's goals and objectives include roadways and vehicular access, active transportation, and the coordination of land use planning and circulation. The Plan identifies a one-mile grid

system of arterial roadways, which will be extended to serve Merced's new growth areas in the area between the proposed project site and the UC Merced campus. The policies contained in the Merced Vision 2030 General Plan relevant to this CEQA analysis of transportation impacts are:

Policy T-1.1 Design streets consistent with circulation function, affected land uses, and all modes of transportation.

Policy T-1.2 Coordinate circulation and transportation planning with pertinent regional, State, and Federal agencies.

Policy T-1.3 Design major roads to maximize efficiency and accessibility.

Implementing Actions

1.3a Adhere, to the greatest possible extent, to the standards adopted for spacing streets that intersect arterials and higher order roadways

1.3c Work to ensure that land use fronting major streets have shared access across adjacent properties and provide sufficient on-site parking to avoid depending upon on-street parking

1.3d Continue to require the provision of on-site visitor parking in multi-family projects

1.3f Whenever feasible avoid, or eliminate, unnecessary or poorly placed median openings and consider limiting left turns at uncontrolled intersections during peak hours on arterials

1.3k Approve driveway access locations only if consistent with approved minimum acceptable distances from major intersections, except in unusual circumstances

Policy T-1.4 Promote traffic safety for all modes of transportation.

Policy T-1.5 Minimize unnecessary travel demand on major streets and promote energy conservation.

Policy T-1.6 Minimize street system impacts on residential neighborhoods and other sensitive land uses.

Policy T-2.1 Provide for and maintain a major transit way along "M" Street and possibly along the Bellevue Road/Merced-Atwater Expressway and Campus Parkway corridors.

Policy T-2.2 Support and enhance the use of public transit.

Policy T-2.3 Support a safe and effective public transit system.

Policy T-2.4 Encourage the use of bicycles.

Policy T-2.5 Provide convenient bicycle support facilities to encourage bicycle use.

Policy T-2.6 Maintain and expand the community's existing bicycle circulation system.

Policy T-2.7 Maintain a pedestrian-friendly environment.

Policy T-2.8 Improve planning for pedestrians.

Policy T-2.9 Ensure that new development provides the facilities and programs that improve the effectiveness of Transportation Control Measures and Congestion Management Programs.

2018 Regional Transportation Plan & Sustainable Communities Plan (RTP/SCS)

The goals and objectives for the 2018 RTP/SCS were established to meet the regulatory requirements of the Fixing America's Surface Transportation Act, which was adopted in 2015 to establish and fund new programs to support critical transportation projects to ease congestion and facilitate the movement of freight on the Interstate System and other major roads, the Clean Air Act, Title VI of the Civil Rights Act, SB 375, the California Complete Streets Act, and CEQA. They were tailored specifically to the unique needs of Merced County and the feedback that was received from the public during the planning process. Each goal was associated with specific performance measures to compare different planning alternatives against current conditions.

Goal 1. Highways, Streets, and Roads: Provide a safe and efficient regional road system that accommodates the demand for movement of people and goods.

Goal 9. Land Use Strategies: Provide economical, long-term solutions to transportation problems by encouraging community designs that encourage walking, transit, and bicycling.

Goal 12. Sustainable Communities: Reduce per capita greenhouse gas emissions by coordination compact growth with alternative transportation strategies. Protect and enhance the natural environment. Support vehicle electrification and the provision of electrification infrastructure in public and private parking facilities and structures.

Goal 17. Social Equity and Environmental Justice: Promote and provide equitable transportation and housing options for all populations and ensure that all populations share in the benefits of transportation investments.

3.12.4 Impacts

Methods of Analysis

Various methodologies exist to estimate project VMT statistics and compare it to that of the existing environment, including travel demand models, tabulation of existing known trip lengths for the proposed project, and "Big Data" sources. The TIS prepared for this project used a "Big Data" source provided by Streetlight Data to estimate existing VMT per capita in the region and for the proposed project. This data is based on a large sample size of mobile location sources, including mobile phones and other location-enabled devices. Streetlight Data uses trip patterns to determine home and work locations for each device, and then can approximate daily trip patterns for that device. Sampled devices and people are anonymized and then factored to determine total trips and trip lengths per resident and employee, and results are then summarized by a specific geography, in this case Census Block Groups. The data set obtained for the purposes of this study consisted of ten Census Block Groups, including the Block Group where the project is located, and nine others in the immediate vicinity of the project site.

While the VMT analysis is based on "big data" and not localized/project-specific traffic modeling, the LOS-based analysis included in the TIS also provides some information relevant to considering VMT. Specifically, it discusses the daily vehicle trip generation associated with the project, noting several features of the project and/or project vicinity that can help to reduce generation of new traffic trips and thus help to reduce total VMT and VMT per capita. These include:

- A five percent reduction was applied to the trip generation of the residential component to reflect the site's proximity to public transit lines and the UC Merced and Merced College campuses.
- A forty percent "pass-by" reduction was applied to the retail uses within the commercial component of the proposed project, based on data from Institute of Transportation Engineers Trip Generation Handbook, as cited in Appendix M, for estimating trip generation for commercial developments. Pass-by trips are considered to be vehicle trips that are on the way from an origin location to a primary destination that make an intermediate stop at the site while passing by on an adjacent street.
- Trip generation for both the residential and the commercial components of the project were adjusted for internal capture. Internal capture are trips estimated as part of the total trip generation of each individual land use within multi-use developments, but are trips between one land use and another land use on the same site (e.g., between residential and retail or restaurant). Internal capture trips can be made on the site by walking or by vehicles using internal roadways without using the major street system and thus can be

subtracted from the total site trip generation. A twelve percent and ten percent internal capture reduction was applied to the residential and commercial components of the project, respectively.

Thresholds of Significance

Thresholds of significance are based on the VMT analysis guidance from OPR and from policies contained within the Transportation and Circulation chapter of the Merced Vision 2030 General Plan.

VMT

CEQA provides that a lead agency may develop its own thresholds of significance for evaluating environmental effects. Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of GHG emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. In preparation of this EIR, the City has reviewed the guidelines presented in OPR Technical Advisory on Evaluating Transportation Impacts Under CEQA (OPR 2018) to determine appropriate thresholds of significance.

For residential uses, the Technical Advisory recommends a threshold of generating VMT that is 15 percent below the existing local VMT, noting that “Fifteen percent reductions in VMT are achievable at the project level in a variety of place types” and “a fifteen percent reduction is consistent with SB 743’s direction to OPR to select a threshold that will help the State achieve its climate goals” (OPR 2018).

For commercial uses, the Technical Advisory notes that “By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant” (OPR 2018).

While the Technical Advisory recommends a general standard that retail development with more than 50,000 square feet could be considered regional-serving, it also recognizes that “many cities and counties define local-serving and regional-serving retail in their zoning codes. Lead agencies may refer to those local definitions when available, but should also consider any project- specific information, such as market studies or economic impacts analyses that might bear on customers’ travel behavior” (OPR 2018).

Further, the Technical Advisory provides that internal capture of trips should be considered in the context of a mixed-use project.

Based on the guidance in the Technical Advisory, the City has determined that the following thresholds of significance are applicable to consideration of this project's potential VMT impacts; specifically that the project would have a significant impact if:

- VMT per capita for the residential portion of the proposed project would exceed 85 percent of the regional (in this case Merced County) average; OR,
- Net VMT would increase due to construction of regional-serving commercial development.

Roadway System

Traffic deficiencies would be considered inconsistent with the General Plan if a project would result in:

- Substantial increases in hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).
- An intrusion of traffic on neighborhood streets sufficient to cause a 0.1 increase the Traffic Infusion on Residential Environments (TIRE) Index for a street currently at a TIRE Index above 3.0.
- Inadequate emergency access to the project site.

Bicycle System

Bicycle impacts would be considered significant if a project would:

- Disrupt existing bicycle facilities.
- Interfere with planned bicycle facilities. This includes failure to dedicate right-of way for planned on- and off-street bicycle facilities included in an adopted Bicycle Master Plan or the General Plan.
- Conflict with or create inconsistencies with adopted bicycle system plans, guidelines, policies or standards.

Pedestrian System

Pedestrian impacts would be considered significant if a project would:

- Disrupt existing pedestrian facilities. This can include adding new vehicular, pedestrian or bicycle traffic to an area experiencing pedestrian safety concerns.

- Interfere with planned pedestrian facilities.
- Conflict with or create inconsistencies with adopted pedestrian system plans, guidelines, policies or standards.

Impacts and Mitigation Measures

Impact 3.12-1: The proposed project would not conflict with a program, plan, ordinance, or policy, addressing the circulation systems, including transit, roadway, bicycle and pedestrian facilities but could create demand for additional pedestrian facilities. This impact is considered to be potentially significant.

The Crossings

Transit Systems

The proposed project includes construction of a public bus stop on East Yosemite Avenue directly in front of the project site and a public bus stop internal to the project site. The proposed project would likely increase ridership on the route(s) using the stop, which would help increase fare box recovery for area transit providers. Given typical ridership rates among the community, it is not anticipated that the proposed project would result in over-capacity conditions on local bus routes (Appendix M). Therefore, impacts to transit systems would be **less than significant**.

Bicycle Facilities

The project site is served by existing bike lanes on both East Yosemite Avenue and Gardner Avenue. The City of Merced 2013 Bicycle Transportation Plan includes planned bikeway improvements adjacent to the proposed Project, including the following:

- Extend bike lane along Yosemite Avenue (on north side) between McKee Road and Parsons Avenue (this improvement is part of the frontage improvements required of the project).
- Extend bike lanes on Gardner Avenue north of East Yosemite Avenue (providing a bike lane on the east side of Gardner Avenue is part of the frontage improvements required of the project).

The proposed project would provide bicycle facilities that connect to the existing bicycle transportation system as well as construct portions of the City's planned bicycle system. The proposed project would not hinder any planned bicycle facility nor conflict with any General Plan policy or standard. Impacts to bicycle transportation would be **less than significant**.

Pedestrian Facilities

The proposed project site is located at a corner that currently lacks pedestrian improvements on the east side of Gardner Avenue and the north side of East Yosemite Avenue. The proposed project would include new sidewalk facilities on both of these roadways, which would close gaps in the existing pedestrian network. However, the project could create a demand for pedestrian connections to the west and south and there are no existing or proposed pedestrian crosswalks on Gardner Avenue or East Yosemite Avenue. This could expose pedestrians to hazards when crossing the street, and thus the impact is **potentially significant.**

Remainder Area

No development is currently proposed within the Remainder Area, however the portions of the Remainder Area proposed to be zoned R-1-10 could support development of single-family residences.

Transit Systems

Future residents within the Remainder Area would have access to same existing transit routes in the vicinity as The Crossings component and access to the bus stops constructed by the project on East Yosemite Avenue and within The Crossings development. Additional ridership on the route(s) using the proposed stops is likely to occur and would help increase fare box recovery for area transit providers but would not result in over-capacity conditions on local bus routes (Appendix M). Therefore, impacts to transit systems would be **less than significant**.

Bicycle Facilities

Future development within the Remainder Area would introduce new bicycle riders to the area. These riders could access the bicycle system improvements constructed by The Crossings development and access other existing bicycle facilities in the vicinity. Development within the Remainder Area would not be expected to hinder any planned bicycle facility or conflict with any General Plan policy or standard. Impacts to bicycle facilities would be **less than significant**.

Pedestrian Facilities

Future development within the Remainder Area would introduce new pedestrians to the area. These pedestrians could access the sidewalks on East Yosemite Avenue and Gardner Avenue constructed by The Crossings development and access other existing pedestrian facilities in the vicinity. Development within the Remainder Area would not be expected to hinder any planned pedestrian facility or conflict with any General Plan policy or standard. Impacts to pedestrian transportation and facilities would be **less than significant**.

Mitigation Measures

The following mitigation measure would reduce potential impacts to pedestrian safety to a less-than-significant level by ensuring that a contiguous pedestrian route is provided from the project site to potential destination points to the west. When combined with the new sidewalk facilities that would be constructed along the project site frontage as required by the City's development standards, this mitigation measure would ensure that the project's impacts to pedestrian travel would be **less than significant**.

The Crossings

3.12a The applicant shall provide for striping of crosswalks on the north and east legs of the East Yosemite Avenue/Gardner Avenue intersection to facilitate pedestrian access to points west and south of the project site.

Remainder Area

No mitigation is required for the Remainder Area.

Impact 3.12-2: The proposed project would result in residential VMT per capita that is at least 15 percent below the regional average and would not develop regional-serving commercial development. This impact would be less than significant.

Residential Development VMT Analysis

The Crossings

The proposed project would add residents and employees to the study area. Vehicles driven by residents of the proposed apartments and employees of the proposed commercial square footage would be added to the existing environment.

As noted in the Methods of Analysis section, a "Big Data" source provided by Streetlight Data was utilized to estimate project VMT per capita and compare it to the existing environment. The data set obtained for the purposes of this study consisted of ten Census Block Groups, including the Block Group where the project is located and nine others in the immediate vicinity of the project site. The existing countywide residential average trip length is 10.6 miles per day and the weighted average VMT per capita is 18.6 miles (Appendix M).

The locations of the ten Block Groups are shown on Figure 3.12-4, VMT per Capita by Census Block Group. The figure shows that of the ten Block Groups, seven have VMT per capita at least

15 percent lower than the County average, while one is only 7 percent below the County average, and two are greater than the County average.

The Block Group where the project site is located (Block Group 060470018011) shows VMT per capita that is approximately 55.4 percent of the Merced County Average, or approximately 10.3 miles per day. This Block Group includes a majority of the University of California (UC) Merced campus, and therefore its trip characteristics are skewed by the large number of University students living in the Block Group. University students are more likely to have fewer and shorter daily vehicle trips than other residents because much of their daily routine is centered around the university campus and many may not own or drive cars.

Additionally, the project site is located on the border of three Census Block Groups, and it is therefore likely that the travel characteristics of residents within the project would reflect a blend of the characteristics in each of these three Block Groups. Therefore, the TIS calculates a weighted average (weighted by relative population in each Block Group) for the three Block Groups that either contain or are directly adjacent to the project site.

Table 3.12-1 shows the relative weighted VMT per capita (compared to the County as a whole) for the single Block Group the project is located within, the three Block Groups adjacent to the proposed project, and the ten Block Groups for which data was obtained.

Table 3.12-1
VMT Per Capita by Census Block Group

	Countywide	Project Block Group (060470018011)	Three Adjacent Block Groups	All Ten Block Groups
Total Population	269,075	5,432	8,375	29,786
Resident Average Trip Length	10.6 miles	8.0 miles	8.0 miles	8.1 miles
Weighted VMT per Capita As Percent of Countywide	18.6 100 percent	10.3 55.4 percent	11.1 59.6 percent	14.4 77.3 percent

Source: Appendix M

As shown in Table 3.12-1, each of these three options yields weighted VMT per capita that is greater than 15 percent below the countywide average. Therefore, based on the residential VMT per capita rates presented above, the impact of the proposed residential land uses in The Crossings component of the project on VMT is considered to be **less than significant**.

Remainder Area

At this time, no development is proposed for the Remainer Area; thus, implementation of the proposed project would not result in the generation of additional vehicle trips from this area. However, the portions of the Remainder Area proposed to be zoned R-1-10 could support single-family residential development. The VMT generated by new residences within the Remainder area would be expected to be similar to the average VMT generated by residential uses in three Block Groups adjacent to the project site because the residential development that could occur under the proposed R-1-10 zoning within the Remainder Area would be similar to that of the existing low-density residential development surrounding the project site, as described above. Therefore, impacts would be **less than significant**.

Commercial Development VMT Analysis

The Crossings

The commercial portion of The Crossings component of the proposed project includes development of approximately 66,000 square feet of retail space. As discussed in the Thresholds of Significance discussion above, the OPR Technical Advisory suggests that commercial uses with more than 50,000 square feet may be considered regional-serving retail, and that regional-serving retail could result in a significant VMT impact by increasing existing shopping trip lengths. However, the Technical Advisory also recognizes that local zoning codes may offer local definitions and standards that can help determine whether a commercial development would be local-serving or regional-serving; and that "retail projects typically re-route travel from other retail destinations. A retail project might lead to increases or decreases in VMT, depending on previously existing retail travel patterns" (OPR 2018).

The project proposes to zone the commercial portion of The Crossings component of the project Neighborhood Commercial (CN), which is defined in the Merced Municipal Code as providing "areas for shopping centers and other commercial uses that serve the day-to-day needs of residential neighborhoods. The C-N districts shall have a minimum area of three (3) acres and shall be located only where analysis of the residential population demonstrates that the facilities are justified." Further, the specific uses permitted in the CN district include local-serving uses such as general retail, professional and medical offices, banks, and restaurants but excludes regional-serving uses such as hotels/motels, building supplies and home improvement stores, equipment sales and rental, educational facilities, community assembly facilities, and vehicle sales (City of Merced 2020). Some regional-serving uses may be allowed subject to a Conditional Use Permit, but issuance of a Conditional Use Permit for any such uses is not requested as part of this project.

The project site is adjacent to three existing residential subdivisions that were constructed in the early and mid 1990s (Oakmont Village, Silverado, and Camelot, an approximate total of over 1,200 dwelling units) as well as over 2,000 residences in the Northeast Yosemite Specific Plan area located north of Yosemite Avenue and between G Street and Gardner Avenue. Additional residences are currently under construction approximately one mile east of the project site. These include the Moraga at Merced master-planned community, and Merced Station, a student housing apartment complex. Combined these communities are planned to consist of 540 dwelling units.

There is a generally low ratio of commercial uses to residential units in the project vicinity. There is a small medical office complex, University Surgery Center, in the southwest quadrant of the Parsons Avenue/East Yosemite Avenue intersection. The commercial businesses nearest to the project site are located approximately one mile west along East Yosemite Avenue at Paulson Avenue and at G Street, approximately 1.5 miles west of the project site. Additionally, the Northeast Yosemite Specific Plan (City of Merced 1999) includes 3.8 acres of neighborhood commercial within the 640-acre planning area; the majority of land uses in that specific plan area are residential, with parks, schools, and churches to support the residential community. As a future development area, the Bellevue Community Corridor Plan (City of Merced 2015), located north of the project site, anticipates additional commercial uses to be developed in mixed-use and commercial areas, however no development has occurred or been proposed within this plan area to-date.

Thus, there are more than 3,700 existing and under-construction residences within 1 mile of the project site, not including the 570 residential units proposed as part of this project, and a limited amount of existing commercial businesses within 2 miles of the project site. This shows that there is a large population of local residents with limited access to local-serving commercial businesses and thus it is reasonable to expect that the proposed commercial development would predominantly serve the local population.

Additionally, the proposed project implements several of the project design elements that the OPR Technical Advisory recommends as features that may reduce vehicle miles traveled, specifically:

- The project is proposed in an area of the region that already exhibits low VMT, as shown in Table 3.12-1;
- The project is proposed in an area where transit service is already available, and the project would construct a new bus stop to support transit use;
- The project proposes a higher density of land uses compared to many surrounding properties; and

- The project proposes a mix of commercial and residential land uses and would increase the variety of land uses within the project vicinity by including commercial space, which is limited in the local area.

Given the location of this project, including proximity to UC Merced, the lack of local-commercial development in the immediate vicinity, and the existing and planned residential population proximate to the site, it is highly likely that the commercial development proposed as part of the project would be mainly local-serving in nature. Therefore, the impact of the proposed commercial portion of The Crossings component of the project related to VMT is considered to be **less than significant**.

Remainder Area

Under the proposed land use and zoning designations for the Remainder Area, no commercial development would be permitted in that portion of the project site. Thus, implementation of the proposed project would not result in the generation of additional vehicle trips and associated changes in VMT from this area. Therefore, the Remainder Area would result in **no impact** associated with VMT generated by commercial uses.

Mitigation Measures

No mitigation measures are required.

Impact 3.12-3: The proposed project would not substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersection(s) or incompatible uses (e.g. farm equipment). This impact is considered less than significant.

The Crossings

The proposed project would not involve alterations to the existing roadway network surrounding the project site. The proposed project would construct two access driveways on East Yosemite Avenue: the main driveway located approximately 885 feet east of Gardner Avenue and a secondary driveway serving the commercial element of the site located approximately 365 feet east of Gardner Avenue. In addition, the project proposes two access driveways on Gardner Avenue: the main driveway located about 540 feet north of East Yosemite Avenue which would provide access to both the commercial and residential portions of this development, and a secondary driveway serving the commercial element located approximately 275 feet north of East Yosemite Avenue. These driveways are located along sections of roadway that do not contain horizontal or vertical curves that limit sight distance and the adjacent roadways have posted speed limits of 45 miles per hour. Further, the TIS found that the four access driveways would

have sufficient capacity for project-related traffic to enter and leave the site without causing vehicle queues that extend into the public right of way. With adequate sight distance, adequate capacity, and no proposed land uses that would typically be accessed by heavy equipment, the four new driveways would not create any safety hazards. No dangerous intersections or sharp curves would be constructed as part of the proposed project. Thus, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses.

In addition, the proposed project would implement street improvements along its frontage on East Yosemite Avenue and Gardner Avenue. These frontage improvements would complete gaps in the City's circulation system and connect the proposed project to the surrounding pedestrian and bicycle system. The project also proposes to provide a public bus stop and turnout on westbound Yosemite Avenue located approximately 720 feet east of Gardner Avenue.

Remainder Area

At this time, no development is proposed for the Remainer Area; thus, implementation of the proposed project would not result in the potential to substantially increase hazards due to a geometric design feature or incompatible uses. However, under the proposed land use and zoning designations, some future residential development would be possible. It is reasonable to assume that the existing residences within the Remainder Area and the Yosemite Church and associated private school would not be redeveloped into new single-family lots. Under the proposed zoning of R-1-10, the currently vacant portions of the Remainder Area could support approximately 25 new single-family residences. The currently vacant portions of the Remainder Area are generally located in the southeast corner and north of the Yosemite Church property. Providing access to new single-family residences in these portions of the site would not require modifications to East Yosemite Avenue, and new residences would not introduce heavy equipment or other vehicle types that would be incompatible with general roadway safety. Thus, future development within the Remainder Area would not substantially increase hazards due to a geometric design feature or incompatible uses and this impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.12-4: The proposed project could increase traffic on neighborhood streets within the study area, but the additional traffic volumes would not cause a change in the character of those streets and this impact would be less than significant.

The TIS considered the degree to which the proposed project could result in traffic volume increases on existing collector and local streets and whether such increases would result in

adverse effects to quality of life for residents of those streets. This could occur if individuals choose driving routes that rely upon collectors and local streets in lieu of arterial streets. Primary factors that might influence the route that drivers take include intersection spacing, prohibited movements at certain intersections (e.g., "no left turn" restrictions), and a perception that the routes preferred by the City are not the most direct route to a given destination. As demonstrated in the following discussion, there is a potential for a minor increase in traffic volumes on one route that could be used to bypass the arterial street route to common destinations, but those volume increases would not reach a level that causes material changes in the character of the residential environment and thus, this impact would remain less than significant.

Merced's Vision 2030 General Plan adopted polices to reduce the impacts of new development on residential neighborhoods, particularly where street design encourages traffic to "cut-through" existing neighborhoods as a real or perceived shortcut. Specifically, implementing actions associated with Policy T-1.7 (Minimize Street System Impacts on Residential Neighborhoods and Other Sensitive Land Uses) call for the City to provide major roadways routed between, rather than through, neighborhoods and to approve street circulation patterns that discourage non-local traffic from cutting through neighborhoods.

As documented in the TIS, the proposed project internal circulation and access points are consistent with the City's policy because the circulation is entirely self-contained within the site and the access points are located on minor arterials rather than local or collector streets. This project design would not directly lead to traffic cutting through neighborhoods.

However, the TIS considered the potential for traffic generated by the project to cut through other neighborhoods in an attempt to reach nearby destinations more quickly or along a route that is perceived to be quicker, more direct, and/or more efficient. For this analysis, the UC Merced campus was assumed to be a primary destination for project residents; other primary destinations include the Merced College campus and commercial businesses along G Street.

Two of the key factors that affect drivers' route choice are intersection spacing and prohibited movements. The City's design standards for minor arterials requires that the roadway include a raised median and a minimum spacing of 1/8 mile between an arterial or arterial intersection and any full-access (no turn restrictions) minor intersections or driveways. Because East Yosemite Avenue and Gardner Avenue are arterials, these standards require that traffic exiting the proposed project's main driveway on Gardner Avenue would be restricted to right turns only (with both right and left turns into the driveway permitted), and the secondary driveway on Gardner Avenue would be restricted to right turns in and out.

Drivers with UC Merced as their destination would typically be expected to exit the site at the main Yosemite Avenue driveway and travel east on Yosemite Avenue to Lake Road. These drivers

may perceive the route as longer/less direct compared to exiting the site from the Gardner Avenue driveway, traveling north of Gardner Avenue to Dunn Road to Lake Road. This would result in undesirable traffic on Dunn Road which, once annexed into the City of Merced, would be classified as either a local residential street or residential collector.

Similarly, drivers destined to locations west of the site, such as Merced College and commercial centers on G Street, may perceive using the residential streets of Hunters Drive to White Dove Avenue to Yosemite Avenue as a more convenient route than exiting the site via the main driveway on East Yosemite Avenue and traveling westerly on Yosemite Avenue through Gardner Avenue.

To determine the potential cut-through traffic on residential streets to cause a significant impact, the TIS first compares the travel times for the desired and potential cut-through routes, assumes 40 percent of project trips would use any cut-through route that has a similar travel time as the desired route (less than 60 seconds difference), and analyze whether the cut-through traffic would cause a significant increase in the traffic volumes on the neighborhood streets used by that cut-through traffic.

Table 3.12-2 shows that the extent of traffic that might use these alternative routes would not cause a noticeable change in the perceived character of the affected roadways, as determined by the Traffic Infusion on Residential Environments (TIRE) Index. The TIRE Index is a numerical representation of a resident's perception of the effect of traffic using the residential street. The TIRE index is an industry-standard tool for evaluating the effects of changes in traffic volumes on quality of life issues such as walking, cycling, playing and daily tasks such as maneuvering a car out of a residential driveway. Streets are designated with a TIRE index (on a scale of 1.5 to 5) based on the existing daily traffic volume. Streets with TIRE indices above 3.6 are considered to be traffic dominated, while those below 3.6 are better suited for residential activities. Cut-through traffic volumes causing a +0.1 change in the TIRE Index when the Index without the cut-through traffic is already above 3.0 is considered an impact. As shown in Table 3.12-2, although the project could increase daily traffic volumes on Gardner Avenue, the TIRE Index rating for Gardner Avenue would not be changed and thus the project would have **no impact.** Table 3.12-2 shows that no additional traffic is expected to use the Gardner to Hunters to White Dove to Yosemite route because this route would take 62 seconds longer than exiting the site via the main driveway on East Yosemite Avenue and continuing westerly.

Table 3.12-2
Summary of Potential Neighborhood Intrusion Impacts

Potential Cut-Through Route	Travel Time Difference from Desired Route (sec)[1]	Peak Hour Project Traffic Using Cut-Through Route	Without Project	With Project
			Average Daily Traffic	Average Daily Traffic[2]
			TIRE Index	TIRE Index[3]
Gardner to Dunn to Lake	39	20	900	1,100
			3.0	3.0
Gardner to Hunters to White Dove to Yosemite	62	0	Negligible Impact	

Notes:
[1] When the cut-through route is greater than sixty seconds longer than the desired route, it is considered to have a negligible impact.
[2] Assumes 40 percent of the outbound peak hour trips would use the route. For use in the TIRE Index, the peak hour volume is converted to an average daily volume assuming a 10 percent peak to daily ratio.
[3] Traffic Infusion on Residential Environments (TIRE) index.
Source: Appendix M

Mitigation Measures

No mitigation measures are required.

Impact 3.12-5: The proposed project would not result in inadequate emergency access. This impact is considered less than significant.

The Crossings

The proposed project would construct two access driveways on East Yosemite Avenue: the main driveway located approximately 885 feet east of Gardner Avenue and a secondary driveway serving the commercial element of the site located approximately 365 feet east of Gardner Avenue. In addition, the project proposes two access driveways on Gardner Avenue: the main driveway located about 540 feet north of East Yosemite Avenue, and a secondary driveway serving the commercial element located approximately 275 feet north of East Yosemite Avenue. All uses within the project site would be served with two or more vehicular access points, thus there would be sufficient emergency access to and from the site. In addition, the proposed project would be reviewed by the City's Fire Department in order to ensure adequate emergency access is provided. Impacts would be **less than significant**.

Remainder Area

At this time, no development is proposed for the Remainer Area; thus, implementation of the proposed project would not result in inadequate emergency access. As discussed above, under the proposed land use and zoning designations, portions of the Remainder Area could support future single-family residential development. The Merced Municipal Code requires that direct roadway access be provided for each residence (City of Merced 2020), thus emergency access would be required to be provided at the time that any new residential lots are created within the project site. Therefore, this impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.12.5 Cumulative Impacts

Transportation impacts are evaluated based on the local land use agency's standards and policies and the potential effect of ongoing development that could generate traffic that would enter or pass through the land use planning area. Development in the unincorporated Merced County area that is proximate to the City boundaries is generally limited to rural residential, agricultural, and some industrial land uses. These uses do not contribute substantial volumes of traffic to and through the City of Merced Area, and limited new development is expected o occur in the unincorporated areas under the cumulative context. Thus, the geographic area for consideration of cumulative transportation impacts is the City of Merced including the SOI/SUDP area and the cumulative development scenario is ongoing implementation of the General Plan, including development within the City's SOI/SUDP area.

Impact 3.12-6: The proposed project would not contribute to cumulative impacts due to conflicts with a program, plan, ordinance, or policy, addressing the circulation systems, including transit, roadway, bicycle and pedestrian facilities. This impact is considered less than significant.

Demand for transit, bicycle and pedestrian facilities and services would increase over time as the City's residential population increases. However, under the General Plan and other planning efforts, such as the Bicycle Transportation Plan, the City has anticipated these increases and identified a range of improvements that would help meet the demands.

The City's General Plan EIR notes that bicycling activity is expected to increase as development under the General Plan occurs and it is important to provide adequate bicycle facilities to meet those increased demands by ensuring there are direct routes of bicycle access between destinations while minimizing conflicts with automobiles. The City's Bicycle Transportation Plan

meets these needs by identifying a robust set of new and improved bicycle facilities to ensure access throughout the City, including a point of bicycle connection into the UC Merced campus. The General Plan EIR found that implementation of the 2030 General Plan would have no impact to bicycle and pedestrian transportation because it "includes transportation policies that provide for future transit stations/transitways and an integrated system of pedestrian and bicycle trails and implementation of the Plan will not conflict with other policies supporting all modes transportation, including bicycles, pedestrians, and public transit." Thus, there is no anticipated cumulative impact to bicycle, pedestrian, and transit transportation to which the project could contribute.

As discussed in Impact 3.12-1, the project would provide transit, bicycle, and pedestrian facilities that support the transportation needs of the residents and visitors to the project site. Future residential development within the Remainder Area would contribute additional residential population that would also use these facilities. Thus the project would be consistent with the General Plan and the analysis in the General Plan EIR and the cumulative impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact 3.12-7: The proposed project would not result in cumulative impacts associated with VMT. This impact would be less than significant.

As noted in the OPR Technical Advisory, legislation passed in the State of California over the last 15 years has prioritized long-term sustainability and reducing GHG emissions, in part by encouraging denser infill development and reduced reliance on individual vehicles and improved mass transit. This legislative focus demonstrates that if land use development continues to reflect development patterns prevalent throughout older and more recently development areas in California, the total amount of statewide, regional, and local VMT that would be generated would contribute to increasing GHG emissions and prevent the State from achieving the adopted GHG reduction goals. Thus, there is a demonstrated potentially significant cumulative VMT impact in the state. VMT generated at the individual project level as well as regional VMT would contribute to this potentially significant cumulative impact.

The ORP Technical Advisory states that when a project-specific impact analysis demonstrates that a project will attain an efficiency metric, such as VMT per capita, that is aligned with long-term environmental goals and relevant plans, the project "would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa." Thus, the analysis of proposed project's impact related to residential VMT presented in Impact 3.12-2 above addresses

the project's contribution to cumulative VMT and associated climate change effects, and demonstrates that the project's contribution to residential VMT would not make a substantial contribution to the significant cumulative (statewide) VMT impact.

Additionally, the analysis in Impact 3.12-2 finds that the project would develop commercial uses that would serve existing and planned local residential population and thus would not lead to substantial increases in VMT in the near-term. As the City's General Plan is implemented, additional commercial and residential uses are anticipated to be developed in the project vicinity, including expansion of UC Merced and implementation of the Bellevue Community Corridor Plan. With increased residential density in the project vicinity, the proposed commercial uses within the project would have a greater local population service base and would not be expected to become a regional-serving commercial area and the project's contribution to commercial VMT would not make a substantial contribution to the significant cumulative (statewide) VMT impact.

Mitigation Measures

No mitigation measures are required.

Impact 3.12-8: The proposed project would not contribute to cumulative impacts regarding roadway hazards or emergency access. This impact is considered less than significant.

The General Plan EIR found that the City's Roadway Design Standards "include street cross sections designed to create a community circulation network to move people efficiently and safely throughout the City, whether by automobile, bicycle, or foot" and "provide for adequate street width and secondary access to ensure that emergency vehicles have adequate access to development throughout the Plan Area." The General Plan EIR concluded that compliance with the General Plan policies and Roadway Design Standards would ensure there would be no significant cumulative impact associated with hazards and emergency access because there would not be a significant increase in hazards due to design features or incompatible uses and sufficient emergency access would be provided to all development areas. Thus, there is no significant cumulative impact to which the project could contribute.

As discussed in Impact 3.12-3, the project would not create any hazards due to the project design and would not introduce any incompatible uses to the roadway network. The project could expose pedestrians to hazards if pedestrians crossed the north and/or east legs of the East Yosemite Avenue/Gardner Avenue intersection, where there currently are no crosswalks. However, Mitigation Measure 3.12a requires the project applicant to provide these crosswalks to create a contiguous pedestrian network which would avoid this hazard. As discussed in Impact 3.12-5 the project would provide sufficient access to the project site to accommodate emergency access.

The project would be consistent with the General Plan and the findings of the General Plan EIR and this impact would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.12.6 References

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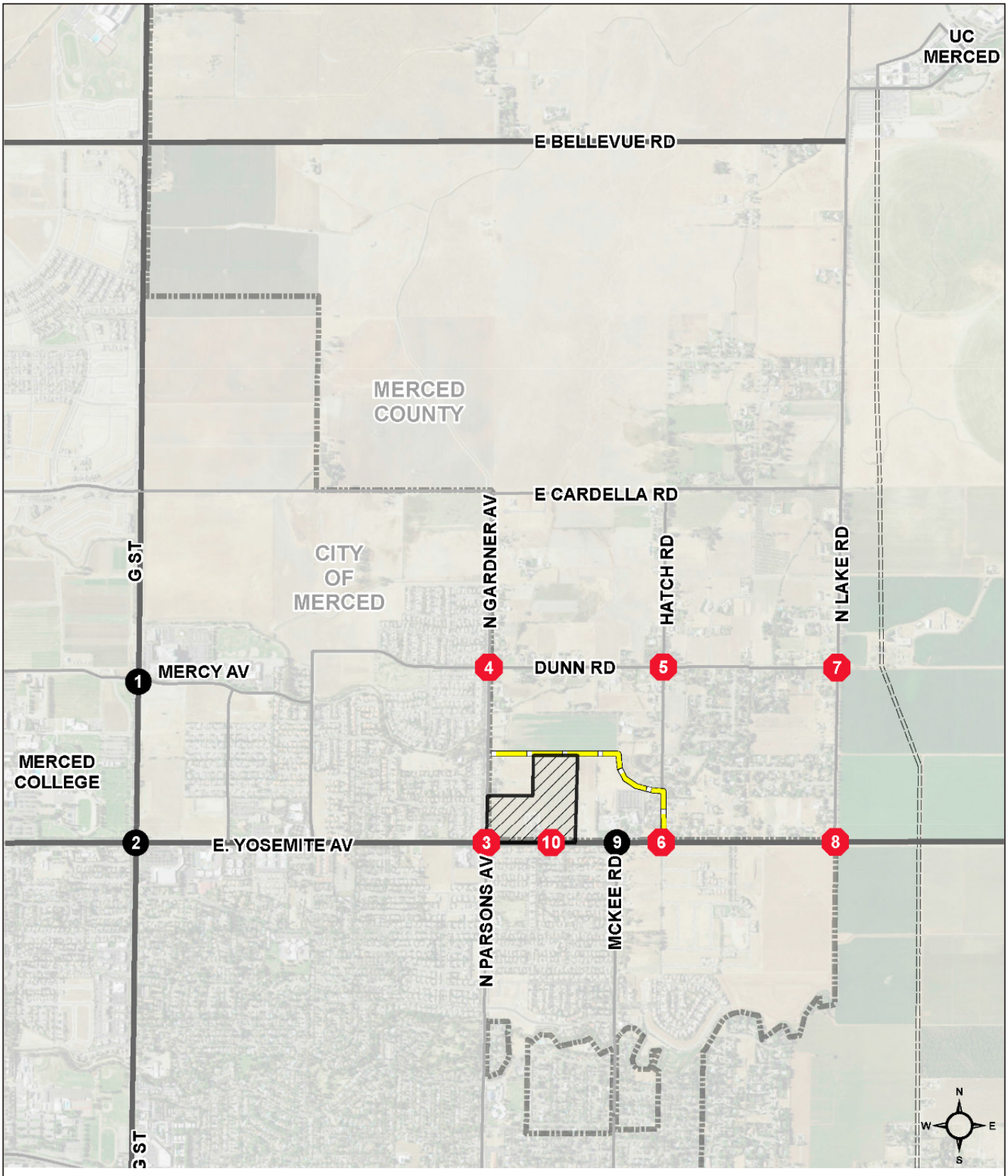
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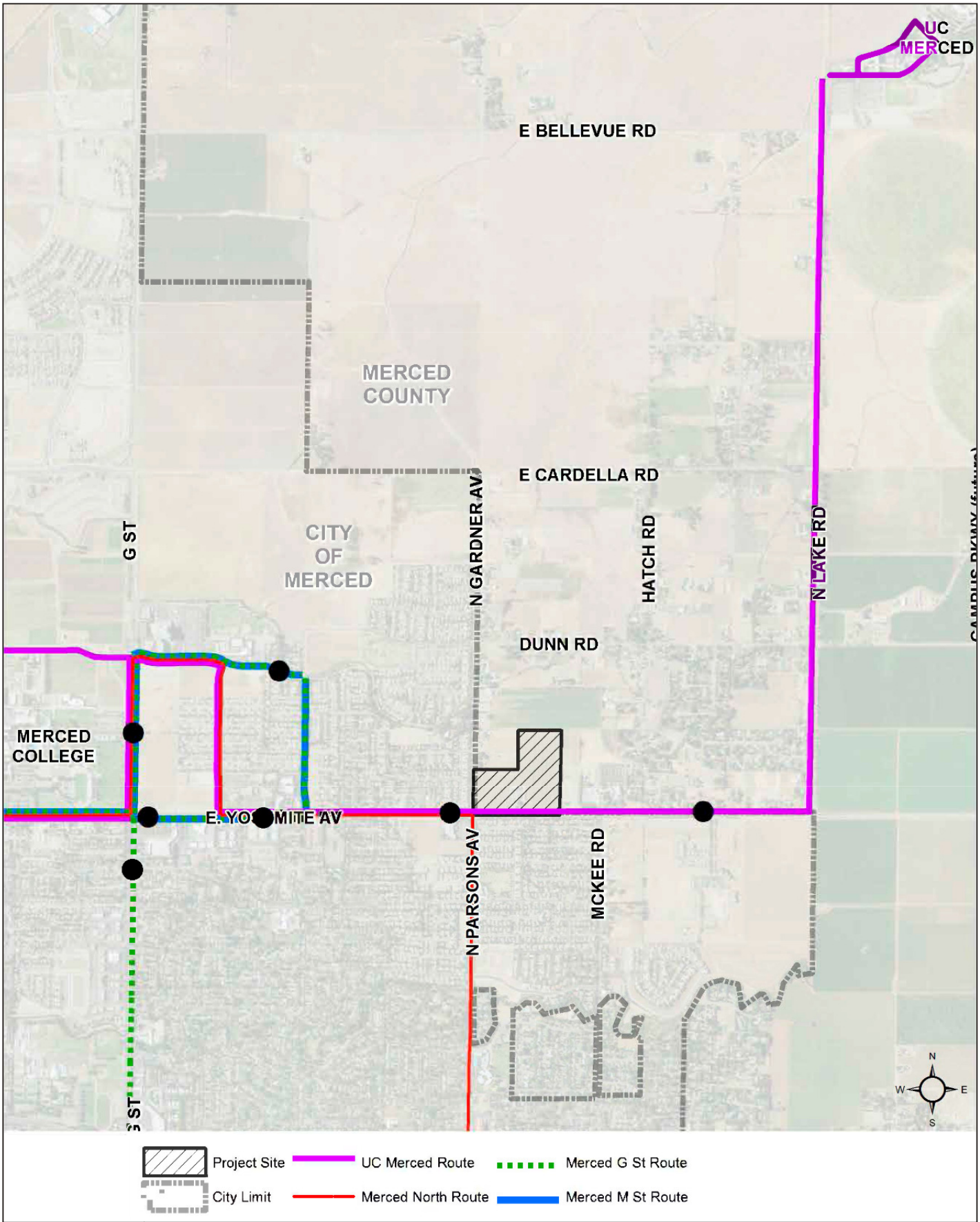
SOURCE: DKS 2020

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FIGURE 3.12-1
Transportation Study Area

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: DKS 2020

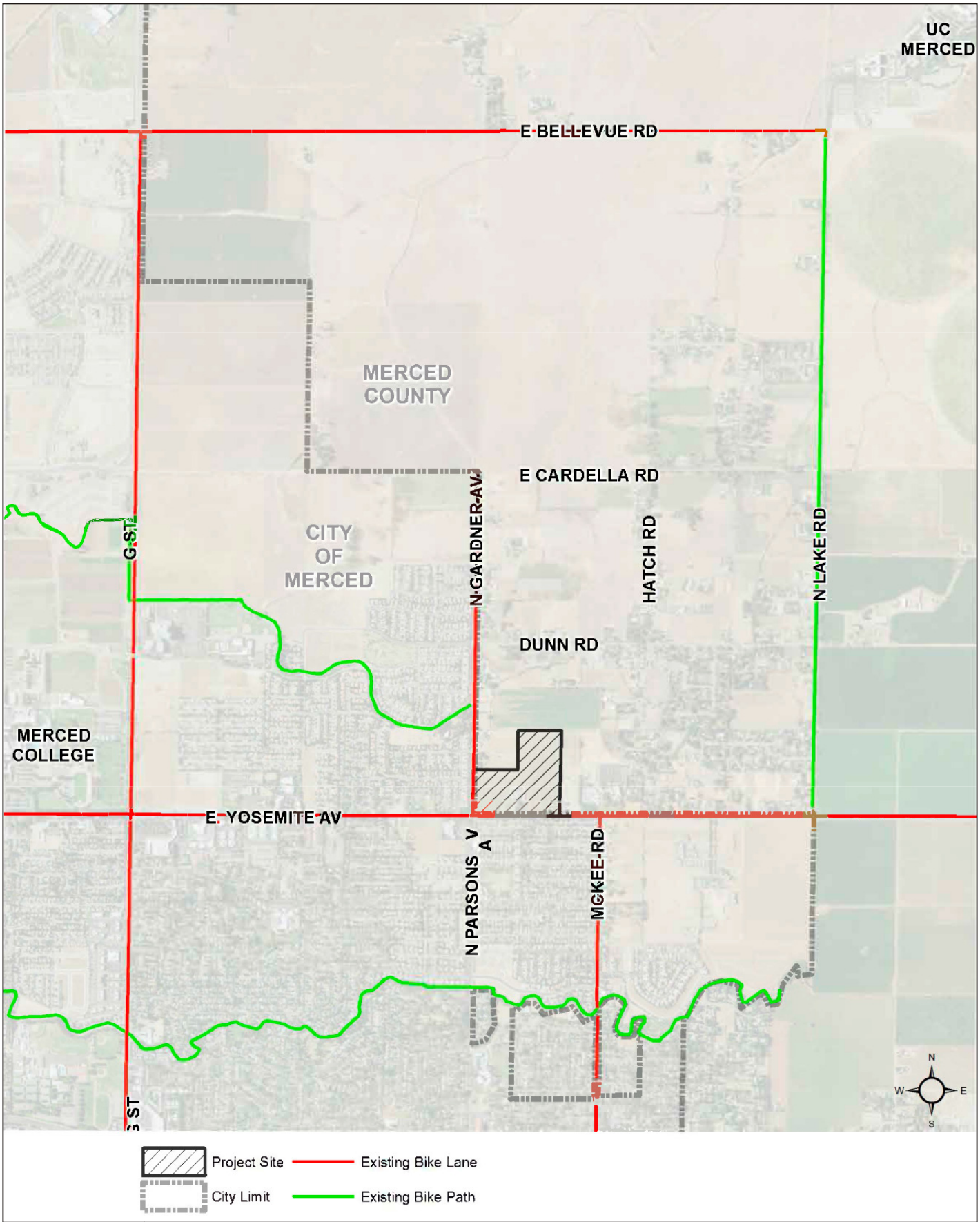
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FIGURE 3.12-2

Existing Merced Transit Routes

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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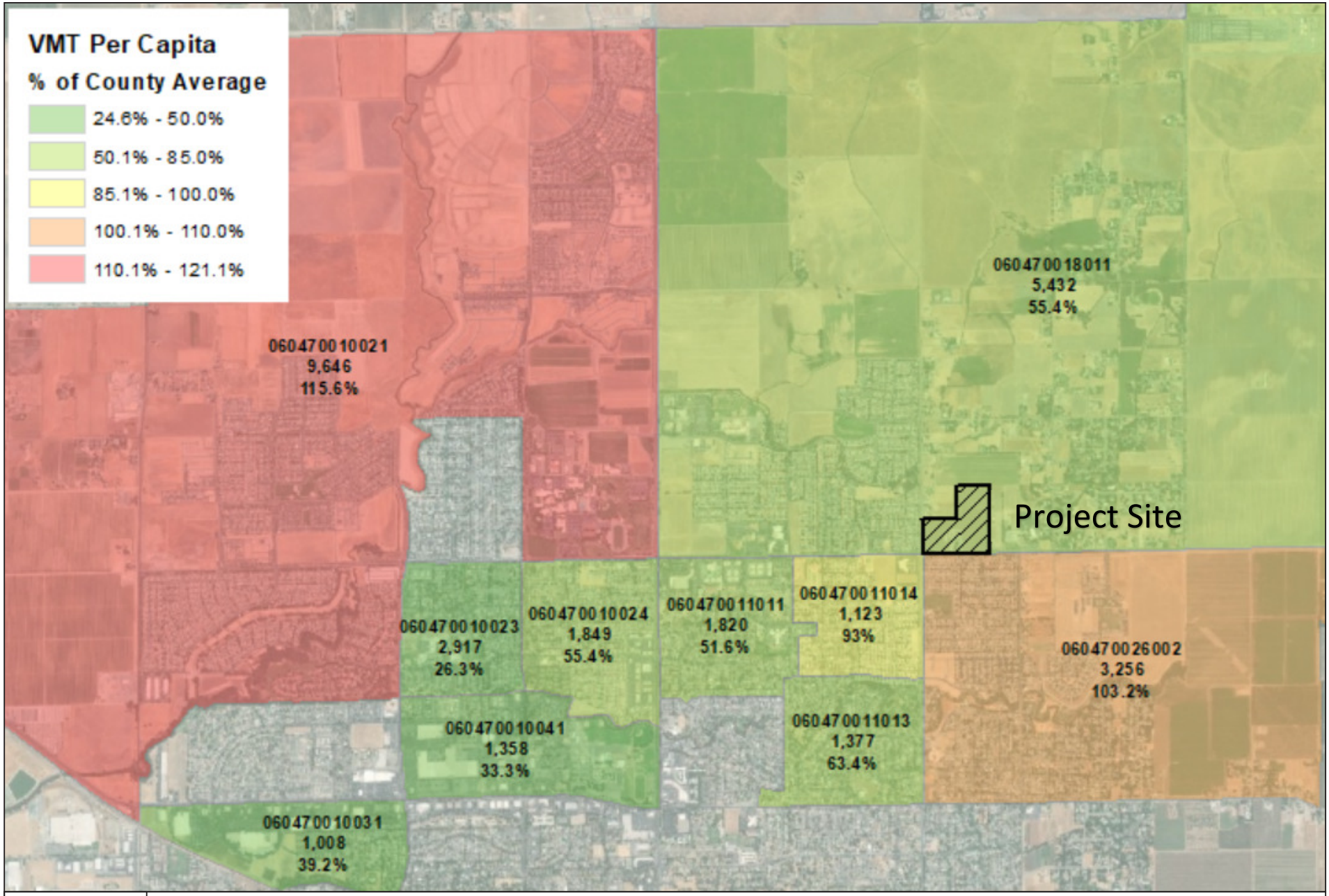
DUDEK

SOURCE: DKS 2020

FIGURE 3.12-3
Existing Bicycle Facilities

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: DKS 2020

DUDEK

FIGURE 3.12-4

Vehicle Miles of Travel per Capita by Census Block Group (Compared to Merced County Average)

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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CHAPTER 4
PROJECT ALTERNATIVES

4.1 Introduction

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, environmental impact reports (EIRs) are required to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6(a)). This alternatives analysis is prepared in support of CEQA's goals to foster informed decision making and public participation (14 CCR 15126.6(a)). An EIR is not required to evaluate the environmental impacts of alternatives at the same level of detail as the proposed project, but it must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed project.

The alternatives analysis is required even if the alternatives "would impede to some degree the attainment of the project objectives, or would be more costly" (14 CCR 15126.6(b)). An EIR must evaluate "only those alternatives necessary to permit a reasoned choice" (14 CCR 15126.6(f)) and does not need to consider "every conceivable alternative" to a project (14 CCR 15126.6(a)). The alternatives evaluated should be "potentially feasible" (14 CCR 15126.6(a)), but inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The final decision regarding the feasibility of alternatives lies with the decision makers for a given project who must make the necessary findings addressing the feasibility of alternatives for avoiding or substantially reducing a project's significant environmental effects (California Public Resources Code, Section 21081; see also 14 CCR 15091).

This chapter describes the project alternatives selected for analysis, evaluates the environmental impacts associated with them, and compares the impacts with those of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This chapter also identifies those alternatives considered by the City of Merced (City) but not carried forward for detailed analysis and the basis for the City's decision to omit those alternatives from the detailed analysis.

In conformity with CEQA, the purpose of this analysis is to focus on alternatives that are potentially feasible, and that would avoid or substantially lessen any of the significant effects of the project. The analysis in the Environmental Analysis, Chapters 4.1 through 4.12, finds that the proposed project would result in one significant and unavoidable impact:

Impact 3.2-3: The proposed project could contribute to cumulative loss in agricultural resources. This would be a significant and unavoidable impact.

4.2 Project Objectives

The primary objectives of the proposed project as set forth in Chapter 2, Project Description, are to:

1. Develop an attractive and high-quality mixed-use project comprising housing, retail and general commercial.

2. Provide quality and affordable living space for the local housing market in close proximity to commercial uses.

3. Create a low-carbon footprint living environment desirable to eco-conscious residents through the use of select building materials, low-energy appliances, and native landscaping.

4. Operate a professionally managed secure living space for residents that includes dedicated village-style retail, restaurant, and mixed-use.

5. Produce economic benefits by creating hundreds of construction jobs, twelve to fifteen jobs operating the housing project when completed, and dozens of retail and restaurant job opportunities for the village retail and mixed-use center.

6. Provide residents a variety of transit options.

4.3 Summary of Project Alternatives

Development of Project Alternatives

In developing the project alternatives evaluated in this EIR, the EIR preparers worked with city staff to explore various modifications to the project that could reduce environmental effects while responding to the project objectives and reflecting any suggestions for project alternatives that were provided in the public comments received in response to the Notice of Preparation. This effort focused on reducing the project's significant and unavoidable impacts related to the conversion of Prime and Unique Farmland to non-agricultural land uses.

Alternatives Considered but Rejected

In addition to the alternatives selected for additional analysis, the following alternatives were initially considered but rejected from further consideration. The CEQA Guidelines provide that reasons to eliminate potential alternatives from detailed consideration in an EIR can include (1) failure to meet most of the basic project objectives, (2) infeasibility, and (3) inability to avoid significant environmental impacts. Factors that may be considered to determine if an alternative

is feasible include site suitability, economic viability, and general plan consistency. The following alternatives were preliminarily considered but rejected from further evaluation for the reasons described below.

1. **Offsite Alternative:** Under this potential alternative, the proposed project would be developed on another site within the City. There is vacant land in the northern portion of the City limits, northwest of El Capitan High School, that is designated for Neighborhood Commercial (NC) and both High to Medium High Density Residential (HMD) and High Density Residential (HDR) that could accommodate the project. As shown in Figure 4-1, the vacant land considered for this alternative is generally located east of State Route 59, south of Nevada Street and Old Lake Road, east of G Street, and north of Bellevue Road. There is more than 30 acres of vacant land in this area and thus the development could be placed in several one of specific locations within this general area. As shown on Figure 4-1, the area immediately west of Fahrens Creek and south of an alignment that would connect Nevada Street and Old Lake Road carries all three of the land use designations that could accommodate the proposed development. This area is designated as Farmland of Local Importance.

   There is no existing public road access to this area. Access could be provided by extending Old Lake Road westerly across Fahrens Creek and connecting with Nevada Street, or by extending Farmland Avenue westerly across Fahrens Creek. The subject property and most adjacent properties are currently in agricultural production.

   This potential alternative was rejected from further consideration because while it would avoid the project's significant effect associated with loss of Prime Farmland and Unique Farmland, it would increase impacts in other environmental resource areas. This potential alternative would constitute leapfrog development. It would require extending public roads and utilities to the site and would develop urban land uses in an area that is largely rural, with no adjacent or proximate commercial or residential land uses. Further, there are limited transit, bicycle, and pedestrian facilities in this area. Thus, residents of the site would need to drive greater distances to access services and visit other city residents than residents of the proposed project site. For example, this potential alternative site is four miles from Merced College and commercial land uses along East Yosemite Avenue and five miles from Merced Mall, while the proposed project site is approximately two miles from Merced College and three miles from Merced Mall. This potential alternative would not be consistent with goals and policies of the General Plan (City of Merced 2012) and the 2018 Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) (MCAG 2018) that encourage compact development patterns, infill development, limiting development and related impacts on agricultural lands along the City's urban fringe, and

placing new urban development contiguous to existing urban areas and where the new development has reasonable access to public services and facilities.

2. **All commercial option:** Under this alternative, the project site would be constructed entirely with commercial land uses. This alternative was rejected from further consideration because this alternative would not achieve the basic project objectives related to developing a mixed-use project and it would result in greater environmental effects than the proposed project. This potential alternative would not avoid or reduce the project's significant impact due to loss of Prime Farmland and Unique Farmland. A large commercial development would no longer be a local-serving neighborhood commercial center. It would be considered regional-serving and thus would be expected to result in substantially higher traffic volumes and associated vehicle miles traveled (VMT). It could also result in conflicts with the surrounding residential subdivisions within the City limits and the rural residential land uses in Merced County north and east of the project site. Further, this potential alternative would not be consistent with the Merced Vision 2030 General Plan and would not help to satisfy the housing needs identified in the long term planning documents for the City of Merced, UC Merced, and the RTP/SCS.

3. **All residential option:** Under this potential alternative, the project site would be constructed entirely with residential land uses. Replacing the proposed 66,000 square feet of commercial space with apartments could accommodate approximately 40 additional apartment units. This alternative was rejected from further consideration because it would not achieve the basic project objectives related to developing a mixed-use project and it would not reduce the project's environmental effects. This potential alternative would not avoid or reduce the project's significant impact due to loss of Prime Farmland and Unique Farmland. It would increase demands for water and other public services, including increasing the amount of wastewater generated at the site and conveyed through the existing 18-inch sewer line in East Yosemite Avenue. As discussed in Section 3.11, this sewer line is expected to be at 90% capacity in the cumulative scenario; increased residential development at the project site would exacerbate this condition. It would also slightly increase VMT associated with the project because residents would not have access to any onsite commercial land uses. The next closest commercial area is approximately one mile west of the site thus many residents would drive to access such services.

Project Alternatives Selected for Analysis

This section provides an evaluation of the environmental effects of each alternative relative to the environmental effects of the proposed project. These conclusions are listed in the alternatives summary matrix provided at the end of this discussion.

A brief overview of each alternative selected for analysis is provided below while subsequent sections provide additional description of the alternative and present analysis comparing the impacts of each alternative to those of the proposed project.

Alternative 1: No Project Alternative. This alternative assumes no development would occur, and the site would remain in its current condition. All buildings and other site improvements would be retained at existing locations.

Alternative 2: Agricultural Retention Alternative. This alternative would retain approximately 9.77 acres of Prime Farmland in the northern portion of the project site and extend the residential development easterly into an approximately 5-acre portion of the proposed Remainder Area. Figure 4-2, Agricultural Retention Alternative, identifies the area of Prime Farmland that would be retained and the portion of the Remainder Area that would be developed as part of The Crossings project under this alternative. This alternative would reduce the extent of development by approximately 4.7 acres, which could result in a slight decrease in the amount of residential units and commercial space within the site.

Alternative 3: Reduced Density Alternative. This alternative would develop 60 fewer residential units than the proposed project and include a 1.5-acre neighborhood park within the project site.

4.4 Alternative 1: No Project

CEQA requires that an EIR consider a No Project alternative, which could be one in which no development occurs within the project site or could be one in which development consistent with the General Plan and zoning designations occurs. The project site is located within the City's Sphere of Influence and would require annexation prior to any development occurring. Thus, the No Project alternative assumes no development would occur, and the site would remain in its current condition.

Aesthetics

The proposed project would result in less than significant impacts to visual resources with the exception of the potentially significant impact regarding exposing neighboring land uses to light and glare. Implementation of Mitigation Measure 3.1a, which requires lighting on the sight to be 'dark sky friendly' would ensure that proposed project would have a less than significant impact.

Under the No Project Alternative, there would be no change in the land uses of the project site and no changes to existing visual conditions and visual character of the site. Thus, the No Project/No Build Alternative would avoid all impacts to visual resources and would have reduced aesthetic impacts compared to the proposed project.

Agricultural Resources

The proposed project would have a significant and unavoidable impact regarding the conversion of 28.4 acres of Prime and Unique Farmland to non-agricultural uses even after the implementation of mitigation. Under the No Project Alternative, the Prime and Unique Farmland would be retained in its current condition. Thus, the No Project Alternative would avoid all impacts to agricultural resources and would have reduced agricultural resources impacts compared to the proposed project.

Air Quality

The proposed project would have less than significant impacts regarding air quality emissions and the health impacts of Toxic Air Contaminants with the exception of potential exposure to the *Coccidioides immitis (C. immitis)* fungus, which causes Valley Fever, from construction activities. Implementation of Mitigation Measure 3.3a during all construction phases of the project would reduce this impact to a less-than-significant level.

Under the No Project Alternative, no construction would occur, there would be no increase or decrease in air pollutant emissions, and there would be no change in the potential for people within the site to be exposed to the *C. immitis* fungus. Thus, the No Project Alternative would result in no impacts to air quality.

Biological Resources

The proposed project would result in potentially significant impacts to biological resources associated with impacts to special status plants and wildlife, loss of riparian habitat, possible disturbance to nesting birds, loss of trees, and impacts to potential jurisdictional waters of the State. With implementation of mitigation measures specified in Section 3.4, these impacts would be reduced to less than significant levels.

No construction would occur under the No Project Alternative. This alternative would result in no changes to biological resources. No nesting birds would be disturbed, all existing trees would remain in place, and no impacts to wetlands would occur.

No development would occur under the No Project Alternative and there would be no loss of or disturbance to biological resources. Therefore, the No Project Alternative would have reduced biological resources impacts compared to the proposed project.

Cultural Resources

The proposed project would result in less than significant impacts to cultural resources and the site was not found to contain resources that would be eligible for listing under NRHP and CRHR

designation criteria or other significant cultural resources. The proposed project would have a potentially significant impact due to the potential to uncover subsurface archaeological resources, tribal cultural resources, human remains, and/or paleontological resources; these would be reduced to a less than significant impact after implementation of the mitigation measures described in Section 3.5.

Under the No Project Alternative, there would be no change in the project site, which would remain in agricultural production. This alternative would result in no impacts to cultural resources and would not create a potential for discovery of subsurface resources.

Energy

The proposed project would increase consumption of electrical and natural gas energy as well as petroleum-based fuels during construction and operation. The proposed project would result in less than significant impacts related to energy consumption during project construction and operation and would not require mitigation.

Under the No Project Alternative, there would be no change in the project site's land uses and associated energy consumption. The No Project Alternative would have no impact regarding energy consumption.

Greenhouse Gas Emissions

The proposed project would result in less than significant impacts related to greenhouse gas (GHG) emissions during project construction and operation. Under the No Project Alternative, no construction would occur, and the No Project Alternative would neither increase nor decrease emissions of GHGs. Thus, the No Project Alternative would result in no impacts associated with GHG emissions.

Hydrology, Water Quality and Drainage

The proposed project would increase development onsite but would not result in a significant increase in stormwater. Compliance with state and local requirements for erosion control and use of Best Management Practices (BMPs) to protect water quality, the project would not result in a significant degradation of water quality during project construction and operation. The proposed project would result in less than significant impacts to groundwater supply, increase in stormwater flows that could exceed capacity of stormwater infrastructure, and increase in sediment and erosion on local waterways during construction.

There would be no impacts to hydrology, drainage, or water quality related to an increase in stormwater, loss of groundwater, or inadequate stormwater infrastructure under the No Project

Alternative because there would be no earth-disturbance or increase in impervious surfaces at the project site. Therefore, impacts would be reduced compared to the proposed project.

Land Use and Planning

The proposed project would alter the land use of the project site and require amending the General Plan and zoning designations for the site. The proposed neighborhood commercial and residential land uses would be compatible with the surrounding land uses. Therefore, the proposed project would have a less than significant impact regarding impacts to land uses.

The No Project Alternative would result in no changes to land uses within the project. However, this alternative would not be consistent with the General Plan, which anticipates annexation of the site to the City and development of residential land uses. If this site were retained as agricultural land in perpetuity, while other adjacent properties are annexed to the City and developed with urban and suburban uses, it would create an island of agricultural land. This alternative would not be consistent with the General Plan goals related to encouraging compact development patterns, infill development, and placing new urban development contiguous to existing urban areas and where the new development has reasonable access to public services and facilities. Thus, this alternative would have no land use impacts in the short-term but could result in cumulative impacts associated with conflicts with the General Plan, land use incompatibilities, and increasing development pressures for lands on the fringe of the City.

Noise

The proposed project would result in less-than-significant impacts associated with noise generated during project construction and operation with the exception of the potentially significant impact regarding potential for nighttime construction to result in sleep disruption or interference with relaxation in the evening period and operational noise from increased activity levels within the project site. However, after implementation of the mitigation measures discussed in Section 3.10, the proposed project would have a less than significant impact.

The No Project Alternative would avoid all noise generation from construction and increases in traffic and onsite activity associated with the proposed project. Therefore, the No Project Alternative would have reduced noise impacts compared to the proposed project.

Public Services and Utilities

The proposed project would result in less-than-significant impacts associated with project-generated impacts to water usage, wastewater infrastructure, solid waste, schools, recreational facilities, libraries, fire response services, and law enforcement response services.

The No Project Alternative would avoid all increases in demands for public services and utilities at the project site because no change in the current land use of the site would occur. However, as discussed in the Land Use section above, in the cumulative condition, retention of this site as agricultural land could increase development pressures for lands located further from existing City services and utilities, which could increase environmental effects associated with infrastructure installation to serve those properties.

Transportation and Circulation

The proposed project would increase traffic in the project vicinity as a result of the new trips generated by the proposed project. The proposed project would have less than significant impacts on transit, bike and pedestrian facilities, associated with transportation hazards, and associated with VMT generation.

The No Project Alternative would not introduce any development to the project site and therefore would not result in any changes to transportation and circulation conditions in the project vicinity compared to existing conditions. However, as discussed in the Land Use section above, in the cumulative condition, retention of this site as agricultural land could increase development pressures for lands located on the fringe of the City which would increase the distance that residents of those areas would need to travel to access commercial services. Thus, in the cumulative scenario, this alternative could increase impacts associated with VMT.

4.5 Alternative 2: Agricultural Retention

Under this alternative, a 9.77-acre portion of prime farmland located in the northern portion of the site would be retained as agricultural land, as shown on Figure 4-2. The southern boundary of this retained agricultural area would extend from the southern boundary of the 9.4-acre portion of the Remainder Area in the northwest corner of the project site. To keep the development area as close as possible to the amount included in proposed project, the residential development would be extended east into an approximately 5-acre portion of the Remainder Area. This area is proposed to be pre-zoned Low Density Residential (R-1-10) under the proposed project but would be zoned Medium High Density (MHD) under this alternative. This area is designed Farmland of Local Importance and Semi-Agricultural and Rural Commercial Land. This alternative would result in development of approximately 23.9 acres rather than the 28.6 acres of development under the proposed project. Thus, the total number of residential units and extent of commercial space may be slightly reduced. It is assumed this development would accommodate approximately 56,000 square feet of commercial uses and 480 residential units, compared to the 66,000 square feet of commercial space and 570 residential units included in the proposed project.

By reducing the extent of development, this alternative would also reduce the amount of wastewater generated by the project. This would reduce the volume of flows in the 18-inch sewer

line in East Yosemite Avenue, making a greater amount of capacity available for future projects in the SOI/SUDP. This alternative contemplates reducing the development by approximately 85%, which would reduce the wastewater generation of the project to a total of 125,840 gpd, as shown in Table 4-1, Agricultural Retention Alternative Wastewater Generation, compared to the 149,235 gpd that would be generated by the proposed project.

Table 4-1
Agricultural Retention Alternative Wastewater Generation

Proposed Development	Parcel Acres	Land Use		Flow Factor		Average Dry Weather Flows (gpd)[1]
		Quantity	*Units*	*Value*	*Units*	
Dwelling Units		480	Du	257	gpd/du	123,360
Commercial[2]	1.3			1,500	gpd/acre	2,015
Clubhouse[3]	0.31			1,500	gpd/acre	465
Totals						**125,840**

Notes:
1 gpd = gallons per day
2 56,000 sf (one story) = 1.3 acres
3 13,700 sf (one story) = 0.31 acres; Assuming Public General Use wastewater generation rate from City's Sewer Master Plan (City of Merced 2017)

Aesthetics

The proposed project would result in less than significant impacts to visual resources with the exception of the potentially significant impact regarding exposing neighboring residential land uses to light and glare. Implementation of Mitigation Measure 3.1a, which requires lighting on the site to be 'dark sky friendly', would ensure that proposed project would have a less than significant impact.

Similar to the proposed project, the Agricultural Retention Alternative would alter the viewshed of the project site through the development of a similar amount of residential and commercial/mixed land uses as the proposed project. As adjacent properties support existing residences, this Alternative would have the same potential impact as the proposed project related to glare and light of the constructed land uses. Retention of agricultural land in the northern portion of the project site would not substantially alter the changes in visual character or introduction of light and glare because there would be no changes to the proposed commercial land use and the residential land uses would still be visible from properties north of the site. Through the implementation of the mitigation measure identified in Section 3.1, the Agricultural Retention Alternative would have a similar impact regarding aesthetic resources and the potential for light and glare as the proposed project.

Agricultural Resources

The proposed project would have a significant and unavoidable impact due to the conversion of 28.4 acres of Prime and Unique Farmland to non-agricultural uses. This Agricultural Retention Alternative would reduce the amount of Prime Farmland converted to a non-agricultural land use by 9.77 acres as compared to the proposed project. However, while the overall acreage would be reduced, this alternative would still require the conversion of designated Prime and Unique agricultural land to a non-agricultural land use. Therefore, the Agricultural Retention Alternative would have a reduced impact as compared to the proposed project, but it would remain a significant and unavoidable impact. Further, the land north of the project site is also within the City's Sphere of Influence and Specific Urban Development Plan (SOI/SUDP), and thus is anticipated for future development of urban and/or suburban land uses. Retaining the 9.77-acre portion of Prime Farmland within the project site would eventually result in an island of agricultural land, which would reduce the value of this portion of the site for continued agricultural production.

Air Quality

The proposed project would have less than significant impacts regarding air quality emissions and the health impacts of Toxic Air Contaminants with the exception of potential exposure of the *C. immitis* fungus from construction activities. Implementation of Mitigation Measure 3.3a during all construction phases of the project would reduce this impact to a less-than-significant level.

The Agricultural Retention Alternative would reduce the amount of Prime farmland developed but would require a similar level of construction and grading that would result in a similar level of potential exposure to the *C. immitis* fungus. Therefore, the Agricultural Retention Alternative would result a less than significant impact after mitigation, consistent with the proposed project.

Biological Resources

The proposed project would result in potentially significant impacts to biological resources associated with impacts to special status plants and wildlife, loss of riparian habitat, possible disturbance to nesting birds, loss of trees, and impacts to potential jurisdictional waters of the State. With implementation of mitigation measures identified in Section 3.4, these impacts would be reduced to less than significant levels.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would retain the Prime Farmland located in the northern portion of the site. This alternative would not develop the northern portion of the site along the northern potentially jurisdictional drainage. In addition, this alternative would slightly reduce the total area of development (by approximately 4.7 acres). Therefore, the alternative would have a slightly reduced impact to biological resources compared to the proposed project. However, the impact

would remain potentially significant as the remainder of the site would be developed under this alternative and would have potentially significant impacts to biological resources associated with impacts to special status plants and wildlife, with the loss of riparian habitat, possible disturbance to nesting birds, and impacts to potential jurisdictional waters of the State. With implementation of the mitigation measures identified in Section 3.4 of the EIR, this alternative would have a less than significant impact, which would be the same as the proposed project.

Cultural Resources

The proposed project would result in less than significant impacts to cultural resources and the site was not found to contain resources that would be eligible for listing under NRHP and CRHR designation criteria or other significant cultural resources. The proposed project would have a potentially significant impact due to the potential to uncover subsurface archaeological resources, tribal cultural resources, human remains, and/or paleontological resources; these would be reduced to a less than significant impact after implementation of the mitigation measures described in Section 3.5.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses, reducing the total development area by approximately 4.7 acres. Therefore, this alternative would slightly reduce the potential for discovery of subsurface cultural resources. However, the impact would remain potentially significant and would require implementation of the same mitigation measures as the proposed project, as identified in Section 3.5 of the EIR, to reduce the impact to a less than significant level.

Greenhouse Gas Emissions

The proposed project would result in less than significant impacts related to GHG emissions during project construction and operation.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would retain the Prime Farmland located in the northern portion of the site. This alternative would have slightly reduced GHG emissions during construction due to the reduced area of grading and would have slightly reduced GHG emissions as the proposed project during project operation due to the slight reduction in the amount of development. The impact would remain less than significant, consistent with the proposed project.

Energy

The proposed project would increase consumption of electrical and natural gas energy as well as petroleum-based fuels during construction and operation. The proposed project would result in

less than significant impacts related to energy consumption during project construction and operation and would not require mitigation.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses. It would retain the Prime Farmland located in the northern portion of the site but expand the development footprint easterly and develop slightly less commercial and residential space than the proposed project. Thus, this alternative would slightly reduce energy consumption associated with the project and would implement the same energy conservation measures as are required of the proposed project under state and local regulations. This alternative would result in the same less than significant energy consumption impact as the proposed project.

Hydrology, Water Quality and Drainage

The proposed project would introduce urban development to the project site but would not result in a significant increase in stormwater or result in a significant degradation of water quality during project construction and operation. The proposed project would result in less than significant impacts to groundwater supply, increase in stormwater flows that could exceed capacity of stormwater infrastructure, and increase in sediment and erosion on local waterways during construction.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would slightly reduce the total footprint of development and the total amount of impervious surfaces. This would slightly reduce the amount of onsite stormwater detention necessary. This alternative would implement similar BMPs to protect water quality as the proposed project. This alternative would result in the same less than significant impacts to hydrological resources as the proposed project.

Land Use and Planning

The proposed project would alter the land use of the project site and require amending the General Plan and zoning designations for the site. The proposed residential and commercial land uses would be compatible with the surrounding land uses. Therefore, the proposed project would have a less than significant impact regarding impacts to land uses.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would retain the Prime Farmland located in the northern portion of the site. This Alternative would develop the site in a similar manner as the proposed project with the exception of the northern portion of prime farmland that would be retained. While the Agricultural Retention Alternative would shift the boundary of where agricultural land abuts medium-high density residential land, it would not avoid placement of residential land adjacent to agricultural

land. Thus, this Alternative would result in a similar less than significant land use impacts as the proposed project in the short-term. However, as discussed above, the land north of the project site is also within the City's SOI/SUDP, and thus is anticipated for future development of urban and/or suburban land uses. Retaining the 9.77-acre portion of Prime Farmland within the project site would eventually result in an island of agricultural land, which would increase the degree of land use incompatibility and conflicts and could result in an inability to create a contiguous community in this portion of the SOI/SUDP.

Noise

The proposed project would result in less-than-significant impacts associated with noise generated during project construction and operation with the exception of the potentially significant impact regarding potential for nighttime construction to result in sleep disruption or interference with relaxation in the evening period and operational noise from increased activity levels within the project site. However, after implementation of the mitigation measures discussed in Section 3.10, the proposed project would have a less than significant impact.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would retain the Prime Farmland located in the northern portion of the site. This alternative would result in a similar level of construction and operational noise as the proposed project. Construction of this alternative would result in a similar potential to disrupt sleep or interfere with evening relaxation as well as noise disturbance from the increased activity levels within The Crossings development that could impact residential neighbors. Therefore, with the implementation of the mitigation measures discussed in Section 3.10, the Agricultural Retention Alternative would have a similar less than signification impact after mitigation.

Public Services and Utilities

The proposed project would result in less-than-significant impacts associated with project-generated impacts to water usage, wastewater infrastructure, solid waste, schools, recreational facilities, libraries, fire response services, and law enforcement response services. However, in the cumulative condition, the existing 18-inch sewer line in East Yosemite Avenue would reach 90% of its capacity, which exceeds the City's standard of maintaining sewer lines with 70% available capacity.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would retain the Prime Farmland located in the northern portion of the site. This Alternative would result in a similar increase in onsite population and land use intensity and therefore would result in a similar less than significant impact to water usage, wastewater infrastructure, solid waste, schools, recreational facilities, libraries, fire response services, and law enforcement response services.

The Agricultural Retention Alternative would develop 90 fewer residential units than the proposed project and reduce wastewater generation from the project site by approximately 15%. This would reduce the contribution of the project to the ultimate capacity of the 18-inch sewer line in East Yosemite Avenue, from approximately 104 gallons per minute under the proposed project to approximately 87 gallons per minute under this alternative, and thus would slightly reduce the project's contribution to this cumulative impact. However, based on the anticipated development within the SOI/SUDP and population projections for the City, the reduced amount of development within the project site would likely be replaced with additional residential development elsewhere in the SOI/SUDP, including possibly in a location where wastewater flows would contribute to the same 18-inch sewer line that would receive wastewater from the proposed project. Thus, the reduced development within the project site may not lead to an ultimate reduction in the flows within this line and the cumulative impact would be unchanged. However, the Agricultural Retention Alternative would have a reduced contribution to this impact.

Transportation and Circulation

The proposed project would increase traffic in the project vicinity as a result of the new trips generated by the proposed project. The proposed project would have less than significant impacts on transit, bike and pedestrian facilities, associated with transportation hazards, and associated with VMT generation.

The Agricultural Retention Alternative would develop the project site for both residential and commercial land uses but would slightly reduce the total amount of development compared to the proposed project. The reduction in onsite development would not alter the need to provide bicycle, pedestrian, transit, and vehicular access to the site. It would slightly reduce the total volume of traffic generated by the project but would not alter the project's effect on VMT by project residents and visitors to the commercial uses within the site. Therefore, this alternative would result in the same less than significant impacts related to transportation and circulation as the proposed project.

4.6 Alternative 3: Reduced Density

This alternative would reduce the amount of residential development onsite to reduce the amount of wastewater generated by the project, which would reduce the amount of wastewater contributed to the 18-inch sewer line in East Yosemite Avenue. This would reduce the amount of capacity in the sewer line required to serve the proposed project, making a great amount of capacity available for future projects in the SOI/SUDP. This alternative contemplates developing approximately 80% of the proposed residential units, for a total of 456 units. This would reduce the wastewater generation of the project to a total of 119,937 gpd, as shown in Table 4-2, Reduced Density Alternative Wastewater Generation, compared to the 149,235 gpd that would

be generated by the proposed project. By removing 114 apartment units, the project site could accommodate an onsite neighborhood park of approximately 1.5 acres, thus meeting a portion of the project's parks demand onsite rather than through the payment of in-lieu fees. It is assumed that the park would not include restrooms and therefore would not contribute to wastewater generation. Further, it is assumed the park would be configured to connect to the commercial portion of the project and extend between the residential buildings in the apartment village portion of the project, and thus would primarily be located internal to the project site but still be accessible to the public.

Table 4-2
Reduced Density Alternative Wastewater Generation

Proposed Development	Parcel Acres	Land Use		Flow Factor		Average Dry Weather Flows (gpd)[1]
		Quantity	*Units*	*Value*	*Units*	
Dwelling Units		456	Du	257	gpd/du	117,192
Commercial[2]	1.52			1,500	gpd/acre	2,280
Clubhouse[3]	0.31			1,500	gpd/acre	465
Totals						**119,937**

Notes:
1 gpd = gallons per day
2 66,000 sf (one story) = 1.52 acres
3 13,700 sf (one story) = 0.31 acres; Assuming Public General Use wastewater generation rate from City's Sewer Master Plan (City of Merced 2017)

Aesthetics

The proposed project would result in less than significant impacts to visual resources with the exception of the potentially significant impact regarding the impact of glare and light on neighboring residential land uses. Implementation of Mitigation Measures3.1a, which requires lighting on the sight to be 'dark sky friendly,' would ensure that proposed project would have a less than significant impact.

The Reduced Density Alternative would develop the same portions of the project site as the proposed project, although approximately 1.5 acres internal to the site would be developed with a park. The reduced residential development would be designed in a similar way as the proposed project but would include two fewer buildings and one building would be smaller than under the proposed project. Under the conceptual alternative design, the park would be placed internal to the project site, thus the visual character of the site as viewed from external points would be the same or largely similarly to views of the proposed project. This alternative would implement Mitigation Measure 4.1a and therefore would result in the same less than significant impact as the proposed project.

Agricultural Resources

The proposed project would have a significant and unavoidable impact regarding the conversion of 28.4 acres of Prime and Unique Farmland to non-agricultural uses even after implementation of mitigation. This alternative would develop the project site with a similar footprint thereby impacting a similar amount of Prime and Unique Farmland to non-agricultural uses. Therefore, this alternative would result in the same significant and unavoidable impact to farmland even after implementation of mitigation measure identified in Section 3.2.

Air Quality

The proposed project would have less than significant impacts regarding air quality emissions and the health impacts of Toxic Air Contaminants with the exception of potential exposure of the *C. immitis* fungus from construction activities. Implementation of Mitigation Measure 3.3a during all construction phases of the project would reduce this impact to a less-than-significant level.

This alternative would require a similar level of construction and would disturb the same soil as the proposed project. Therefore, this alternative would have the same less than significant impact regarding air quality emissions and same potentially significant impact regarding the potential exposure of the *C. immitis* fungus from construction activities as the proposed project and would also require implementation of Mitigation Measure 3.3a.

Biological Resources

The proposed project would result in potentially significant impacts to biological resources associated with impacts to special status plants and wildlife, with the loss of riparian habitat, possible disturbance to nesting birds, loss of trees, and impacts to potential jurisdictional waters of the State. With implementation of mitigation measures specified in Section 3.4, these impacts would be reduced to less than significant levels.

Construction of this alternative would occur within the same construction footprint and disturbance area as the proposed project. As a result, this alternative would have the same potentially significant impact to biological resources as the proposed project and would be required to implement the same mitigation measures.

Cultural Resources

The proposed project would result in less than significant impacts to cultural resources and the site was not found to contain resources that would be eligible for listing under NRHP and CRHR designation criteria or other significant cultural resources. The proposed project would have a potentially significant impact due to the potential to uncover subsurface archaeological resources,

tribal cultural resources, human remains, and/or paleontological resources; these would be reduced to a less than significant impact after implementation of the mitigation measures described in Section 3.5.

Construction of this alternative would occur within the same construction footprint and disturbance area as the proposed project. As a result, this alternative would have the same potentially significant impact to cultural resources as the proposed project and would be required to implement the same mitigation measures.

Greenhouse Gas Emissions

The proposed project would result in less than significant impacts related to GHG emissions during project construction and operation.

This alternative would result in a slightly reduced level of construction and number of residential units compared to the proposed project. This would slightly reduce the total GHG emissions associated with construction and operation but would not change the amount of GHG emissions per capita. Therefore, this alternative would result in the same less than significant impact regarding GHG emission as the proposed project.

Energy

The proposed project would increase consumption of electrical and natural gas energy as well as petroleum-based fuels during construction and operation. The proposed project would comply with state and local requirements to integrate energy conservation measures in the project and thus would result in less than significant impacts related to energy consumption during project construction and operation.

This alternative would result in a slightly reduced level of construction and number of residential units compared to the proposed project while incorporating the same sustainability features as the proposed project. The reduction in the number of dwelling units would slightly reduce the total energy consumption associated with construction and operation but would not change the amount of energy consumption per capita. Therefore, this alternative would result in the same less than significant impact regarding GHG emission as the proposed project.

Hydrology, Water Quality and Drainage

The proposed project would increase development onsite but would not result in a significant increase in stormwater or result in a significant degradation of water quality during project construction and operation. The proposed project would result in less than significant impacts to

groundwater supply, increase in stormwater flows that could exceed capacity of stormwater infrastructure, or increase in sediment and erosion on local waterways during construction.

Construction of this alternative would occur within the same construction footprint and disturbance area as the proposed project but would slightly reduce the extent of impervious surfaces onsite because it would replace a portion of the residential development with a neighborhood park. As a result, this alternative would slightly reduce impacts to hydrology, water quality, and drainage compared to the proposed project, but impacts would remain less than significant, consistent with the proposed project.

Land Use and Planning

The proposed project would alter the land use of the project site and require amending the General Plan and zoning designations for the site. The proposed land uses would be compatible with the surrounding land uses. Therefore, the proposed project would have a less than significant impact regarding land use.

Like the proposed project, this alternative would require a land use changes and rezone for the development of the site. Although the number of dwelling units would be slightly reduced overall, the proximity of new residential structures to adjacent land uses would not change. Therefore, the Reduced Density alternative would have the same less than significant land use impacts as the proposed project.

Noise

The proposed project would result in less-than-significant impacts associated with noise generated during project construction and operation with the exception of the potentially significant impact regarding potential for nighttime construction to result in sleep disruption or interference with relaxation in the evening period and operational noise from increased activity levels within the project site. However, after implementation of the mitigation measures discussed in Section 3.10, the proposed project would have a less than significant impact.

This alternative would result in a slightly reduced level of construction and number of residential units compared to the proposed project. This would slightly reduce the total vehicle trips associated with the project and thus slightly reduce the transportation-related noise generated by the project. Although the number of dwelling units would be slightly reduced overall, the proximity of new residential structures to adjacent land uses would not change. Thus, there would be no change in the potential for activity within the project site to expose nearby residents to increased noise levels. Therefore, with the implementation of the mitigation measures discussed in Section 3.10, the Reduced Density Alternative would have the same less than significant impact after mitigation as the proposed project.

Public Services and Utilities

The proposed project would result in less-than-significant impacts associated with project-generated impacts to water usage, wastewater infrastructure, solid waste, schools, recreational facilities, libraries, fire response services, and law enforcement response services. However, in the cumulative condition, the existing 18-inch sewer line in East Yosemite Avenue would reach 90% of its capacity, which exceeds the City's standard of maintaining sewer lines with 70% available capacity.

The Reduced Density Alternative would develop 114 fewer residential units than the proposed project and reduce wastewater generation from the project site by approximately 19%. This would reduce the contribution of the project to the ultimate capacity of the 18-inch sewer line in East Yosemite Avenue, from approximately 104 gallons per minute under the proposed project to approximately 83 gallons per minute under this alternative, and thus reduce the project's contribution to this cumulative impact. However, based on the anticipated development within the SOI/SUDP and population projections for the City, the reduced density within the project site would likely be replaced with additional residential development elsewhere in the SOI/SUDP, including possibly in a location where wastewater flows would contribute to the same 18-inch sewer line that would receive wastewater from the proposed project. Thus, the reduced development within the project site may not lead to an ultimate reduction in the flows within this line and the cumulative impact would be unchanged. However, the Reduced Density Alternative would have a reduced contribution to this impact.

Transportation and Circulation

The proposed project would increase traffic in the project vicinity as a result of the new trips generated by the proposed project. The proposed project would have less than significant impacts on transit, bike and pedestrian facilities, associated with transportation hazards, and associated with VMT generation.

This alternative would develop the project site for both residential and commercial land uses but would decrease the number of residences. This alternative would result in a reduced extent of transportation activity, including a reduced total number of vehicle trips, but would not be expected to alter the VMT per capita generated from the land uses within the project site. Therefore, this alternative would have the same less than significant transportation impacts as the proposed project.

4.7 Summary Matrix

A matrix displaying the major characteristics and significant environmental effects of each alternative relative to those of the proposed project is provided in Table 4-3, Project Alternatives Impacts Summary.

Table 4-3
Project Alternatives Impacts Summary

Environmental Issue	Proposed Project Impacts	Alternative 1: No Project	Alternative 2: Agricultural Retention	Alternative 3: Reduced Density
Aesthetics	LTS	▼	—	—
Agricultural Resources				
Project Specific Impacts	LTS	▼	▼	—
Cumulative Impacts	SU	▼	▼ (SU)	— (SU)
Air Quality	LTS	▼	—	—
Biological Resources	LTS	▼	▼	—
Cultural Resources	LTS	▼	▼	—
Greenhouse Gas Emissions	LTS	▼	—	—
Energy	LTS	▼	—	—
Hydrology and Water Quality	LTS	▼	▼	▼
Land Use				
Project Specific Impacts	LTS	▼	▼	—
Cumulative Impacts	LTS	▲	▲	—
Noise	LTS	▼	—	—
Public Services and Utilities				
Project Specific Impacts	LTS	▼	▲	—
Cumulative Impacts	LTS	▲	▼	▼
Transportation				
Project Specific Impacts	LTS	▼	—	—
Cumulative Impacts	LTS	▲	▲	▲

▲ Alternative is likely to result in greater impacts to issue when compared to proposed project.
— Alternative is likely to result in similar impacts to issue when compared to proposed project.
▼ Alternative is likely to result in reduced impacts to issue when compared to proposed project.
LTS = Less-than-significant impact.
SU=Significant and Unavoidable

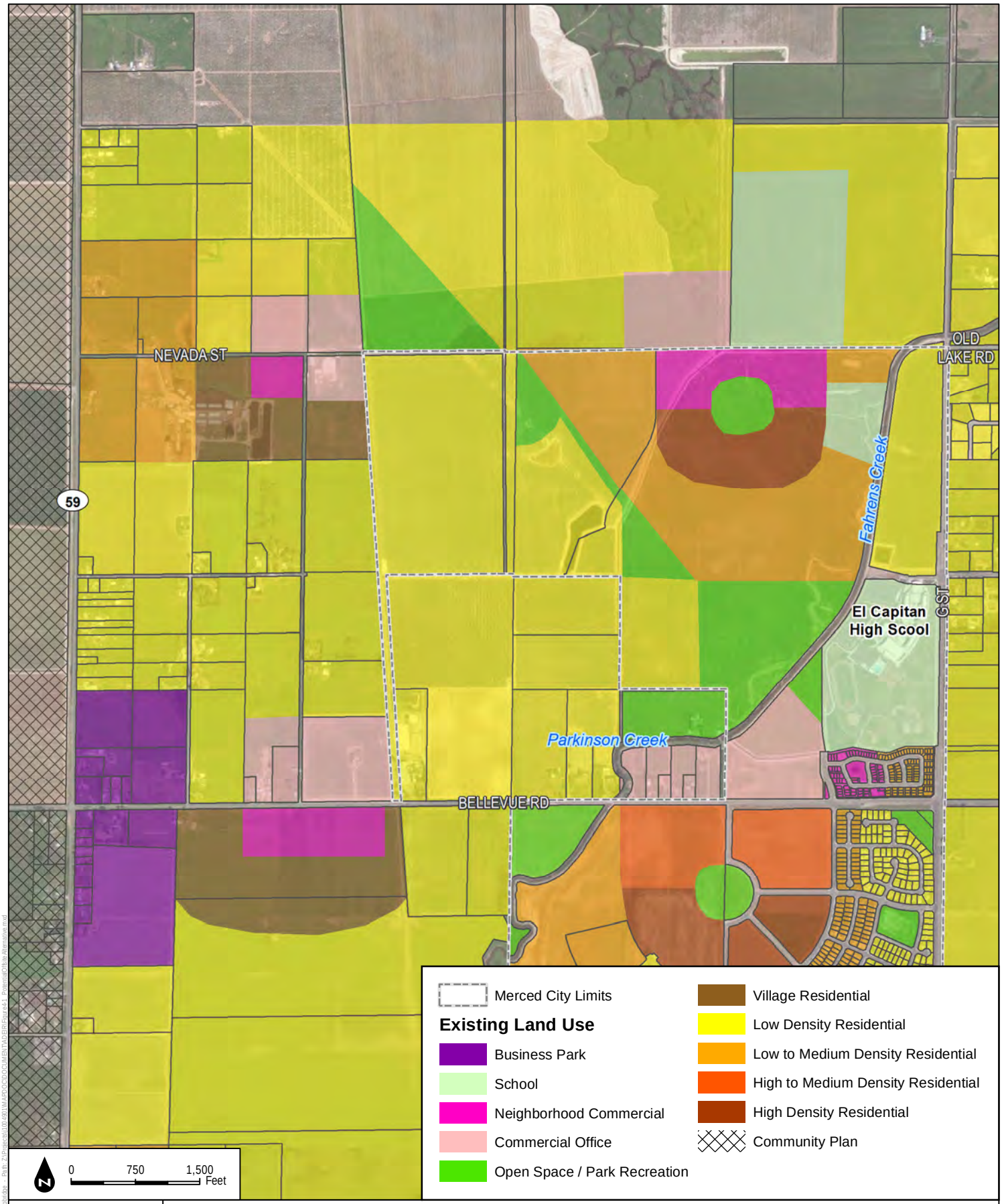
4.8 Environmentally Superior Alternative

As indicated in Table 4-3, the No Project Alternative would result in the least environmental impacts and would be the environmentally superior alternative because it would avoid all impacts associated with the proposed project for all resource areas. However, Section 15126.6(e)(2) of the 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. In this case, the environmentally superior alternative is the Agricultural Retention Alternative because it would slightly reduce the potential for impacts in five of the resource areas evaluated: agricultural resources, biological resources, cultural resources, hydrology and water quality, and the project's contribution to cumulative public services and utilities impacts.

It is important to note that all of the impacts under the proposed project, with the exception of a significant and unavoidable agricultural impact, would be less than significant or would be reduced to a less-than-significant level with implementation of mitigation measures. The Agricultural Retention Alternative would reduce the extent of the significant and unavoidable project impact due to loss of Prime Farmland, but would still result in the loss of a portion of the Prime Farmland within the project site and thus the impact would remain significant and unavoidable.

In addition, the Agricultural Retention Alternative could increase land use and transportation impacts in the cumulative scenario by encouraging leapfrog development and increasing the potential for development to occur further north within the SOI/SUDP, which could result in greater VMT per capita in the local area. Thus, selection of the Agricultural Retention Alternative would not be capable of avoiding any of the project's significant impacts and would not substantially reduce any of the project's significant impacts.



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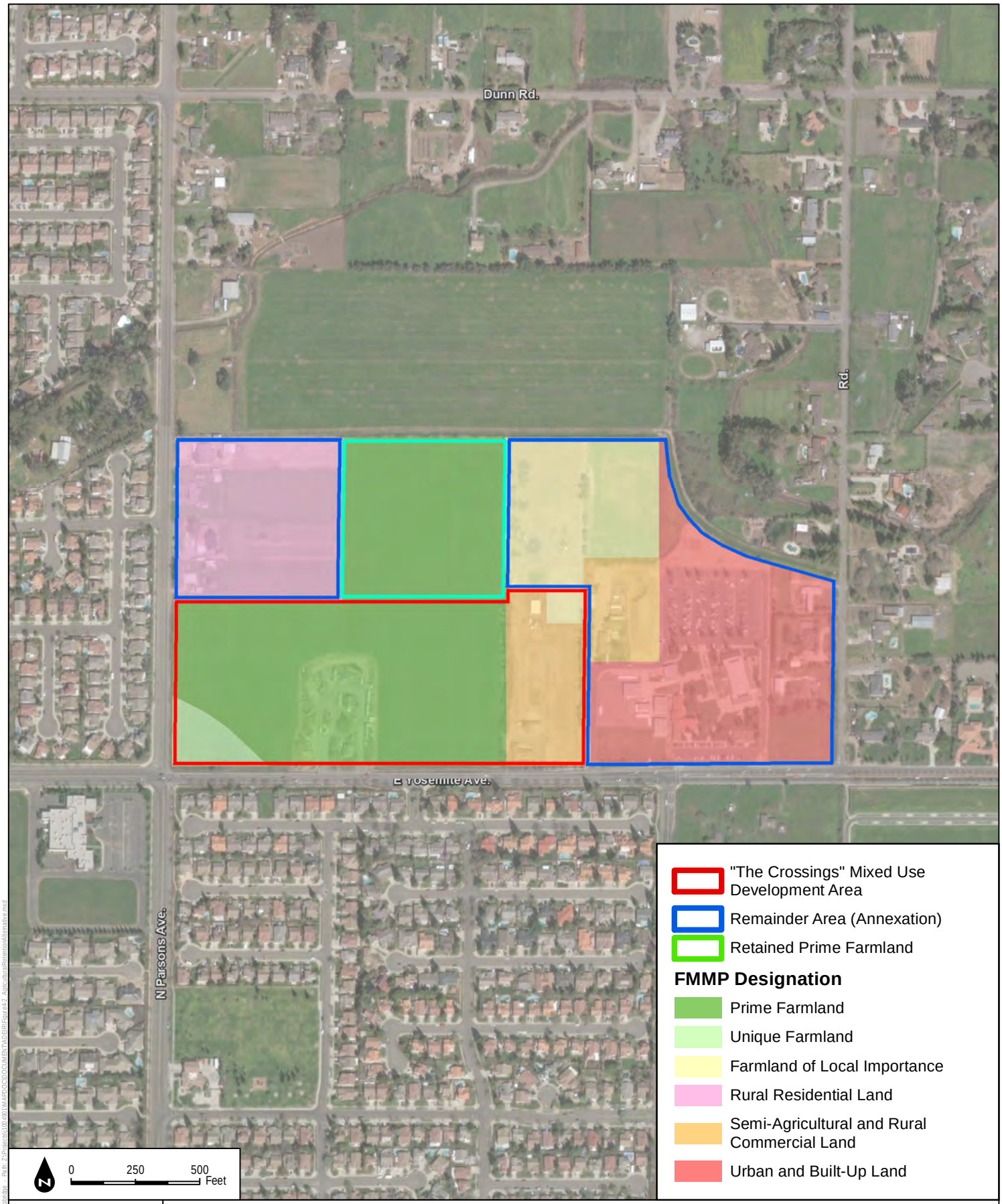
SOURCE: Bing Maps 2019, County of Merced 2014

FIGURE 4-1

Potential Offsite Alternative

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Bing Maps 2019, County of Merced 2014

FIGURE 4-2

Agricultural Retention Alternative

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Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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CHAPTER 5.0
CEQA CONSIDERATIONS

This chapter includes the following other considerations that are required to be discussed in an environmental impact report (EIR):

- Effects Not Found to be Significant (Section 5.1)
- Significant and Unavoidable Environmental Impacts (Section 5.2)
- Significant and Irreversible Environmental Changes (Section 5.3)
- Growth Inducement (Section 5.4)

5.1 Effects Found Not To Be Significant

This section discusses potential environmental impacts from the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project) that were found not to be significant based on the analysis in the Notice of Preparation (NOP), Initial Study, and Draft EIR.

5.1.1 Notice of Preparation

An NOP was initially published in December 2016 based on the original project applications. In 2019, the project applicant, University Village Merced, LLC, on behalf of Cliff Caton, property owner, submitted revised applications and site plans, increasing the number of residential units from 330 to 540 and increasing the associated parking. The City issued a revised NOP in May 2020. The NOP identified that less than significant impacts or no impacts would occur in the following resource areas:

- **Geology, Soils, and Seismicity -** The project site contains flat topography and no known earthquake faults exist in the project vicinity. Construction would include grading and soil engineering activities intended to abate any adverse soil conditions that may exist and would ensure that project buildings have adequate structural support.

- **Hazards and Hazardous Materials -** The project involves residential and commercial uses and does not propose uses that would require the generation or use of hazardous materials beyond common hazardous materials used in residential and commercial uses such as cleaning products and landscape maintenance products, and would not create a risk to the public or to schools in the project vicinity. The project site is not within two miles of an airport and would not interfere with emergency response activities or emergency evacuation.

- **Mineral Resources -** The project site does not support mineral extraction operations. Neither the State of California nor the City of Merced designates the project site as a location of known mineral deposits (City of Merced 2012a). Thus the project would not result in a loss of mineral resources of statewide or local importance.

- **Population and Housing -** The project would introduce new residents into the City of Merced but would not displace any housing or require the construction of housing elsewhere.

5.1.2 Initial Study

An Initial Study was completed as part of preparation of this EIR. The Initial Study is provided in Appendix B. The analysis in the Initial Study demonstrates that several discrete impacts within other environmental resource areas would be less than significant, or no impact would occur. These are noted in each of the environmental analysis chapters in this EIR and summarized in the following list.

- **Aesthetics -** The project would not have an adverse effect on a scenic vista because the project site is not within any of the City's 11 designated scenic corridors (City of Merced 2012a). The project would not substantially damage scenic resources within a State scenic highway because none of the three highways that pass through the City of Merced (140, 59, and 99) are listed as state scenic highways.

- **Agricultural and Forestry Resources -** The project would not conflict with a Williamson Act contract because site is not under any such contracts. The project site does not contain any forest or timberland resources and is not zoned for forest land, timberland, or timberland production. The project would have no impact on these resources.

- **Biological Resources -** The project would have a less than significant impact related to wildlife movement or nursery sites because it is a non-linear feature and bound by existing roads, development, and agricultural production, thus it has little value as a potential wildlife corridor, habitat linkage or native wildlife nursery site. The project site is not located within or adjacent to any preserve or conservation area and no Habitat Conservation Plan or Natural Community Conservation Plan that include the project site have been adopted.

- **Hydrology, Drainage and Water Quality -** The project site is outside of Federal Emergency Management Act designated flood zones for a 100-year storm, 500-year storm or dam failure inundation zone. The site would be subject less than 3-foot deep flooding from Black Rascal Creek and Cottonwood Creek in a 200-year storm event. The site is not subject to inundation by seiche, tsunami or mudflow.

- **Land Use and Planning.** The project would not divide an established community. There are residential subdivisions to the south and west, rural residences to the east, and agricultural land to the north. These are each separate areas and not part of a contiguous community that could be subject to disruption or division from development of the project site.

- **Noise** The project would result in no impacts related to air traffic noise because the site is more than 4 miles from the nearest airport and is not located within any Airport Influence Area or Noise Compatibly Zones.

- **Wildfire** The project site is not located within or near a State Responsibility Area or a High Fire Severity Hazard Area. The project would result in less than significant impacts associated with physically interfering with an adopted emergency response plan or emergency evacuation plan, exacerbating wildfire risks, exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, or exposing people to post-fire hazards such as flooding, landslides, and changes in drainage patterns. The project would not require installation or maintenance of infrastructure related to wildfire prevention or response (such as roads, fuel breaks, emergency water sources, power lines or other utilities) and thus would result in no impacts associated with exacerbating fire risk or creating environmental impacts during construction or maintenance of such infrastructure.

5.1.3 Draft EIR

This Draft EIR contains 11 environmental analysis sections, each of which provides a detailed evaluation of several impacts related to the section topic. In many cases, those impacts were determined to be less than significant. These are listed below by impact number and a brief summary of the impact statement. Full details of the impact analysis are presented in the associated analysis section indicated by the impact number (in other words, Impact 3.1-1 is found in Section 3.1).

3.1-1: Degrade existing visual character or quality or conflict with applicable zoning and other regulations governing scenic quality

3.1-3: Contribute to cumulative changes in visual character

3.1-4: Contribute to a cumulative increase in light and glare

3.2-2: Result in conversion of Farmland to non-agricultural use

3.3-1: Conflict with or obstruct implementation of applicable air quality plans

3.3-2: Increase the emissions of criteria pollutants in the San Joaquin Valley Air Basin

3.3-4: Result in odors or other emissions

3.3-5: Result in a cumulatively considerable net increase of criteria pollutants

3.4-4: Conflict with the City of Merced plans, policies, regulations, or ordinances that address biological resources

3.5-3: Disturb human remains

3.5-5: Contribute to cumulative impacts to historical and archaeological resources

3.6-1: Result in wasteful, inefficient, or unnecessary consumption of energy

3.6-2: Conflict with existing energy standards and regulations

3.6-3: Contribute to a cumulative increase in the region of wasteful or inefficient energy consumption

3.7-1: Generate greenhouse gas emissions in excess of applicable standards

3.7-2: Conflict with plans, policies or regulations adopted for the purpose of reducing greenhouse gas emissions

3.8-1: Violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality

3.8-2: Alter the drainage pattern resulting in substantial erosion or siltation, increase runoff resulting in flooding, or exceed the capacity of existing or planned stormwater drainage systems

3.8-3: Substantially decrease groundwater supplies or interfere with groundwater recharge

3.8-4: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

3.8-5: Contribute to cumulative effects on water quality, drainage patterns, flooding, or groundwater supply

3.9-1: Create land use incompatibilities

3.9-2: Conflict with a regional land use plan, policy or regulation

3.10-3: Result in off-site roadway noise level increases for noise sensitive land uses

3.10-4: Adversely affect vibration sensitive uses during construction

3.10-5: Adversely affect vibration sensitive uses during operation

3.10-6:Contribute to cumulative changes in ambient community noise levels

3.11-1:Increase demand for public services and utilities requiring provision of new or physically altered governmental facilities

3.11-2: Exceed existing wastewater capacity

3.11-3: Require relocation or construction of new or expanded water treatment facilities

3.11-4: Generate solid waste that would exceed the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals

3.11-5: Contribute to a cumulative increase in public services resulting in the need for new or physically altered facilities

3.11-6: Contribute to a cumulative increase in demand for wastewater treatment facilities resulting in inadequate capacity and construction of new or expanded wastewater treatment facilities

3.11-7: Contribute to a cumulative increase in demand for water treatment facilities requiring construction of new or expanded water treatment facilities or require development of additional water supplies

3.11-8: Contribute to a cumulative increase in solid waste in excess of State of local standards, or in excess of the capacity of local infrastructure

3.12-1: Conflict with circulation system programs, plans, ordinances, or policies

3.12-2: Result in residential VMT that is greater than 15% below the regional average or develop regional-serving commercial development

3.12-3: Substantially increase hazards due to roadway design or incompatible uses

3.12-4:Result in inadequate emergency access

3.12-5:Contribute to cumulative impacts due to conflicts with circulation system programs, plans, ordinances, or policies

3.12-6: Result in cumulative impacts associated with VMT

3.12-7: Contribute to cumulative impacts regarding roadway hazards or emergency access

5.2 Significant and Unavoidable Environmental Impacts

A summary of the potentially significant and significant impacts of the project, the applicable mitigation measures, and the level of impact significance after implementation of mitigation measures is provided in Chapter 1, Executive Summary. As shown in the summary table, implementation of the project-specific mitigation measures identified in Chapter 3, Environmental Analysis, would reduce all of the project's significant impacts to less than significant levels, with the exception of one significant and unavoidable cumulative impact to agricultural resources. As discussed in Section 3.2, Agricultural Resources, the project would make a consideration contribution to the cumulative loss of farmland in the City of Merced and Merced County generally. Both the City of Merced General Plan EIR and the Merced County General Plan EIR found that implementation of those plans would result in significant and unavoidable losses of farmland, with 1,898 acres of Prime Farmland expected to be lost in the City's Sphere of Influence and SUDP and 1,695 acres of Prime Farmland expected to be lost in the County (City of Merced 2012b, County of Merced 2013). The project would contribute to these impacts by converting 26.3 acres of Prime Farmland and 2.1 acres of Unique Farmland to residential and commercial land uses.

Both the City and County General Plans policies and implementing actions intended to reduce impacts to farmland but the associated EIRs found that these measures would not be sufficient to reduce the impacts due to loss of farmland to less than significant levels. The proposed project would not conflict with the City's General Plan policies that:

- encourage property owners outside the City limits but within the City's Sphere of Influence/Specific Urban Development Plan (SOI/SUDP) to maintain their land in agricultural production until the land is converted to urban uses;
- encourage working cooperatively with land trusts and other non-profit organizations to preserve agricultural land in the region, such as through conservation easements; and
- promote infill development and sequential and contiguous development over fringe and leap-frog development.

Under Mitigation Measure 3.2a, this Draft EIR requires the proposed project to offset the impact to agricultural resources by establishing a conservation easement over 28.4 acres of land designated under the California Department of Conservation Farmland Mapping and Monitoring Program as Prime Farmland (26.3 acres) and Unique Farmland (2.1 acres). This would ensure that an equal amount of Prime Farmland and Unique Farmland that would be lost due to project

development is retained as agricultural land in perpetuity. However, it is not feasible to create new agricultural land and thus a conservation easement would not offset or compensate for cumulative losses of agricultural land, and there are no feasible mitigation measures to offset or compensate for these cumulative losses. Thus, the project's contribution to this cumulative impact is a **significant and unavoidable** impact.

5.3 Significant and Irreversible Environmental Changes

CEQA Guidelines Section 15126(c) requires that an EIR include discussion of any significant irreversible environmental changes that would be caused by the proposed project. Generally, a project would result in significant irreversible changes if:

- The project would involve a large commitment of nonrenewable resources.
- The primary and secondary impacts of the project would generally commit future generations of people to similar uses (such as highway improvement that provides access to a previously inaccessible area).
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project.
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether the proposed project may result in significant irreversible changes requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

The project site is located adjacent to urban uses in the City of Merced and would be annexed to the City. Implementation of the proposed project would result in the long-term commitment of resources of the project site to urban land use. The development of the proposed project would likely result in or contribute to the following irreversible environmental changes:

- **Conversion of agricultural land.** As discussed in Section 5.3, approximately 26.3 acres of land designated as Prime Farmland and 2.1 acres of Unique Farmland within The Crossings component of the project would be converted to urban uses. In addition, the proposed annexation and pre-zoning of the Remainder Area would make future development in that area more likely. As discussed in Section 3.2.2, such development could lead to conversion of 7.9 acres of Farmland of Local Importance to suburban uses. While it is possible to demolish urban uses and reestablish agricultural activities within a project site, this is unlikely to occur, particularly once the project site has been annexed to the City.

- **Energy and Resource Consumption.** Construction of the project would require irreversible use of fuel for construction vehicles, vendors, and workers. It would also consume resources used to construct buildings and site improvements, such as wood products, asphalt, and concrete. While it is possible to deconstruct buildings and recycle a large portion of the building materials, this is unlikely to occur. In addition, long-term use of the residential and commercial uses would be an on-going source of energy consumption.

- **Water and Wastewater Capacity Consumption.** The long-term use of the residential and commercial uses proposed to be constructed at the project site would consume potable water and generate wastewater. Thus the project would use a portion of the City's currently remaining capacity in both systems, including capacity of groundwater pumping and treatment, capacity of the wastewater treatment plants, and capacity in the water and sewer lines that convey water and wastewater to and from the site. The proposed project would support population growth that the City has planned for, both under the General Plan and in the water and wastewater master plans, and thus while the use of water and wastewater infrastructure capacity is irreversible, it would not result in any significant adverse environmental effects.

The site does not support sources of nonrenewable resources, such as mineral resources, and is not known to support unique or significant discrete resources, such as rock outcroppings, unique geologic formations, historic or archaeological resources.

The Crossings component of the project site is largely devoid of trees and the trees within the Remainder Area are landscape and ornamental trees. Loss of trees due to site development would be replaced with newly planted trees as part of the development's landscaping plans. Natural resources in the form of building materials (wood products, asphalt, and concrete) would be used in construction along with gas and diesel fuel. These resources have varying degrees of renewability. However, their use would be characteristic of typical development projects and use of these resources for construction of the proposed project is not expected to negatively impact the availability of these resources for other uses. Nonetheless, construction activities related to the proposed project would result in irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels, natural gas, and gasoline and diesel for automobiles and construction equipment. Due to the scale of the proposed project, the use of construction materials and nonrenewable resources would not be unusual or extraordinary, and as a result there would be no significant irreversible environmental effects related to resource consumption during construction.

The project would not result in impacts that commit future generations to similar uses. The Crossings component of the project would construct 570 residential units, commercial uses, and

associated infrastructure and would make future development of residential uses in the Remainder Area more likely. The project would be uniquely suited to the proposed residential and commercial uses. However, should the buildings become vacant in the future it would be feasible for interior renovations to be made to adjust the buildings to a different user or to demolish buildings and develop the site for a different land use. Changes to the land uses would likely require amending the General Plan and zoning designations, which would require approval from the City.

Regarding potential irreversible damage caused by environmental accidents associated with the project, the project would result in the use, transport, storage, and disposal of minor amounts of hazardous materials during project construction and operation. As described in the Initial Study, all such activities would comply with applicable local, state and federal laws related to the use, storage and transport hazardous materials, which significantly reduces the likelihood and severity of accidents that could result in irreversible environmental damage. The project itself does not include any uniquely hazardous uses that would require any special handling or storage. Further, the project does not contain any industrial uses that would use or store acutely hazardous materials.

On a permanent, long-term basis, the proposed project would consume energy, resulting in irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels, natural gas, and gasoline and diesel for automobiles. However, the project would incorporate a number of sustainable practices that reduce the consumption of energy in compliance with state and local building codes. This would ensure that resources are conserved to the maximum extent possible. However, as discussed in Section 3.6, Energy, the project's energy consumption does not constitute a significant environmental impact because it would not use energy wastefully, inefficiently, or unnecessarily.

5.4 Growth Inducement

CEQA requires a discussion of ways in which the proposed project could induce growth in the project area. The CEQA Guidelines identify a project as growth inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment (14 CCR 15126.2(d)). New population from residential development represents direct forms of growth. Such direct growth often has a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. A project could indirectly induce growth by reducing or removing barriers to growth, by creating a condition that attracts additional population or new economic activity, or by establishing policies or other precedents that directly or indirectly encourage additional growth. Thus, the consideration of a project's potential to induce growth includes discussion of the characteristics of the project that

could encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Under CEQA, induced growth is not to be considered necessarily detrimental, beneficial, or of significant consequence. Induced growth would be considered a significant impact if it can be demonstrated that the potential growth, directly or indirectly, significantly affects the environment.

In general, a project could foster spatial, economic, or population growth in a geographic area if the project removes an impediment to growth (e.g., the establishment of an essential public service such as by removing infrastructure limitations or increasing infrastructure capacity, the provision of new access to an area, or a change in zoning or General Plan amendment approval), or economic expansion or growth occurs in an area in response to the project (e.g., changes in revenue base, employment expansion) including potential "multiplier effects," which consider the direct employment effect of a project as well as indirect and induced employment growth.

5.4.1 Limitations on Analysis of Growth Inducement

Under the provisions of SB 375, an EIR prepared for a residential or mixed-use residential project that is consistent with the general land use designation, density, building intensity, and applicable policies specified for the project area a sustainable communities strategy (SCS) "is not required" to discuss growth inducing impacts, or any project specific or cumulative impacts from cars and light-duty truck trips on global warming, or on the regional transportation network (Pub. Res. Code, § 21159.28, subd. (a); Gov. Code, § 65080, subd. (b)(2)(I)).

The Merced County Association of Governments (MCAG) has adopted the 2018 Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS), which identifies a preferred land use and transportation investment scenario for the region. The RTP/SCS anticipates residential development within the City's SOI/SUDP. However, because the project proposes annexation to the City and changes to the General Plan land use designations for the site, this EIR does not rely on consistency with the SCS to limit this analysis of growth inducement.

5.4.2 Consistency with the Regional Transportation Plan/Sustainable Communities Strategy

The RTP/SCS identifies that Merced County is expected to grow substantially over the next 20 years. Factors that contribute to this growth include lower housing costs relative to neighboring regions, with people choosing longer commutes in exchange for affordability, and increasing availability of health care and service jobs within the County. Specifically, between 2010 and 2015, the population of Merced County increased by approximately 6 percent. By the year 2042, Merced County is projected to grow by approximately 107,000 persons (a 38% increase), 34,000

households, and 23,000 jobs. Within the City of Merced, the population was 77,080 in 2010. This increased to 84,125 people in 2015 and the City is projected to grow by 42% to 119,536 people by 2042 (MCAG 2018).

The RTP/SCS identifies that the increase in countywide population is expected to be driven primarily by the "local availability of affordable housing and the proximity of Merced County to employment centers in Sacramento and the Bay Area, making the region a viable option for those priced out of other housing markets and willing to commute" including housing demand and employment opportunities associated with UC Merced (MCAG 2018).

Preferred Land Use Scenario

The RTP/SCS was developed based on population growth projections for the region and consideration of the general land use patterns that could accommodate this growth while achieving the RTP/SCS goals of providing an adequate transportation network, including non-automobile transportation modes, meeting the region's greenhouse gas reduction targets, and protecting and enhancing the natural environment. The land use patterns evaluated in the RTP/SCS were developed based on consideration of "development patterns, such as where to locate new housing, new job centers, and new mixed-use areas relative to existing communities (e.g., infill vs. converted farmland or open space). They also included the density of new development, which dictates the relative proportion of large-lot-single-family housing to small-lot-single-family housing to multifamily housing, and the proximity to complementary uses such as services and employment centers. Transportation investment choices in a given scenario include decisions for spending levels on new roadway capacity, roadway maintenance, transit, and alternative modes of travel (e.g., bike, pedestrian)" (MCAG 2018).

The analysis in the RTP/SCS demonstrates that the identified goals would best be achieved under the preferred land use scenario, which focuses on infill development in downtowns and centers in close proximity to jobs and services. This scenario anticipates residential neighborhoods that are more compact with an average housing density of 10.3 units per acre, which would be accomplished with a greater reliance on multi-family housing as well as a relative emphasis on smaller-lot single-family homes over large-lot single-family homes (MCAG 2018). Compared to the other scenarios evaluated, this scenario increases investment in active transportation modes (pedestrian and bicycle) while slightly reducing investment in automobile transportation modes. Further, this scenario is expected to achieve the region's GHG reduction targets established by the California Air Resources Board (CARB). Specifically, the SB 375 targets require a 5% reduction in GHG emissions by 2020 and a 10% reduction by 2035 while the RTP/SCS is expected to achieve a 15% reduction by 2020 and a 25% reduction by 2035 (MCAG 2018).

5.4.3 Elimination of Obstacles to Growth

The elimination of either physical or regulatory obstacles to growth is considered to be a growth-inducing effect, though not necessarily a significant one. A physical obstacle to growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that are not currently provided with these services would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth.

Removal of Infrastructure Limitations or Provision of Capacity

The proposed project includes sizing of on-site infrastructure to serve the proposed development. Land west, south, and east of the project site is already developed, with the land west and south served by the City's existing water and wastewater infrastructure and land east of the site on private wells and septic systems. No additional development of the properties west, south, and east of the site is likely. The property north of the project site is in agricultural production and is also include in the City's SOI/SUDP, thus development of that property is anticipated as part of ongoing implementation of the City's General Plan. However, the proposed project would not extend infrastructure to that property or increase the City's capacity to provide water and wastewater services.

Due to the location of the project site, the proposed project would not eliminate any constraints that are currently obstacles to growth in this portion of the City that would hasten development of this area.

Economic Effects

The proposed project would affect the local economy by constructing new residences that would facilitate an increase in the City's population. The project site is approximately two miles from UC Merced and the new residences and neighborhood commercial center could encourage people to live in the City and take advantage of proximity to the educational and employment opportunities at the campus.

Additional local employment can be generated through the multiplier effect, as residents within the project site patronize existing businesses and services in the community. The multiplier effect tends to be greater in regions with larger, diverse economies due to a decrease in the requirement to import goods and services from outside the region. The project is expected to support approximately 147 new jobs in the neighborhood commercial center.

Two different types of additional employment are tracked through the multiplier effect. *Indirect* employment includes those additional jobs that are generated through the expenditure patterns of direct employment associated with the project. Indirect jobs tend to be in relatively close proximity to the places of employment and residence.

The multiplier effect also calculates *induced* employment. Induced employment follows the economic effect beyond the expenditures of the residents within the project area to include jobs created by the stream of goods and services necessary to support residences within the proposed project. When a manufacturer buys or sells products, the employment associated with those inputs or outputs are considered *induced* employment.

For example, when an employee of the project goes out to lunch, the person who serves the employee lunch holds a job that is *indirectly* related to the proposed project. When the server then goes out and spends money in the economy, the jobs generated by this third-tier effect are considered *induced* employment.

The multiplier effect also considers the secondary effect of employee expenditures. Thus, it includes the economic effect of the dollars spent by those employees and residents who support the employees of the project.

Increased future employment generated by employee spending ultimately results in physical development of space to accommodate those employees. It is the characteristics of this physical space and its specific location that will determine the type and magnitude of environmental impacts of this additional economic activity. The environmental implications of this type of economic growth are too speculative to predict or evaluate, since they can be spread throughout the City and Merced County. However, the General Plan anticipates additional development in the City's SOI/SUDP that could accommodate the indirect and induced economic activity, such as within the Bellevue Community Plan area which is expected to include mixed-use and commercial development.

Impacts of Induced Growth

The growth induced directly and indirectly by the proposed project could contribute to the environmental impacts, discussed in Chapter 3, in the City and the County. Any such environmental effects, however, are too diffuse and speculative to predict or describe with any particularity.

Indirect and induced population growth in the City's SOI/SUDP would further contribute to the loss of open space because it would encourage the conversion of undeveloped land to urban uses for additional housing and infrastructure.

In summary, although the proposed project can be said to induce growth, the consequences of such growth-inducement are too speculative to predict and thus cannot be said to contribute meaningfully to any significant environmental effect. Growth-inducing effects are **less than significant.**

5.5 References Cited

City of Merced. 2012a. *City of Merced 2030 General Plan*. Adopted January 2012. https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan

City of Merced. 2012b. *City of Merced 2030 General Plan EIR.* Adopted January 2012. https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan-adoption

County of Merced. 2013. *2030 Merced County General Plan EIR*. Adopted December 2013. https://www.co.merced.ca.us/1926/Draft-General-Plan-Draft-Program-EIR

Merced County Association of Governments (MCAG). 2018. *2018 Regional Transportation Plan Sustainable Communities Strategy for Merced County*. August 6, 2018. https://www.mcagov.org/DocumentCenter/View/1731/MCAG-2018-RTP-finaldraft-2018-08-06?bidId=

CHAPTER 6
EIR PREPARATION

6.1 City Of Merced

Julie Nelson, Senior Planner, City of Merced Planning and Permitting Division
Kim Espinosa, Planning Manager, City of Merced Planning & Permitting Division
Scott McBride, City of Merced Development Services Director

6.2 Dudek

Katherine Waugh, AICP, Project Manager
Adam Giacinto
Allie Sennett
Andrew Capobianco
Angelica Chiu
Christine Kronenberg
Daniel Hoffman
Jared Bradford
Jonathan Leech
Kaitlin Roberts, JD
Kimberly Asbury
Lisa Achter
Michael Henry
Nicolas Lorenzen
Rachel Strobridge

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Appendix A

Notice of Preparation and Comments

2020 Revised Notice of Preparation

2016 Notice of Preparation

Compiled Notice of Preparation Comments

REVISED NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND SCOPING MEETING FOR THE YOSEMITE AVENUE - GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

PUBLIC COMMENT PERIOD
MAY 14, 2020 through JUNE 15, 2020

In December 2016, as the Lead Agency, the City of Merced (City) issued a Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for the Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project (proposed project). The City also held a public scoping meeting on December 15, 2016. Since that time the project applicant, University Village Merced, LLC, on behalf of Cliff Caton, property owner, has increased the number of residential units from 330 to 540 and increased the amount of parking. Therefore, the City is issuing a revised NOP. As the project location, land uses, and general scope has not substantially changed, the City will not hold another public scoping meeting.

The EIR for the proposed project will be prepared in compliance with the California Environmental Quality Act (CEQA). Under CEQA, upon deciding to prepare an EIR, the City, as lead agency, must issue an NOP to inform trustee and responsible agencies, and the public, of the decision to undertake preparation of an EIR. The purpose of the NOP is to provide information describing the proposed project and its potential environmental effects to those who may wish to comment regarding the scope and content of the information to be considered in the EIR.

The project includes a total of 70 acres with approximately 30 acres designated for The Crossings Mixed-Use Housing and Commercial development. The EIR will evaluate potential environmental effects associated with implementation of The Crossings Housing and Commercial component of the proposed project on a project level, consistent with Section 15161 of the CEQA Guidelines. The remaining 40-acre portion will be evaluated on a program level, consistent with Section 15168 of the CEQA Guidelines. The project description, location, and environmental issue areas that may be affected by future development of the proposed project are described below. The EIR will evaluate the project-specific and cumulative impacts, identify feasible mitigation measures to reduce or avoid significant project impacts, and identify a reasonable range of alternatives to the proposed project.

SUBMITTING COMMENTS

The City is soliciting comments from public agencies, organizations, and members of the public regarding the scope and content of the EIR, and the environmental issues and alternatives to be addressed in the EIR. Public agencies may need to use the EIR when considering permitting or other approvals that are germane to the agencies' responsibilities in connection with the project.

Comments as to the appropriate scope of analysis in the EIR are invited from all interested parties. Written comments or questions concerning the EIR for the proposed project should be directed to Julie Nelson, Associate Planner (address below). Due to time limits mandated by state law, public agencies and other interested parties must submit any comments in response to this notice at the earliest possible date, but not later than **5:00 p.m., June 15, 2020,** to the address shown

below (postmarks are acceptable). If you wish to be placed on the notification list for this project, or if you have any questions or need additional information, please contact Ms. Nelson.

City of Merced Planning Division, Attn: Julie Nelson, Associate Planner
678 West 18th Street, Merced, CA 95340
Phone: (209) 385-6967, Fax: (209) 725-8775
email: Nelsonj@cityofmerced.org

PROJECT LOCATION

The approximately 70-acre project site is located in Merced County on the north side of E. Yosemite Avenue between N. Gardner Avenue and Hatch Road (Exhibit 1). The site is unincorporated land contiguous with the City of Merced and is located approximately three miles from the UC Merced campus. The project site is bounded by the City on two sides and would be annexed into the City to receive full urban services.

PROJECT DESCRIPTION

The City is proposing to annex the entire 70-acre project site into the City limits. The project includes The Crossings housing and retail component that proposes to provide multi-family housing and commercial retail uses on a 30-acre portion of the site at the northeast corner of E. Yosemite Avenue and N. Gardner Avenue (Exhibit 2). No development is proposed on the remaining 40 acres that surround the 30-acre portion. The City is proposing land use and zoning designations of Urban Transition (U-T) and Low Density Residential (R-1-10) for this land.

University Village Merced, LLC (project applicant) is requesting entitlements to allow construction of the student housing and retail component of the project. A general overview of the project elements is included below (Exhibit 3).

- 540 residential units in 20 3-story buildings
- 111,000 square feet of mixed-use structures (66,000 square feet of retail and 45,000 square feet of residential) in 5 2-story buildings providing 30 additional units (12 apartments and 18 extended stay units)
- 13,700 square foot clubhouse
- 1,223 parking spaces
- Stormwater retention basin

REQUESTED ENTITLEMENTS

The proposed project requires the following discretionary approvals from the City of Merced and the Merced County Local Agency Formation Commission (LAFCo).

- Approval from Merced County LAFCo to annex 70 acres to the City of Merced;
- Pre-zoning to Planned Development (P-D), Low Density Residential (R-1-10), and Urban Transition (U-T);
- General Plan Amendment to change the land use designations from Rural Residential (RR) to Neighborhood Commercial (CN) and High-Medium Density Residential (HMD);
- Site utilization plan for the Crossings Residential and Mixed-Use Development portion of the site;
- Minor subdivision map;

- Approval of a Development Agreement for the Crossings Residential and Mixed-Use Development portion; and
- Certification of the EIR.

Environmental documentation for this project will be available for review at the City's website: https://www.cityofmerced.org/.

Depending on public health protection measures, hard copies of environmental documentation for the project *may* be available for review at the City's Planning Division, 678 West 18th Street, Second Floor, Merced, CA 95340, during regular business hours.

POTENTIAL ENVIRONMENTAL EFFECTS AND SCOPE OF THE EIR

The EIR will evaluate whether the proposed project may potentially result in one or more significant environmental effects, which will be evaluated in the relevant EIR sections listed below.

- Aesthetics, Light and Glare
- Agricultural Resources
- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Hydrology, Drainage and Water Quality
- Land Use and Demographics
- Noise
- Utilities and Service Systems
- Transportation

EFFECTS FOUND TO BE LESS THAN SIGNIFICANT

Unless specific comments are received during the NOP public comment period that raise specific concerns or request an issue be addressed unique to the project site, the following issues are anticipated to be less than significant and will be addressed in the Initial Study.

Geology, Soils, and Seismicity

The project site contains flat relief and no known earthquake faults exist in the project vicinity.

These conditions make it unlikely that the proposed project would be exposed to significant hazards during a seismic event. Furthermore, the proposed project's construction activities would involve grading and soil engineering activities intended to abate any adverse soil conditions that may exist and would ensure that project buildings have adequate structural support. No impacts would occur.

Hazards and Hazardous Materials

The project does not propose uses that would require the generation or use of hazardous materials and would not create a risk to the public or to schools in the project vicinity. The project site is not within two miles of an airport and would not interfere with an adopted emergency evacuation plan. It is anticipated that impacts would be less than significant.

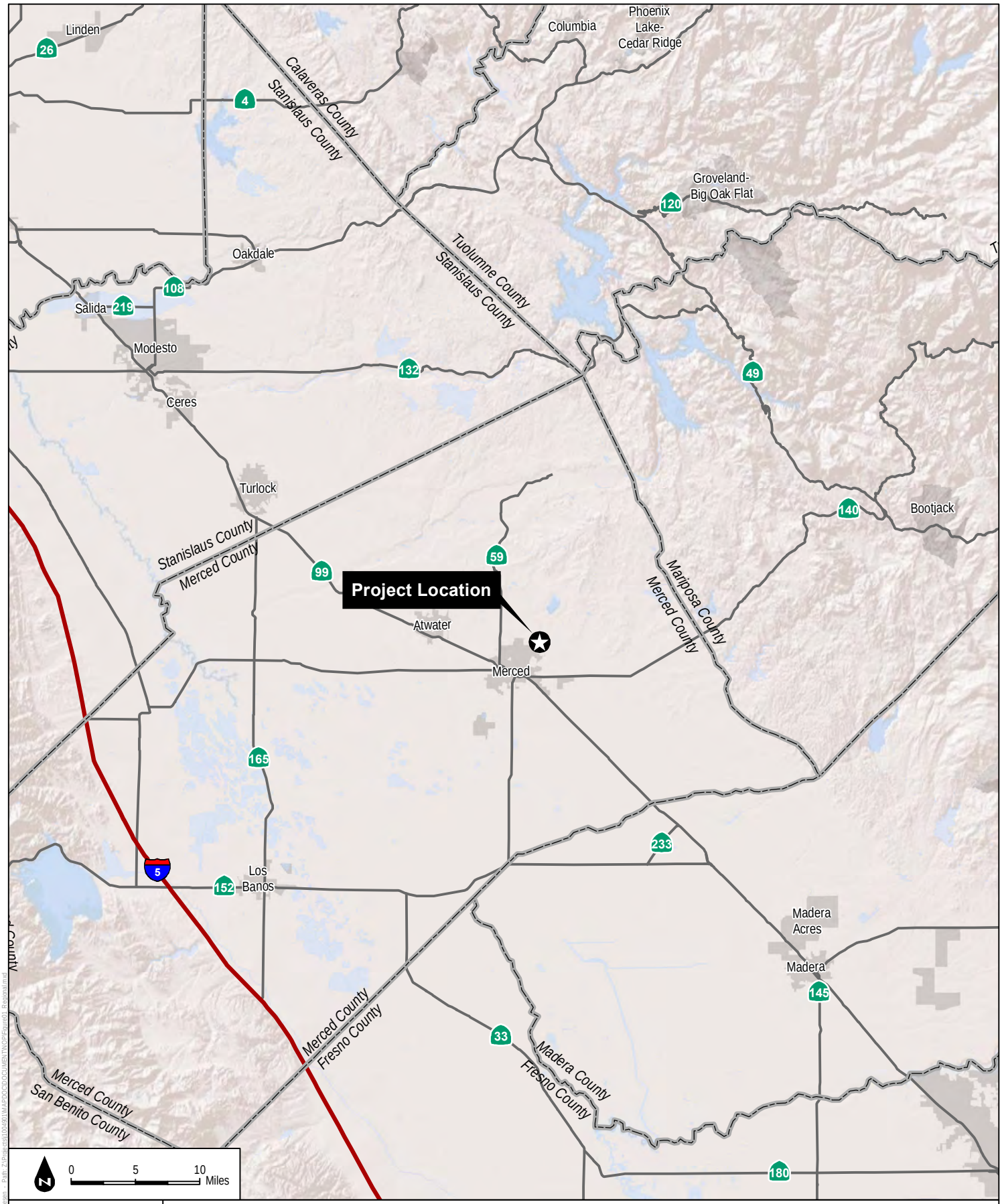
Mineral Resources

The project site does not support mineral extraction operations. Neither the State of California nor the City of Merced designates the project site as a location of known mineral deposits. These

conditions preclude the possibility of a loss of mineral resources of statewide or local importance. No impacts would occur.

Population and Housing

The project would introduce new residents into the City of Merced but would not displace any housing or require the construction of housing elsewhere. It is anticipated there would be no impacts to housing. Growth associated with the project and potential growth inducting effects will be addressed in the EIR.



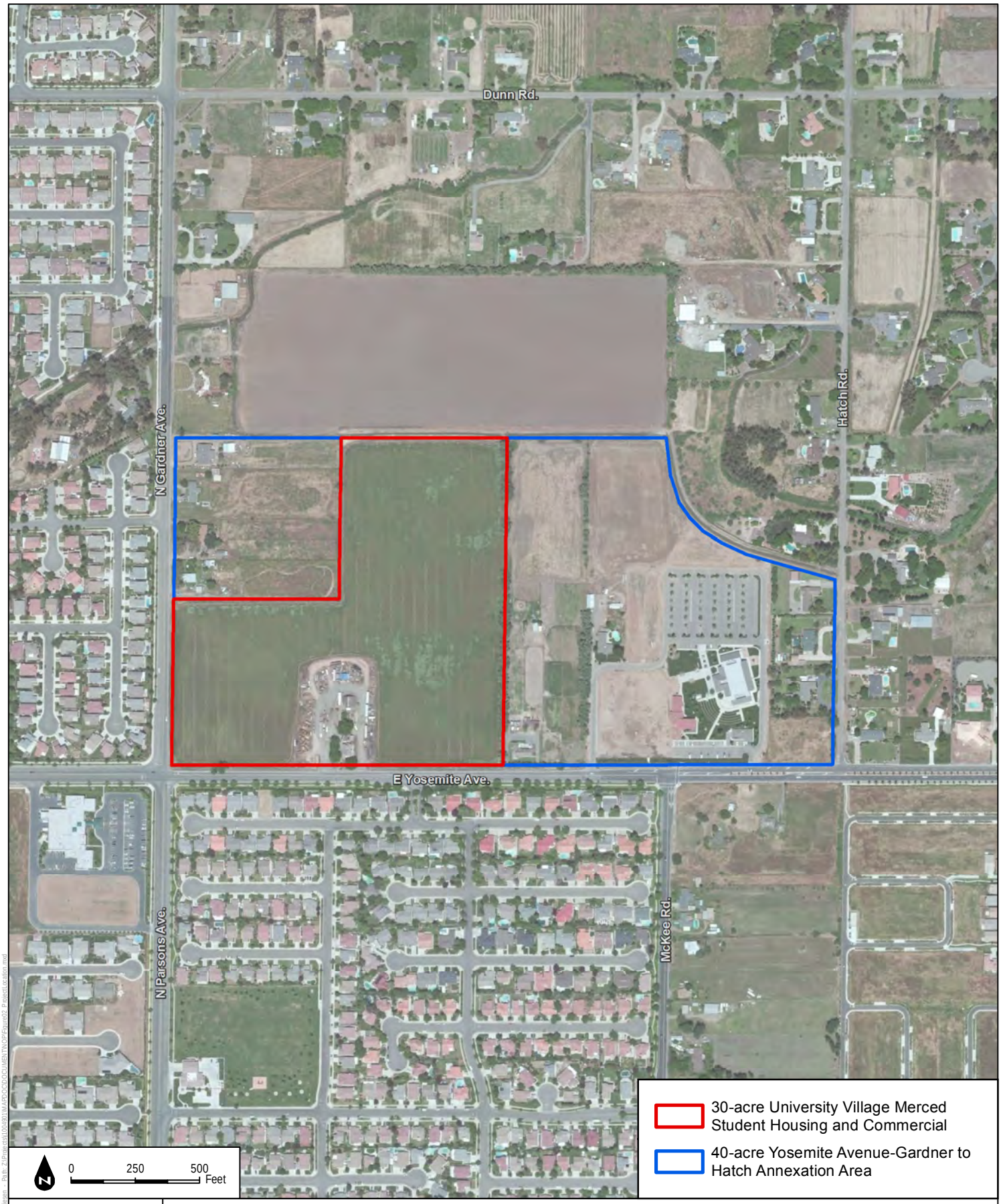
DUDEK

SOURCE: ESRI, County of Merced 2014

EXHIBIT 1

Regional Map

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project



DUDEK

SOURCE: Bing Maps 2016, County of Merced 2014

EXHIBIT 2

Project Location Map

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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2016 Notice of Preparation (original)

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND SCOPING MEETING FOR THE YOSEMITE AVENUE - GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

PUBLIC COMMENT PERIOD
DECEMBER 9, 2016 through JANUARY 9, 2017

As the Lead Agency, the City of Merced (City) will prepare an Environmental Impact Report (EIR) for the Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project (proposed project). The EIR is being prepared in compliance with the California Environmental Quality Act (CEQA). Under CEQA, upon deciding to prepare an EIR, the City, as lead agency, must issue a Notice of Preparation (NOP) to inform trustee and responsible agencies, and the public, of the decision to undertake preparation of an EIR. The purpose of the NOP is to provide information describing the proposed project and its potential environmental effects to those who may wish to comment regarding the scope and content of the information to be considered in the EIR.

The proposed project was initiated by University Village Merced, LLC, on behalf of Cliff Caton, property owner. The EIR will evaluate potential environmental effects associated with implementation of the University Village Merced Student Housing and Commercial component of the proposed project on a project level, consistent with Section 15161 of the CEQA Guidelines. The remaining 40 acre portion would be evaluated on a program level, consistent with Section 15168 of the CEQA Guidelines. The project description, location, and environmental issue areas that may be affected by future development of the proposed project are described below. The EIR will evaluate the project-specific and cumulative impacts, identify feasible mitigation measures to reduce or avoid significant project impacts, and identify a reasonable range of alternatives to the proposed project.

SUBMITTING COMMENTS

The City is soliciting comments from public agencies, organizations, and members of the public regarding the scope and content of the EIR, and the environmental issues and alternatives to be addressed in the EIR. Public agencies may need to use the EIR when considering permitting or other approvals that are germane to the agencies' responsibilities in connection with the project.

Comments as to the appropriate scope of analysis in the EIR are invited from all interested parties. Written comments or questions concerning the EIR for the proposed project should be directed to Bill King, Principal Planner (address below). Due to time limits mandated by state law, public agencies and other interested parties must submit any comments in response to this notice at the earliest possible date, but not later than **5:00 p.m., January 9, 2017,** to the address shown below (postmarks are acceptable). If you wish to be placed on the notification list for this project, or if you have any questions or need additional information, please contact Mr. King.

City of Merced Planning Division, Attn: Bill King, Principal Planner
678 West 18th Street, Merced, CA 95340
Phone: (209) 385-4768, Fax: (209) 725-8775
email: KingB@cityofmerced.org

PUBLIC SCOPING MEETING

A public scoping meeting will be held on Thursday, December 15, 2016, from 4:30 p.m. to 6:00 p.m. at the Sam Pipes Room in the Merced Civic Center, located at 678 W. 18th Street, Merced. Trustee and responsible agencies, as well as members of the public are invited to attend to learn more about the project and to provide written input on the scope of the EIR. The scoping meeting will have an "open house" format, so participants can attend at any point between 4:30 and 6:00 p.m. Participants arriving after 4:30 p.m. will not miss any meeting content.

PROJECT LOCATION

The approximately 70-acre project site is located in Merced County on the north side of E. Yosemite Avenue between N. Gardner Avenue and Hatch Road (Exhibit 1). The site is unincorporated land contiguous with the City of Merced and is located approximately three miles from the UC Merced campus. The project site is bounded by the City on two sides and would be annexed into the City to receive full urban services.

PROJECT DESCRIPTION

The City is proposing to annex the entire 70-acre project site into the City limits. The project includes the University Village Merced student housing and retail component that proposes to provide off-campus student housing and commercial retail uses on a 30-acre portion of the site at the northeast corner of E. Yosemite Avenue and N. Gardner Avenue (Exhibit 2). No development is proposed on the remaining 40 acres that surround the 30-acre portion. The City is proposing land use and zoning designations of Urban Transition (U-T) and Low Density Residential (R-1-10) for this land.

University Village Merced, LLC (project applicant) is requesting entitlements to allow construction of the student housing and retail component of the project. A general overview of the project elements is included below (Exhibit 3).

- 330 residential units in 22 three-story buildings;
- 813 spaces for student parking;
- An approximately 10,000 square foot (sf) single-story clubhouse/administration building, with gymnasium and study/lounge area;
- Outdoor recreation area and amenities including landscaping;
- 66,000 sf of commercial retail space in five single-story buildings with the potential for 18 extended stay units and 12 apartments above;
- 323 retail parking spaces; and
- Stormwater retention basin accommodating runoff from all 30 acres.

REQUESTED ENTITLEMENTS

The proposed project requires the following discretionary approvals from the City of Merced and the Merced County Local Agency Formation Commission (LAFCo).

- Approval from Merced County LAFCo to annex 70 acres to the City of Merced;
- Pre-zoning to Planned Development (P-D), Low Density Residential (R-1-10), and Urban Transition (U-T);
- General Plan Amendment to change the land use designations from Rural Residential (RR) to Neighborhood Commercial (CN) and High-Medium Density Residential (HMD);

- Site utilization plan for the University Village Merced portion of the site;
- Minor subdivision map;
- Approval of a Development Agreement for the University Village Merced portion; and
- Certification of the EIR.

POTENTIAL ENVIRONMENTAL EFFECTS AND SCOPE OF THE EIR

The EIR will evaluate whether the proposed project may potentially result in one or more significant environmental effects, which will be evaluated in the relevant EIR sections listed below.

- Aesthetics, Light and Glare
- Agricultural Resources
- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Hydrology, Drainage and Water Quality
- Land Use and Demographics
- Noise
- Utilities and Service Systems
- Transportation

EFFECTS FOUND TO BE LESS THAN SIGNIFICANT

Unless specific comments are received during the NOP public comment period that raise specific concerns or request an issue be addressed unique to the project site, the following issues are anticipated to be less than significant and will be addressed in the Initial Study.

Geology, Soils, and Seismicity

The project site contains flat relief and no known earthquake faults exist in the project vicinity.

These conditions make it unlikely that the proposed project would be exposed to significant hazards during a seismic event. Furthermore, the proposed project's construction activities would involve grading and soil engineering activities intended to abate any adverse soil conditions that may exist, and would ensure that project buildings have adequate structural support. No impacts would occur.

Hazards and Hazardous Materials

The project does not propose uses that would require the generation or use of hazardous materials and would not create a risk to the public or to schools in the project vicinity. The project site is not within two miles of an airport and would not interfere with an adopted emergency evacuation plan. It is anticipated that impacts would be less than significant.

Mineral Resources

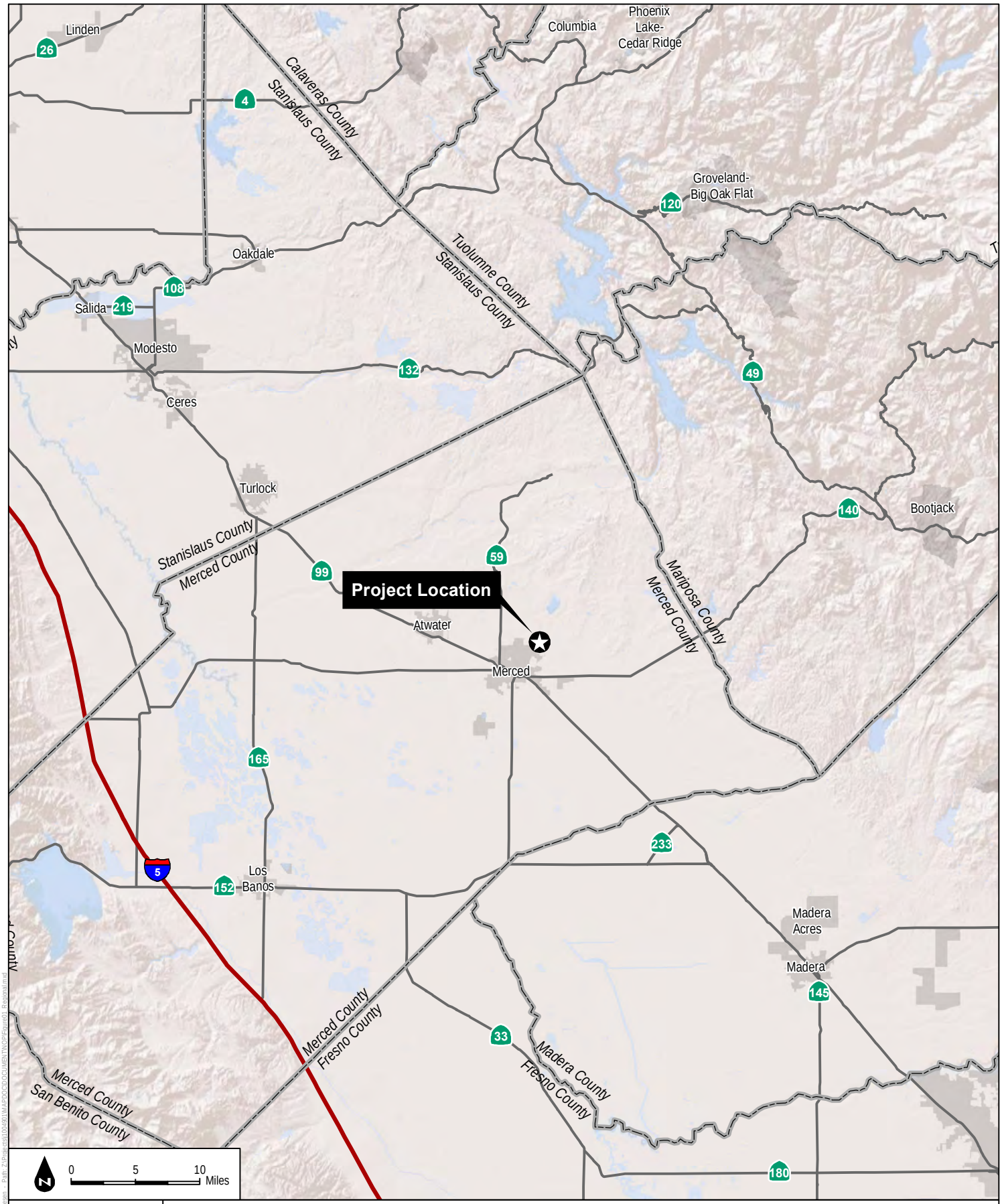
The project site does not support mineral extraction operations. Neither the State of California nor the City of Merced designates the project site as a location of known mineral deposits. These conditions preclude the possibility of a loss of mineral resources of statewide or local importance. No impacts would occur.

Population and Housing

The project would introduce new residents into the City of Merced, but would not displace any housing or require the construction of housing elsewhere. It is anticipated there would be no

impacts to housing. Growth associated with the project and potential growth inducting effects will be addressed in the EIR.

Environmental documentation for this project will be available for review at the City's Planning Division, 678 West 18th Street, Second Floor, Merced, CA 95340, during regular business hours and online at: https://www.cityofmerced.org/.



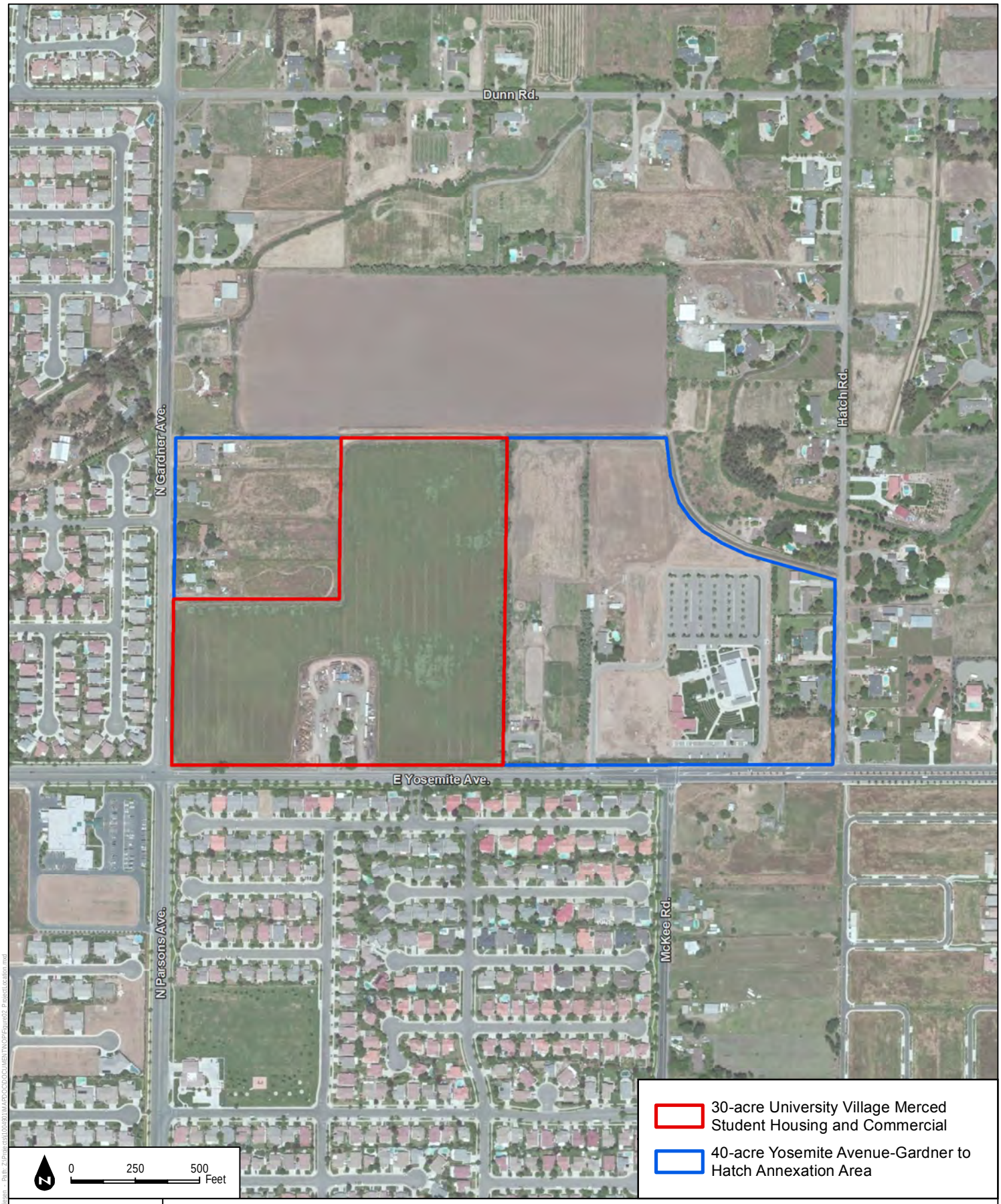
DUDEK

SOURCE: ESRI, County of Merced 2014

EXHIBIT 1

Regional Map

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project



DUDEK

SOURCE: Bing Maps 2016, County of Merced 2014

EXHIBIT 2

Project Location Map

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

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SOURCE: Hochhauser Blatter 2016

DUDEK

EXHIBIT 3
Site Plan

Yosemite Avenue - Gardner Avenue to Hatch Road Annexation Project

Compiled Notice of Preparation Comments

To: Merced City Planning Department

EIR Committee / Bill King

Re: University Village Project

Date: December 26, 2016

From: Jim and Emily Archer

Dear Mr. King:

We are writing this in regards to the proposed University Village project that is proposed for the area of the Yosemite and Parson /Gardner intersection. Although we support the vision of the project and it's need for this community, we oppose the location because of the inconsistency with the surrounding developments. The existing 700 – 800 single residency houses could be drastically effected by the proposed project. For many years people purchased their homes based upon the knowledge that the vacant property adjacent to the current developments was zoned low impact, single family homes. If this property is rezoned to the developer's request it will seriously affect the whole area. This is the wrong location for a fine project!

There are several reasons that we would request the committee to consider. Here are a few:

1. Traffic – At the morning and afternoon commute times these streets and that intersection are very near to the saturation point. They could possibly accept traffic from a housing project, but, not from an additional 1,400 vehicles. At present, there are times when traffic is backed up past and beyond the Chaparral intersection. It is often impossible to make a left hand turn on to Yosemite from the Silverado subdivision at several times during a work week day. Additional vehicles and the noise from them will cause a disturbing element to the current residents.

2. Noise – An additional 1,400 potential individuals in a concentrated area will certainly generate additional sound challenges for the existing residents in the adjacent homes, especially when weather is conducive to outdoor activities. Vehicle traffic as well as outdoor recreation at the proposed Village could raise the sound pollution quotient to near unacceptable levels.

3. Illumination – The required lighting and illumination from 3 story structures could intrude on residents nearby since most homes are 1 and 2 stories. Besides the proposed development's lighting, there will need to be street lights, stop lights and caution warnings added to the changes, all of which would affect the existing residents adversely.

4. Location – While almost everyone we have talked to about the proposed project agree that it is necessary and well thought out, however, almost everyone has been concerned about its location and the change in zoning that would be required. Many are worried about their property values and the effect upon their quality of life. It would result in a major change in the current well-being of these communities. As one resident said, "It would be like dropping a small

Casino in the middle of our lives" and we think that comment sums up our prospective on the issue.

5. Inconsistency – This project does not fit the area. The only structure in this area of multi-stories above 2 stories is the hospital and there are no 3 story residences within miles of the proposed development. The additional traffic, the noise/sound, the night illumination and the increase in emergency vehicle responses are all inconsistent with the existing community.

6. Marijuana – Finally, there is no evidence to determine what the current change in California's Marijuana laws will have on a concentrated population of 1,000 to 1,400 students since it has never been experienced before. Such issues as collective behaviors of large groups, frequency of required responses by fire and law enforcement personal, invited and uninvited "guests" at social functions and increase ingress and egress at the Yosemite and Parson/Gardner traffic patterns have yet to be determined.

We appreciate the opportunity to submit our opinions and viewpoints and we hope this information is helpful in determining the outcome.

Sincerely,

Jim Archer / Emily Archer

Jim and Emily Archer

1730 Pebble Beach Place

Merced, Ca

Cc: Council members

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

July 20, 2020

Julie Nelson, Associate Planner
City of Merced
678 West 18th Street
Merced, California 95340
Nelsonj@cityofmerced.org

Subject: Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (Project)
Notice of Preparation (NOP)
SCH No. 2016121029

Dear Ms. Nelson:

The California Department of Fish and Wildlife (CDFW) received a NOP for a draft Environmental Impact Report from the City of Merced for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statue for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA,

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

Nesting Birds: CDFW has jurisdiction over actions with potential to 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 nongame bird).

In this role, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on Project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

PROJECT DESCRIPTION SUMMARY

Proponent: University Village Merced, LLC

Objective: The City of Merced proposes to annex a 70-acre site into the City limits. The Project includes The Crossings housing and retail component that proposes to provide multi-family and commercial retail uses on a 30-acre portion of the site. No development is proposed on the remaining 40 acres that surround the 30-acre portion. The City is proposing land use and zoning designations of Urban Transition and Low Density Residential for this land.

University Village Merced, LLC (Project applicant) is requesting entitlements to allow construction of the student housing and retail component of the Project as follows:

- 540 residential units in 20 3-story buildings

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- 111,000 square feet of mixed-use structures (66,000 square feet of retail and 45,000 square feet of residential) in 5 2-story buildings providing 30 additional units (12 apartments and 18 extended stay units)
- 13,700 square foot clubhouse
- 1,223 parking spaces
- Stormwater retention basin

Location: The approximately 70-acre Project site is located in Merced County on the north side of East Yosemite Avenue between North Gardner Avenue and Hatch Road. The site is unincorporated land contiguous with the City of Merced and is located approximately three miles from the University of California, Merced campus. The Project site is bounded by the City on two sides and would be annexed into the City to receive full urban services.

Timeframe: N/A

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the City of Merced in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

There are many special-status resources that may utilize the Project site, and these resources may need to be evaluated and addressed prior to any approvals that would allow ground-disturbing activities. CDFW is concerned regarding potential impacts to special-status species including, but not limited to, the State threatened Swainson's hawk (*Buteo swainsoni*), the State threatened California tiger salamander (*Ambystoma californiense*), and the State species of special concern burrowing owl (*Athene cunicularia*).

I. Environmental Setting and Related Impact

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 CDFW or the United States Fish and Wildlife Service (USFWS)?

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COMMENT 1: Swainson's Hawk (SWHA)

Issue: SWHA have the potential to nest near and forage within the Project site. The proposed Project will involve activities near large trees that may serve as potential nest sites.

Specific impacts: Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include: nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), and direct mortality. Any take of SWHA without appropriate incidental take authorization would be a violation of Fish and Game Code.

Evidence impact is potentially significant: SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat in the San Joaquin Valley limits their local distribution and abundance (CDFW 2016). Approval of the Project will lead to subsequent ground-disturbing activities that involve noise, groundwork, and movement of workers that could affect nests and has the potential to result in nest abandonment and loss of foraging habitat, significantly impacting local nesting SWHA.

Recommended Potentially Feasible Mitigation Measure(s)
To evaluate potential impacts to SWHA associated with the Project, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the environmental impact report (EIR) prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 1: SWHA Surveys

CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the survey methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC 2000) prior to project implementation. The SWHA TAC recommends a 0.5-mile survey distance from the limits of disturbance. The survey protocol includes early season surveys to assist the project proponent in implementing necessary avoidance and minimization measures, and in identifying active nest sites prior to initiating ground-disturbing activities.

Recommended Mitigation Measure 2: SWHA No-disturbance Buffer

If ground-disturbing activities are to take place during the normal bird breeding season (March 1 through September 15), CDFW recommends that additional pre-activity surveys for active nests be conducted by a qualified biologist no more than 10 days prior to the start of Project implementation to ensure that no SWHA

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have begun nesting activities near the Project site. CDFW recommends a minimum no-disturbance buffer of ½ mile 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.

Recommended Mitigation Measure 3: SWHA Take Authorization

CDFW recommends that in the event an active SWHA nest is detected during surveys and a ½-mile no-disturbance buffer is not feasible, consultation with CDFW is warranted to discuss how to implement the project and avoid take. If take cannot be avoided, take authorization through the issuance of an ITP, pursuant to Fish and Game Code section 2081(b) is necessary to comply with CESA.

Recommended Mitigation Measure 4: Loss of SWHA Foraging Habitat

CDFW recommends compensation for the loss of SWHA foraging habitat as described in CDFW's "Staff Report Regarding Mitigation for Impacts to Swainson's Hawks" (CDFG 1994) to reduce impacts to foraging habitat to less than significant. The Staff Report recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites. CDFW has the following recommendations based on the Staff Report:

- For projects within 1 mile of an active nest tree, a minimum of 1 acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of ¾ acre of HM land for each acre of development is advised.
- For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of ½ acre of HM land for each acre of development is advised.

Recommended Mitigation Measure 5: SWHA Nest Trees

CDFW recommends that the removal of known raptor nest trees, even outside of the nesting season, be replaced with an appropriate native tree species planting at a ratio of 3:1 at or near the Project site or in another area that will be protected in perpetuity to reduce impacts resulting from the loss of nesting habitat.

COMMENT 2: California Tiger Salamander (CTS)

Issue: Even though the surrounding area consist of developed land (i.e., homes and neighborhoods), there are remnant habitat to the north and northeast and CTS have the potential to occur in the Project site. Aerial imagery shows that the Project site is within one mile from potential breeding habitat.

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Specific Impacts: Aerial imagery shows that the Project site is within one mile from potential breeding habitat. Potential ground- and vegetation-disturbing activities associated with Project activities include: collapse of small mammal burrows, inadvertent entrapment, loss of upland refugia, water quality impacts to breeding sites, reduced reproductive success, reduction in health and vigor of eggs and/or young, and direct mortality of individuals.

Evidence impact would be significant: Up to 75% of historic CTS habitat has been lost to urban and agricultural development (Searcy et al. 2013). Loss, degradation, and fragmentation of habitat are the primary threats to CTS in both the Central and San Joaquin valleys. Contaminants and vehicle strikes are also sources of mortality for the species (CDFW 2015, USFWS 2017). The Project site is within the range of CTS and has suitable habitat (i.e., grasslands interspersed with burrows and vernal pools). CTS have been determined to be physiologically capable of dispersing up to approximately 1.5 miles from seasonally flooded wetlands (Searcy and Shaffer 2011) and have been documented to occur near the Project site (CDFW 2020). Given the presence of potential habitat within and near the Project site, ground-disturbing activities have the potential to significantly impact local populations of CTS.

Recommended Potentially Feasible Mitigation Measure(s)

To evaluate potential impacts to CTS, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 6: Focused CTS Protocol-level Surveys

CDFW recommends that a qualified biologist conduct protocol-level surveys in accordance with the USFWS “Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander” (USFWS 2003) at the appropriate time of year to determine the existence and extent of CTS breeding and refugia habitat. The protocol-level surveys for CTS require more than one survey season and are dependent upon sufficient rainfall to complete. As a result, consultation with CDFW and the USFWS is recommended well in advance of beginning the surveys and prior to any planned vegetation- or ground-disturbing activities. CDFW advises that the protocol-level survey include a 100-foot buffer around the Project area in all areas of wetland and upland habitat that could support CTS. Please be advised that protocol-level survey results are viable for two years after the results are reviewed by CDFW.

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Recommended Mitigation Measure 7: CTS Avoidance

If CTS protocol-level surveys as described in the above Mitigation Measure 6 are not conducted, CDFW advises that a minimum 50-foot no-disturbance buffer be delineated around all small mammal burrows in suitable upland refugia habitat within and/or adjacent to the Project site. Further, CDFW recommends potential or known breeding habitat within and/or adjacent to the Project site be delineated with a minimum 250-foot no-disturbance buffer. Both upland burrow and wetland breeding no-disturbance buffers are intended to minimize impacts to CTS habitat and avoid take of individuals. Alternatively, the applicant can assume presence of CTS within the Project site and obtain from CDFW a State Incidental Take Permit (ITP) in accordance with Fish and Game Code section 2081(b).

Recommended Mitigation Measure 8: CTS Take Authorization

If through surveys it is determined that CTS are occupying or have the potential to occupy the Project site, consultation with CDFW is warranted to determine if the Project can avoid take. If take cannot be avoided, take authorization would be warranted prior to initiating ground-disturbing activities to comply with CESA. Take authorization would occur through issuance of an ITP by CDFW, pursuant to Fish and Game Code section 2081(b). As stated above, in the absence of protocol surveys, the applicant can assume presence of CTS within the Project site and obtain an ITP from CDFW.

COMMENT 3: Burrowing Owl (BUOW)

Issue: BUOW may occur within and/or adjacent to the Project site. BUOW inhabit open grassland containing small mammal burrows, a requisite habitat feature used by BUOW for nesting and cover. Habitat both within and bordering the Project site, supports grassland habitat (CDFW 2020).

Specific impact: Potentially significant direct impacts associated with subsequent activities and development include burrow collapse, inadvertent entrapment, nest abandonment, reduced reproductive success, reduction in health and vigor of eggs and/or young, and direct mortality of individuals.

Evidence impact is potentially significant: BUOW rely on burrow habitat year-round for their survival and reproduction. Habitat loss and degradation are considered the greatest threats to BUOW in California's Central Valley (Gervais et al. 2008). The Project site contain and is bordered by some of the only remaining undeveloped land in the vicinity. Therefore, subsequent ground-disturbing activities associated with Project approval have the potential to significantly impact local BUOW populations. In addition, and as described in CDFW's "Staff Report on

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Burrowing Owl Mitigation" (CDFG 2012), excluding and/or evicting BUOW from their burrows is considered a potentially significant impact under CEQA.

Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact)

To evaluate potential impacts to BUOW associated with the Project, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 9: BUOW Surveys

CDFW recommends assessing presence/absence of BUOW by having a qualified biologist conduct surveys following the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and CDFW's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012). Specifically, CBOC and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (April 15 to July 15), when BUOW are most detectable.

Recommended Mitigation Measure 10: BUOW Avoidance

CDFW recommends no-disturbance buffers, as outlined in the "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), be implemented prior to and during any ground-disturbing activities. Specifically, CDFW's Staff Report recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by CDFW 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)

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II. Editorial Comments and/or Suggestions

Nesting birds: CDFW encourages that Project implementation occur during the bird non-nesting season; however, if ground-disturbing or vegetation-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 violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

To evaluate Project-related impacts on nesting birds, CDFW recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground or vegetation disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a sufficient area around the Project sites to identify nests and determine their status. A sufficient area means any area potentially affected by the Project. In addition to direct impacts (i.e., nest destruction), noise, vibration, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends that a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends having a qualified biologist continuously monitor nests to detect behavioral changes resulting from the Project. If behavioral changes occur, CDFW recommends halting the work causing that change and consulting with CDFW for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, CDFW 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 active nests of non-listed raptors. These buffers are advised to remain in place 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 on-site parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction areas would be concealed from a nest site by topography. CDFW recommends that a qualified wildlife biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity

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Database (CNDDB). The CNDDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CDFW appreciates the opportunity to comment on the Project to assist the City of Merced in identifying and mitigating the Project's impacts on biological resources.

More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (https://www.wildlife.ca.gov/Conservation/Survey-Protocols). If you have any questions, 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,

DocuSigned by:
Annee Ferranti
041A77B10D78486...

for Julie A. Vance
Regional Manager

Attachment

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Literature Cited

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Attachment 1

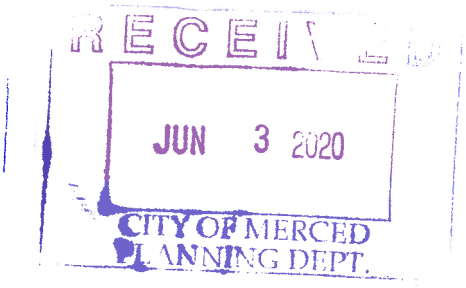
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
RECOMMENDED MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

PROJECT: Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project

SCH No.: 2016121029

RECOMMENDED MITIGATION MEASURE	STATUS/DATE/INITIALS
Before Disturbing Soil or Vegetation	
Mitigation Measure 1: SWHA Surveys	
Mitigation Measure 3: SWHA Take Authorization	
Mitigation Measure 4: Loss of SWHA Foraging Habitat	
Mitigation Measure 6: Focused CTS Protocol-level Surveys	
Mitigation Measure 8: CTS Take Authorization	
Mitigation Measure 9: BUOW Surveys	
During Construction	
Mitigation Measure 2: SWHA No-disturbance Buffer	
Mitigation Measure 5: SWHA Nest Trees	
Mitigation Measure 7: CTS Avoidance	
Mitigation Measure 10: BUOW Avoidance	

Joseph and Michele Corvello
3533 Hatch Rd.
Merced, CA 95340
(209) 722-2616



1st June 2020

Julie Nelson
Associate Planner,
CIty of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340

Dear Julie Nelson,

This letter is in response to the public notice from the preparation of an environmental impact report for the city of merced "Yosemite Avenue-Gardner Avenue to Hatch Road annexation" project, received on May 19, 2020.

As residents of Hatch Road we strongly disapprove of this project for several reasons. First of all the high traffic impact on our quiet neighborhood. Secondly, the nuisance of a large complex becomes noisy. Lastly the impact on our property value. For these reasons we strongly DO NOT support this project.

Regards,

Joseph & Michele Corvello

Joseph and Michele Corvello

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JULY 3, 2020

VIA EMAIL: NELSONJ@CITYOFMERCED.ORG
City of Merced Planning Division
ATTN: Julie Nelson, Associate Planner
678 West 18th Street
Merced, CA 95340

Dear Ms. Nelson:

REVISED NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE YOSEMITE AVENUE – GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT, SCH# 2016121029

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project (Project). The Division monitors farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources.

Project Description

The City is proposing to annex the entire 70-acre project site into the City limits. The project includes The Crossings housing and retail component that proposes to provide multi-family housing and commercial retail uses on a 30-acre portion of the site at the northeast corner of E. Yosemite Avenue and N. Gardner Avenue. The City is also proposing land use and zoning designations of Urban Transition (U-T) and Low Density Residential (R-1-10) for this land.

Currently, the project site is in agricultural use and contains Prime and Unique Farmland, as identified by the Department of Conservation's Farmland Mapping and Monitoring Program[1].

[1] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, https://maps.conservation.ca.gov/DLRP/CIFF/

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Department Comments

The conversion of agricultural land represents a permanent reduction and significant impact to California's agricultural land resources. Under CEQA, a lead agency should not approve a project if there are feasible alternatives or feasible mitigation measures available that would lessen the significant effects of the project.[2] All mitigation measures that are potentially feasible should be included in the project's environmental review. A measure brought to the attention of the lead agency should not be left out unless it is infeasible based on its elements.

As the courts have shown[3], agricultural conservation easements on land of at least equal quality and size can mitigate project impacts in accordance with CEQA Guideline § 15370. The Department highlights agricultural conservation easements because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA. Agricultural conservation easements are an available mitigation tool and should always be considered; however, any other feasible mitigation measures should also be considered.

A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

http://www.calandtrusts.org/resources/conserving-californias-harvest/

Conclusion

The Department recommends the following discussion under the Agricultural Resources section of the Environmental Impact Report:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measures for all impacted agricultural lands within the proposed project area.

[2] Public Resources Code section 21002.
[3] *Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230, 238.

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Thank you for giving us the opportunity to comment on the Revised Notice of Preparation of a Draft Environmental Impact Report for the Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Monique Wilber

Conservation Program Support Supervisor

DEPARTMENT OF TRANSPORTATION
DISTRICT 10 DIRECTOR
P.O. BOX 2048
(1976 E. DR. MARTIN LUTHER KING JR. BLVD. 95205)
STOCKTON, CA 95201
PHONE (209) 948-7943
FAX (209) 948-3670
TTY 711
www.dot.ca.gov

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10-MER-140-PM 036.824
NOP for EIR
Yosemite Ave – Gardner Ave to
Hatch Road Annexation
SCH# 2016121029

Bill King, Principal Planner
City of Merced Development Services
678 W. 18th Street
Merced, CA 95340

Dear Mr. King:

The California Department of Transportation appreciates the opportunity to review the Notice of Preparation for the Environmental Impact Report for the Yosemite Ave – Gardner Ave to Hatch Road Annexation. The project involves the annexation of a 70 acre area bounded by Hatch Road, Yosemite Avenue, and Gardner Avenue by the City of Merced. A 30 acre area will be developed with 66,000 square feet of office, retail, and restaurant uses and 330 multi-family residential units. The Department has the following comments:

- The proposed project might have a potential traffic impact on SR-59 and SR-140. Therefore, the proposed project's EIR must include a Traffic Impact Study which includes traffic analysis at the following intersections:
  - SR-140/E. Santa Fe Ave
  - SR-140/Kibby Road
  - SR-59/W. Yosemite Ave
  - SR-59/Santa Fe Drive/W. Olive Ave
  - SR-59/16th Street
  - All SR-99 and SR-140 on-ramps and off-ramps in the city.
- Please submit the completed Traffic Impact Study and EIR to the Department for review.
- The Department recommends the inclusion of sidewalks and bicycle facilities along Yosemite Avenue, Gardner Avenue, and Hatch Way to provide continuity between the proposed development and the existing and proposed bus facilities.

Please contact Nicholas Fung at (209) 948-7190 or myself at (209) 941-1921 if you have any further questions.

Sincerely,

Nicholas Fung

FOR TOM DUMAS, CHIEF
OFFICE OF METROPOLITAN PLANNING

Offices of
Emerson & Conway
One Bush Plaza San Francisco, CA 94104

RECEIVED
AUG 13 2020
CITY OF MERCED
PLANNING DEPT.

June 15, 2020

Julie Nelson, Associate Planner
City of Merced Planning Division
678 West 18th Street
Merced, CA 95340

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE YOSEMITE AVENUE – GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

Dear Ms. Nelson:

The purpose of this communication is to bring attention to a significant omission in the annexation proposal, and in the California Environmental Quality Act Notice of Preparation, which is the City's exclusion of a property that should be part of the annexation. This is the contiguous, vacant, 30-acre property to the north that is within the City's Sphere of Influence and designated by the City's General Plan for residential development.

The adjacent parcel is not of sufficient size or future density to sustain an annexation proposal independently. Leaving this parcel out of the proposed annexation while the corner parcel, the low-hanging fruit, moves forward, is an extreme inefficiency. This represents either a lack of foresight or purposeful blockage of the neighboring property owner's reasonable right to exercise current and future zoning. There is insufficient reason to exclude it given that the City has determined to include other neighboring properties. The present canal that separates this property will be enclosed with the proposed project, and will no longer provide a theoretical boundary.

At this time the City is looking abroad at the horizon, far beyond the margins of the City, to productive farms and ranchlands, for possible annexation opportunities (Merced Annexation Feasibility Study). However, this proposed incremental annexation, peeling off the high value corner parcel, skips over a parcel that is contiguous with the City. Though smaller than the many thousands of acres far to the north that the City is entertaining for urban development, it is substantial enough to provide significant housing opportunities in close proximity to existing infrastructure and services. It is a parcel that is essentially infill, and will in any event become a passed-over infill site if the current proposal moves forward without it (Policy L-3.2).

Annexation of this adjacent 30-acre parcel is timely now. This contiguous parcel must be included in the environmental impact report (EIR) currently being prepared, and pre-zoned for Low Density Residential as others are.

Additionally, the present proposed site plan eliminates provision for adequate future circulation to, and connectivity with, the 30-acre northerly parcel. Proposals such as this create isolated and balkanized neighborhoods. The proposed site plan also thereby diminishes development options of the adjacent property. This action by the City will thwart the City's own plan for this property. This is contrary to the Merced Vision 2030 General Plan and City standards. The proposed project must provide through access to the parcel to the north, and/or a shared street with the property to the east, and construct a canal crossing now for emergency services vehicles to safely reach the rear of the subject apartment project (Policy L-1.9, Ensure Connectivity Between Existing and Planned Urban Area).

The proposed project should not be focused entirely on maximizing residential density to the extent of filling up the residential portion with apartments. The project should provide for more transitional densities such as townhomes given proximity to the County's A-R Zone, as well as apartments. Since it can be expected that many residents will be students or university staff, Campus-type research and development facilities should also be placed here, consistent with the City's Merced Vision 2030 General Plan (Policy L-2.9). This would also be consistent with the City's plan for economically vital, mixed use Urban Villages, rather than another monoculture of apartments that, without an integrating range of supporting uses, would be more subject to decay over time (Policies L-3.1, 3.2 and 3.3).

We look forward to the reviewing the pending Draft EIR for inclusion of the 30-acre property.

Cordially,

Thomas Kent

Thomas Kent

LAFCo
of Merced County

Local Agency Formation Commission
2222 M Street
Merced, CA 95340
Phone (209) 385-7671 / Fax (209) 726-1710
www.lafcomerced.org

January 9, 2017

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

RE: Yosemite Avenue – Gardner Avenue to Hatch Road Annexation NOP

Dear Mr. King:

Thank you for forwarding Merced LAFCO a copy of the Notice of Preparation (NOP) for this project, involving the annexation of approximately 70 acres into the City of Merced. While the only pending development project involves 30 acres at the northeast corner of Yosemite and Gardner Avenues, the City has included an additional 40 acres of existing and potential development area to form a more logical city boundary which is supported by local LAFCO policy. LAFCO will consider the EIR document in its role as a "responsible agency" under CEQA. Therefore, please consider these comments which will help clarify the environmental record when the project reaches the Commission.

Under the topic of "agriculture and forestry resources" the Draft EIR should identify that the vacant properties consist of soil designated as "Prime Farmland" in the State Department of Conservation Important Farmland Mapping Program. While the area is adjacent to existing development on the south and west, the overall rural residential area consists of a partially developed rural landscape with intermittent farming and animal raising operations. The loss of prime farmland is a central issue for LAFCO, and identification of feasible mitigation measures through the acquisition of open space easements over agricultural land, or the payment of a fee to obtain easements at a 1:1 ratio should be included in the analysis, even if the City will consider adoption of a statement of overriding considerations.

For LAFCO to rely on the City's overriding considerations, the City should clearly identify the basis of these considerations as required under section 15091 of the CEQA Guidelines which include: "Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR."

In terms of the overall annexation area, it is commendable that the City took such a comprehensive approach to identifying the area for ultimate annexation to the City, even though only 30 acres are proposed for development at this time. Other land uses include existing large lot residential parcels, partially developed residential parcels, an existing church/school complex, and a horse stable facility. Some of this land will provide opportunity for future urban land uses following annexation.

While not necessarily part of the EIR analysis, LAFCO will review the proposal against its locally adopted policies. Policy 7 under Section C includes a consideration of how much vacant residentially designated land is available within the current city limits, and it reads:

> *Consider the amount of existing vacant land within the City that is available for similar types of development to the proposed annexation. Make a comparison of existing vacant and available land to the amount of land needed to accommodate growth needs over a ten year period as established in the City's General Plan or other official projection such as that adopted by the Merced County Association of Governments. The City must provide evidence why the consideration of existing vacant land is not appropriate based on such factors as location, limitations to infrastructure, development constraints, agricultural viability, economic market conditions, or unique characteristics of the annexation project.*

In terms of adequate public services and facilities, when the City submits the future annexation application to LAFCO, one of the requirements is to submit a "plan for services" in compliance with Government Code section 56653(b). One of the historic concerns in this area of the City's sphere of influence is the City's long-term plans for extension of public services and future intensification of this Rural Residential Center located northeast of the City limits. The Bellevue Community Plan adopted by the City in 2015 focused on the corridor extending along both sides of Bellevue Road, but did not detail the infrastructure, service and transportation plans for the balance of the Rural Residential Center. What trunk line capacity is planned for this annexation for sewer, water and stormwater facilities? Does the sizing accommodate future annexations in this region or is the City contemplating the surrounding Rural Residential area will remain in the County with continued reliance on private wells, septic tanks and individual stormwater basins?

The City should also determine whether a "water supply assessment" (WSA) in conformance with SB 610 (in the State Water Code) is required for the project. A WSA is required for any residential project involving 500 residential connections or other urban development projects generating the equivalent in water demand. The information in a WSA, if required, is useful for the City and LAFCO in evaluating the water supply impacts from large projects, including the ability to serve new development during multiple year drought conditions.

This concludes the LAFCO comments on NOP, and we look forward to receipt of the Draft EIR. Please let me know if you have any questions or would like to discuss any issues raised in this letter.

Sincerely,

Bill Nicholson,
Executive Officer

cc: LAFCO Counsel

James G. Marshall
1252 Cathedral Creek Ct.
Merced CA 95340
(209) 383-3611
(209) 205-8599 – cell
bagpipemarshall@comcast.net

June 8, 2020

Merced Planning Department
City of Merced

Re: N O P "Yosemite Avenue - Gardner to Hatch Road Annexation"

Ladies and Gentlemen:

Thank you for the N O P regarding the above project. While I understand the Environmental review will be exhaustive in preparation of an EIR, I would like to report to pay particular attention to the following:

1. This property is currently outside of the North Merced Sewer District Boundaries. Please detail how this property will mitigate this impact with regard to: what is the buy-in cost; how will sewage be transmitted to WWTP as current trunks are insufficient; operational cost of alternatives (package plants); ultimate disposal location of effluent; and what undeveloped properties currently inside the North Merced Sewer District will be negatively impacted if capacity is used by this site.
2. Traffic mitigation for development including signalization at Parsons/Gardner/Yosemite intersection.
3. Water supply in drought years and groundwater impacts.
4. Storm Drainage in both Black Rascal and Cottonwood Creek watershed areas through downstream connections with Bear Creek - both have contributed to downstream flooding in previous storm incidents.
5. Visual impacts and privacy issues for properties already developed as SFD's. Please address properties both across Gardner from site; and, across Yosemite from site.

Please keep me informed of review opportunities.

Sincerely;

James G. Marshall

MERCED IRRIGATION DISTRICT

WATER & POWER

June 14, 2020

Kim Espinosa, Planning Manager
City Of Merced
678 West 18th Street
Merced, California 95340

Subject: Preparation of NOP for EIR for Yosemite Avenue, Gardner to Hatch

Dear Ms. Espinosa:

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

MID operates and maintains the south half of the Yosemite Lateral located within an unspecified width easement by water contract as recorded April 19, 1888 in Book 2 of Water Rights, Page 45. MID operates and maintains the north half of the Yosemite Lateral located within an unspecified width fee strip as recorded in Volume 729 Official Records, Page 390 all being Merced County Records. This facility is located along the North line of the project from east to west and then north to its terminus at Cottonwood Creek.

This project has been previously reviewed January 10, 2013. See the attached conditions as they remain the same, also if any future roadways are proposed to cross MID facilities they will require a separate crossing agreement.

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

Sincerely,

Ronald L. Price
Associate Engineer, Water Resources

cc: Bryan Kelly, Deputy General Manager, Water Resources
Mike Morris, Associate Engineer, Water Resources
Jake Feriani, Associate Engineer, Water Resources

MERCED IRRIGATION DISTRICT

WATER & POWER

January 10, 2013

Kim Espinosa, Planning Manager
City of Merced Planning and Permitting Division
678 West 18th Street
Merced, CA 95340

Subject: Preliminary Annexation 12-01 – Caton /Reinero– APN- 060-570-010

Dear Ms. Espinosa:

The Merced Irrigation District (MID) has previously reviewed the above referenced application in association with Preliminary GPA #07-06. The current proposal is on one parcel and MID offers the following comments:

MID operates and maintains the south half of the Yosemite Lateral located within an unspecified width easement by water contract as recorded April 19, 1888 in Book 2 of Water Rights, Page 45. MID operates and maintains the north half of the Yosemite Lateral located within an unspecified width fee strip as recorded in Volume 729 Official Records, Page 390, all, Merced County Records. This facility is along the North line of the project from east to west and then north to its terminus at Cottonwood Creek.

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

1. MID policy dictates that the Yosemite Lateral be placed in an underground pipeline meeting MID standards. MID will quitclaim all right, title and interest in the existing unspecified width easement and sell the unspecified width fee strip on the Yosemite Lateral and take back an appropriate width easement with MID approved standard language attachments where the new pipeline is located.

2. That the applicants enter into a "Subdivision Drainage Agreement" with MID paying all applicable fees if the MID's Yosemite Lateral is slated to become the recipient of the project's storm drainage water per the Tentative Map.

(209) 722-5761 744 West 20th Street P.O. BOX 2288 Merced, California 95344-0288
Administration / FAX (209) 722-6421 • Finance / FAX (209) 722-1457 • Water Resources / FAX (209) 726-4176
Energy Resources / FAX (209) 726-7010 • Customer Service (209) 722-3041 / FAX (209) 722-1457

3. A signature block is provided for MID on all Improvement Plans associated with MID facilities or storm drainage discharge to MID facilities.

4. The developer must enter into a "Construction Agreement" with MID for any work associated with MID facilities and pay all applicable fees.

5. A "Joint Use Agreement" may be required between the MID and the City of Merced to cover any shared easements which may arise depending upon where the new pipeline and dedicated streets are located.

In addition to providing reliable, low cost power, the Merced Irrigation District has developed a New Construction Rebate Program for new businesses. Rebates are available for projects estimated to exceed a Title-24 or standard practice baseline by at least 10% on a whole building performance basis. The maximum rebate is $150,000 per year, per customer and will not exceed 60% of the project's cost (equipment plus labor). These incentives encourage owners to make energy efficiency a major goal in new building projects. For more information, please contact Chris Cuttone at 722-5761.

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

Sincerely,

Ronald L. Price
Associate Engineer
Water Resources

cc: John Sweigard, General Manager
Hicham ElTal, Deputy General Manager - Water Resources Engineering
John Wiersma, Senior Engineer - Water Resources
Chris Cuttone, Electrical Services

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

RECEIVED
JUN 29 2020
CITY OF MERCED
PLANNING DEPT.

June 22, 2020

Julie Nelson, Assoc. Planner
City of Merced
678 West 18th Street
Merced, CA 95340

Re: 2016121029, Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project, Merced County

Dear Ms. Nelson:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
Marshall McKay
Wintun

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an 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.
    a. The final report containing site forms, site significance, and mitigation measures 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 public disclosure.

b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

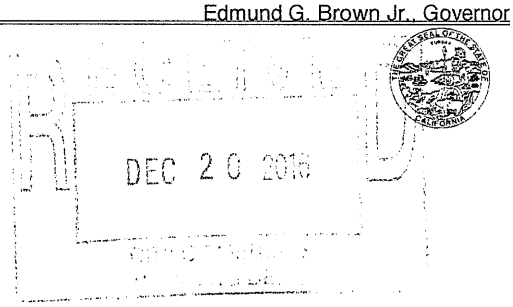


Nancy Gonzalez-Lopez
Cultural Resources Analyst

cc: State Clearinghouse

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

Edmund G. Brown Jr., Governor



December 14, 2016

Bill King
City of Merced
678 W. 18th Street
Merced, CA 95340

sent via e-mail:
kingb@cityofmerced.org

RE: SCH# 2016121029; Yosemite Avenue- Gardner Avenue to Hatch Road Annexation Project, Notice of Preparation for Draft Environmental Impact Report, Merced County, California

Dear Mr. King:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code § 21084.2). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," http://resources.ca.gov/ceqa/docs/ab52/Clean-final-AB-52-App-G-text-Submitted.pdf. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws**.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
   a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   a. Alternatives to the project.
   b. Recommended mitigation measures.
   c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:
    i. Planning and construction to avoid the resources and protect the cultural and natural context.
    ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    i. Protecting the cultural character and integrity of the resource.
    ii. Protecting the traditional use of the resource.
    iii. Protecting the confidentiality of the resource.
c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

    This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason,

we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an 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.
    a. The final report containing site forms, site significance, and mitigation measures 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 public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,



Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

cc: State Clearinghouse

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

December 14, 2016

Bill King
City of Merced
Planning Department
678 West 18th Street
Merced, CA 95340

Project: Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project

District CEQA Reference No: 20160829

Dear Mr. King:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) of an Environmental Impact Report for the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project. The proposed project consists of the following:

- Pending Annexation #16-01 and Pre-Zone Application #16-01 would annex approximately 70 acres of land and affix the following prezone designations to the site:
  a) Planned Development (P-D) #75
  b) Low Density Residential (R-1-10)
  c) Urban Transition (U-T)

- General Plan Amendment #16-01 would:
  a) Change the general plan land use designation from Rural Residential (RR) to Neighborhood Commercial (CN) and High Medium Density Residential (HMD)
  b) Allow project driveways at locations different than prescribed by City Policy
- Planned Development Establishment (P-D) #75 would establish Planned Development (P-D) #75, including a Site Utilization Plan for 66,000 square feet of retail uses, offices, restaurants, and 330 multifamily residential dwelling units all on 30 acres.

The project site is bounded by Yosemite Avenue, Gardner Avenue, Hatch Road, and the Yosemite Lateral in Merced, CA. The District offers the following comments:

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

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Emissions Analysis

1) At the federal level for the National Ambient Air Quality Standards (NAAQS), the District is currently designated as extreme nonattainment for the 8-hour ozone standards; nonattainment for the PM2.5 standards; and attainment for the 1-Hour ozone, PM10 and CO standards. At the state level, the District is currently designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 California Ambient Air Quality Standards (CAAQS). The District recommends that the Air Quality section of the Environmental Impact Report (EIR) include a discussion of the following impacts:

   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: 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 the sum of the annual non-permitted emissions each 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:*** Project related impacts on air quality can be reduced through incorporation of design elements, for example, that increase energy efficiency, reduce vehicle miles traveled, and reduce construction exhaust related emissions. However, design elements and compliance with District rules and regulations may not be sufficient to

reduce project related impacts on air quality to a less than significant level. Another example of a feasible mitigation measure is the mitigation of project emissions through a Voluntary Emission Reduction Agreement (VERA). The VERA is an instrument by which the project proponent provides monies to the District, which is used by the District to fund emission reduction projects that achieve the reductions required by the lead agency. District staff is available to meet with project proponents to discuss a VERA for specific projects. For more information, or questions concerning this topic, please call District Staff at (559) 230-6000.

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 10 or more, the project has the potential to exceed the District's significance threshold for health impacts of 20 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 20 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) This proposed project may require District permits. Prior to the start of construction the project proponent should contact the District's Small Business Assistance Office at (559) 230-5888 to determine if an Authority to Construct (ATC) is required.

5) Based on information provided, the proposed project would equal or exceed the relevant District Rule 9510 (Indirect Source Review) applicability threshold of 50

residential units and 2,000 square feet of commercial space. Therefore, the District concludes that the proposed project is subject to District Rule 9510.

Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final discretionary approval, and to pay any applicable off-site mitigation fees. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

6) Particulate Matter 2.5 microns or less in size (PM2.5) from under-fired charbroilers (UFCs) pose immediate health risk. Since the cooking of meat can release carcinogenic PM2.5 species like polycyclic aromatic hydrocarbons (PAH), controlling emissions from under-fired charbroilers will have a substantial positive impact on public health.

   Charbroiling emissions occur in populated areas, near schools and residential neighborhoods, resulting in high exposure levels for sensitive Valley residents. The air quality impacts on neighborhoods near restaurants with UFCs can be significant on days when meteorological conditions are stable, when dispersion is limited and emissions are trapped near the surface within the surrounding neighborhoods. This potential for neighborhood-level concentration of emissions during evening or multi-day stagnation events raises environmental concerns.

   In addition, the cooking emissions source category is one of the largest single contributors of directly emitted PM2.5 in the Valley. Photochemical modeling conducted for the 2012 PM2.5 Plan showed that reducing commercial charbroiling emissions is critical to achieving PM2.5 attainment in the Valley.

   The District committed to amend Rule 4692 (Commercial Charbroiling) in 2016, with a 2017 compliance date, to add emission control requirements for UFCs, as committed to in the District's 2012 PM2.5 Plan. Installing charbroiler emissions control systems during construction of new facilities is likely to result in substantial economic benefit compared to costly retrofitting.

   Therefore, the District strongly recommends that your agency require new restaurants that will operate UFCs to install emission control systems during the construction phase. To ease the financial burden for Valley businesses that wish to install control equipment before it is required, the District is offering incentive funding during the time leading up to the amendment to the rule. Restaurants with UFCs may be eligible to apply for funding to add emission control systems. Please contact the District at (559) 230-5858 for more information.

7) 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 (559) 230-5888. 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 Sharla Yang at (559) 230-5934.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Sharla Yang

For Brian Clements
Program Manager

AM: sy





YOSEMITE AVENUE – GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

ENVIRONMENTAL IMPACT REPORT (EIR) NOTICE OF PREPARATION (NOP)

COMMENT FORM

Please provide the following information if you wish to receive a Notice of Availability of the Draft EIR and to document the author of comments received. Thank you.

Name: David Squibb

Email: dwsquibb@earthlink.net

Address: 1463 Hunters Dr

Organization: _____

☒ I would like to receive future environmental notices via email.

Please provide us with your written comments on the NOP by **January 9, 2017.** Comments on the NOP may be sent to:

City of Merced
Development Services
678 West 18th Street
Merced, California 95340

Attn: Bill King, Principal Planner (Email: kingb@cityofmerced.org)

You may attach additional pages to this form and/or you may submit your written comments separately. Written comments on the scope of the EIR will be acknowledged in the Draft EIR and will be considered in preparation of the document.

See attached

January 6, 2017

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

re: Yosemite Ave – Gardner Ave to Hatch Road Annexation Project
Environmental Impact Reportt (EIR) Notice of Preparation (NOP)

Mr. King:

We are residents near the proposed Gardner Ave to Hatch Road Annexation Project and would like to express our concerns using this location for this type of development. We hope the city will reconsider the placement of such a project in our residential community. Please see our concerns and comments for consideration below.

Concerns:

Noise & Light

A) Increased noise pollution in a quiet residential neighborhood due to more people (both visiting and residing), activities (retail, living) and vehicle traffic (residents, customers, delivery supply trucks, potential parking lot vacuum trucks etc.). The project will also introduce light pollution to existing residential neighborhood. Bordering properties along the proposed development may be exposed be subjected to excessive light thru the night.

Traffic Safety

B) Increased traffic in quiet residential neighborhood is a potential safety issue. In our specific situation, we expect that traffic would increase off Gardner down Hunters Drive to White Dove and then Yosemite in order to avoid delays at a needed signal at Gardner and Yosemite Ave.

Property Value of Existing Home Owners

C) Building of medium density housing and retail in an established quiet residential area has the potential to negatively impact property values due to increased noise and traffic.

Comments:

Need & Location Considerations

A) We ask the city to consider other apartment building expansions in Merced and UC Merced construction to determine anticipated needs for student housing. We also propose that if more medium density housing is needed that alternate Merced locations be considered. For instance, it may make more sense for medium-density housing to be developed in areas with existing apartments and where roadways are better prepared to deal with increased traffic (e.g. corner of G and Yosemite).

Ongoing City Planning

B) We also ask the city to plan ongoing developments in a transparent, coherent, and long-term fashion so home owners, in particular, can choose the neighborhoods in which they wish to live and have confidence in proposed developments in keeping with community expectations. For instance, at one point it seemed as though the corner of Gardner and Yosemite was going to be developed into 1 acre residential lots. This type of development seems more in keeping with the existing neighborhoods than the proposed development.

Infrastructure

C) Whether or not this project moves forward, we ask the city to seriously and carefully consider the infrastructure needs in this area to ensure that water and sewer lines have the necessary capacity for increase population and services. The current road situation seems woefully inadequate for the current traffic flows (e.g. Yosemite from McKee to Mansionette) so particular attention will need to be paid to roads and access to ensure the efficient and safe flow of traffic.

Sincerely

David & Sara Squibb
1463 Hunters Drive
Merced, CA 95340

COMMENTS on the REVISED NOTICE OF PREPERATION for an ENVIRONMENTAL IMPACT REPORT for the YOSEMITE AVENUE-GARDNER AVENUE to HATCH ROAD ANNEXATION PROJECT

The City of Merced does not currently have a City-wide sewer master plan. The Subject Property is not within the North Merced Sewer District ("NMSD") boundary (see EXHIBIT 1 following). The NMSD real property owners (not the City of Merced) permitted the mortgaging of their real estate in order to sell bonds for the purpose of generating money necessary to pay for the construction of sewer line infrastructure. Said infrastructure included, but is not limited to, the *sewer line capacity* along the Yosemite Avenue frontage of the Subject Property, as well as the *sewer line infrastructure capacity* at the "G" Street and Yosemite Avenue intersection, together with the *sewer line capacity* downstream from there.

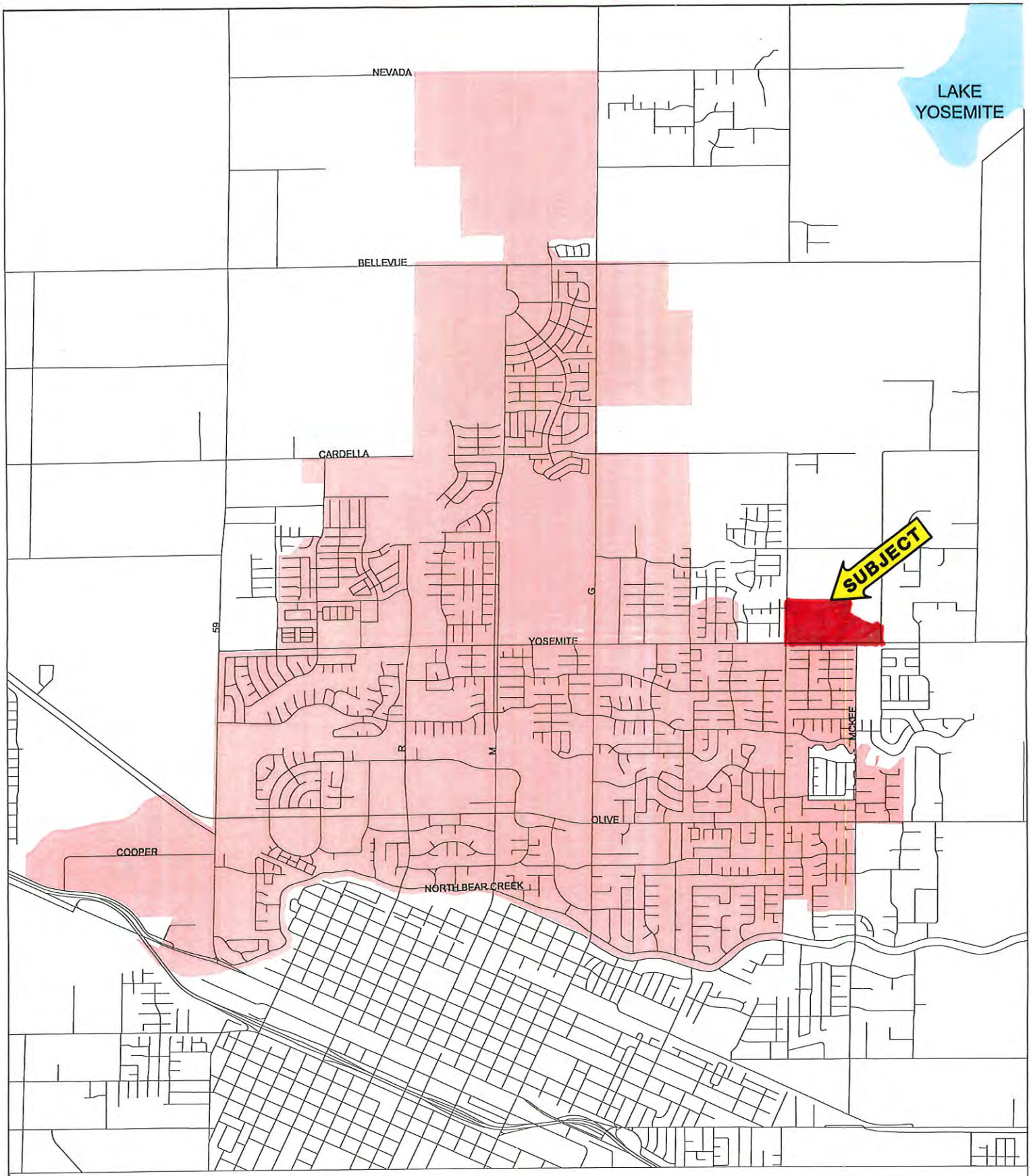
The NMSD was established in the early 1980s, decades prior to the Subject Property being planned or even considered for urban development until the City's adoption of the MERCED VISION 2030 GENERAL PLAN in January, 2012. The City has already impacted the *sewer line infrastructure capacity* at the "G" Street and Yosemite Avenue intersection when it allocated unanticipated *sewer line capacity* to UC Merced.

The proposed project should not proceed without thoroughly evaluating the environmental impacts on the existing undeveloped NMSD properties that have **vested rights** to the *sewer line infrastructure capacity* as a result of having paid money to retire the debt (assessment district bonds). In addition, this project cannot rely on a "future", as yet un-adopted, city-wide sewer master plan.

Further, there needs to be an analysis completed that accurately shows how much additional fees will the City need to charge and collect from this proposed development, and others, in order to balance out with those properties within the NMSD who have previously paid for their existing *sewer line capacity*.

It's worth noting that the additional fee listed in the Merced Municipal Code of Ordinances Section 15.16.070 is a flat fee based on any given land use *without* consideration for the distance that the wastewater must travel. In other words, following the City's established policy of "user pays", the farther away a particular project is, the greater the distance that the effluent must travel, the greater the *sewer line infrastructure* that the project will utilize, the more that project should be required to pay. That's currently not the case.

EXHIBIT 1



NORTH MERCED SEWER DISTRICT

YOSEMITE AVENUE – GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

ENVIRONMENTAL IMPACT REPORT (EIR) NOTICE OF PREPARATION (NOP)

COMMENT FORM

Please provide the following information if you wish to receive a Notice of Availability of the Draft EIR and to document the author of comments received. Thank you.

Name: RICK TELEGAN

Email: fresno3rdm@aol.com

Address: 2206 E. MUNCIE AV., FRESNO, CA 93720

Organization: 3rd MILLENNIUM INVESTMENTS

[x] I would like to receive future environmental notices via email.

Please provide us with your written comments on the NOP by **January 9, 2017.** Comments on the NOP may be sent to:

City of Merced
Development Services
678 West 18th Street
Merced, California 95340

Attn: Bill King, Principal Planner (Email: kingb@cityofmerced.org)

You may attach additional pages to this form and/or you may submit your written comments separately. Written comments on the scope of the EIR will be acknowledged in the Draft EIR and will be considered in preparation of the document.

(PLEASE ATTACHED)

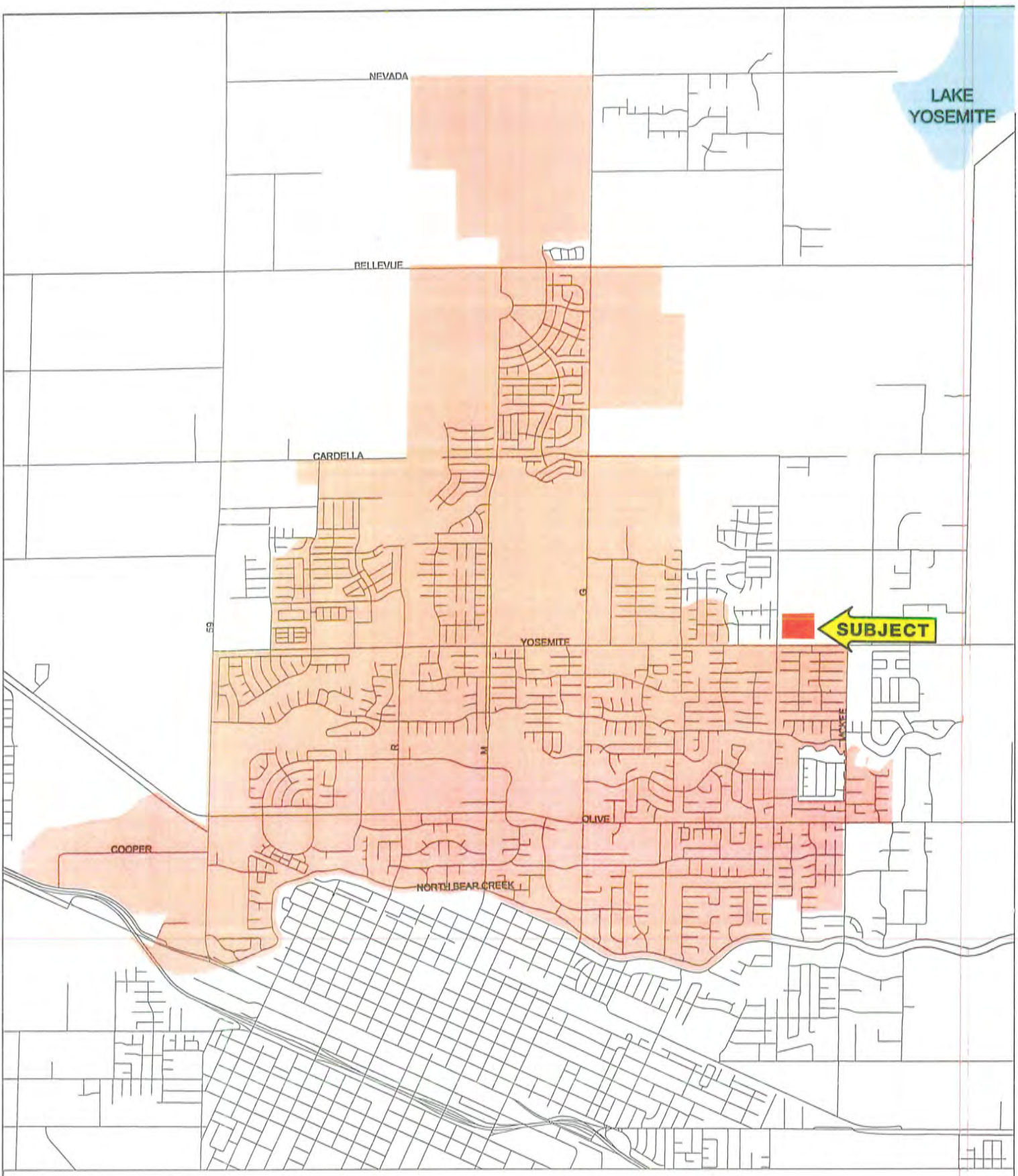
The City of Merced does not have a sewer master plan. The subject property is not within the North Merced Sewer District (NMSD) boundary (see exhibit 1 following). The NMSD property owners paid for the sewer line capacity along the Yosemite Avenue frontage of the subject, as well as the sewer line infrastructure at the "G" Street and Yosemite Avenue intersection, together with the sewer lines downstream from that intersection.

The NMSD was established in the early 1980s, decades prior to the subject property being planned and included for urban development with the city's January, 2012 General Plan.

The city has already impacted the sewer line infrastructure at the "G" Street and Yosemite Avenue intersection when it allocated unanticipated sewer line capacity to UC Merced.

The proposed project cannot precede without thoroughly evaluating the environmental impacts on the existing NMSD properties that have a vested right to the line capacity as a result of having paid money to retire the assessment district bonds. In addition, the project cannot rely on a "future," as yet unadopted, city-wide sewer master plan.

Further, there needs to be an analysis completed that shows how much more sewer fees will the city need to charge and collect from this development in order to balance out with those properties within the NMSD who have paid for their existing line capacity.



NORTH MERCED SEWER DISTRICT

Appendix B

Initial Study

INITIAL STUDY

YOSEMITE AVENUE – GARDNER AVENUE TO HATCH ROAD ANNEXATION PROJECT

Prepared for:

City of Merced
678 West 18th Street,
Merced, California 95340
Contact: Julie Nelson, Associate Planner

Prepared by:

DUDEK
853 Lincoln Way, Suite 208
Auburn, California 95603
Contact: Katherine Waugh, AICP

JUNE 2021

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1 INTRODUCTION

The City of Merced (City) is the lead agency under the California Environmental Quality Act (CEQA) evaluating the environmental effects that would result from the proposed Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). This Initial Study has been prepared to support the focused Environmental Impact Review (EIR) for this project, as further discussed in EIR Chapter 1, Introduction. This Initial Study has been prepared to satisfy the environmental review requirements under the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (14 CCR 15000 et seq.) applicable to the City of Merced (City), as the lead agency, for consideration of the proposed project. CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects.

This Initial Study was prepared to identify those resource areas and discrete individual impact topics within given resource areas where the impacts of the proposed project will not be significant, allowing for the preparation of an EIR that is focused on the project's potentially significant impacts. This approach is consistent with CEQA Guidelines section 15128, which requires that an EIR "shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Such a statement may be contained in an attached copy of an Initial Study." A summary of the impacts determined not to be significant is also included in Draft EIR Chapter 1 and Draft EIR Chapter 5, CEQA Mandated Sections.

A Notice of Preparation (NOP) was circulated for a 30-day public and agency review from December 9, 2016 through January 9, 2017, and a scoping meeting was held on December 16, 2017. Since this time, the project applicant has revised the proposed project by increasing the number of dwelling units and parking spaces. A revised NOP was issued and circulated for local public and agency review between May 14, 2020 and June 15, 2020 and circulated to state agencies through the State Clearinghouse for review between May 29 and June 29, 2020. The public was encouraged to provide written comments regarding the scope of the EIR during both NOP public review periods. A total of 12 written comments were submitted, with seven submitted in response to the 2016 NOP and five submitted in response to the 2020 NOP. These comments are addressed, as applicable, within the Initial Study and the EIR. Both NOPs and all comments received in response to them are provided in Draft EIR Appendix A.

1.1 Project Background and Setting

Regional Location

The City of Merced is located within the San Joaquin Valley along Highway 99, in the County of Merced, California. It is approximately 115 miles south of Sacramento and 58 miles north of Fresno. The City was established in 1889 as an agricultural city and is currently the Merced County seat. The Merced Vision 2030 General Plan, adopted on January 3, 2012, serves as the blueprint for growth and development within the City and provides a land use plan to depict the City's desired arrangement and general location of land uses (City of Merced 2012a). The Program EIR for the Merced Vision 2030 General Plan evaluated potential environmental impacts associated with implementation of the General Plan (City of Merced 2012b).

Regional Population

Both the City and County General Plan anticipate increasing residential populations in the respective jurisdictions. The City's General Plan Urban Expansion Element reports on the City's existing and projected residential population based on data obtained from the Merced Council of Governments in 2010. At that time, the city's population was projected to be 107,600 people in 2020 (City of Merced 2015b). However, growth did not occur as rapidly as anticipated, based on the US Census Quick Facts data, which indicates that there were 83,676 residents in the City of Merced in 2019 (US Census 2020), and the California Department of Finance (DOF) data that reports 88,120 city residents in 2020 (DOF 2020).

Population data from the California Department of Finance (DOF) also shows that there were approximately 255,793 people in Merced County in 2020, which is projected to increase to 298,184 by 2025 and 314,690 by 2030 (DOF 2021).

Project Location

The project site is located in Merced County on the eastern boundary of the City. It is located within the City's Sphere of Influence (SOI) and the City's Specific Urban Development Plan (SUDP). The site extends north of East Yosemite Avenue between Gardner Avenue on the west and Hatch Road on the east.

Project Site Conditions

The project site currently supports agricultural production, rural residences, and a church and associated private school. It is surrounded by single-family residential development to the west and south and undeveloped agricultural land/rural residential land uses to the north and east. The

project vicinity represents a transitional area between urban development within the City, to the west and south, and rural development and agricultural uses in the County, to the north and east.

The topography of the project site is flat and is located between 150-200 feet above mean sea level. There are four existing buildings within the project site that would be demolished as part of the proposed project, including a farmhouse and three farm related structures. There are an additional nine rural residences and a church with a private school within the site; these structures are not proposed to be demolished.

1.2 Project Summary

The Yosemite Avenue-Gardner Avenue to Hatch Road Annexation project (proposed project) proposes to annex approximately 68.6 acres currently within Merced County (County) into the City of Merced (City) and to construct "The Crossings," a mixed-use development on an approximately 28.4-acre portion of the project site. The Crossings would consist of a 540-unit apartment village including a 13,700 square foot clubhouse and associated outdoor recreation space. The Crossings also includes five mixed-use buildings consisting of 66,000 square feet of retail space on the ground level and 45,000 square feet of residential space on the second level, totaling 30 additional units (12 apartments and 18 extended stay units). The other approximately 40.2 acres of the project site are referred to as the Remainder Area. No development is proposed in the Remainder Area, which includes approximately 9.4 acres in the northwestern corner of the site and 30.8 acres in the eastern portion of the site. The northwestern corner of the project site is proposed to remain under the existing Rural Residential land use designation while the project proposes to apply the Low Density land use designation to the eastern portion of the site. Approximately half of the Remainder Area is proposed to be zoned Urban Transition, while the area in the southeastern portion of the site is proposed to be zoned R-1-10.

Refer to Section 2.8 below for further details regarding the project description and to Draft EIR Chapter 2, Project Description, for a detailed project description.

2 INITIAL STUDY CHECKLIST

1. Project title:

Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project

2. Lead agency name and address:

City of Merced, Development Services, Planning Division
678 West 18th Street
Merced, California 95340

3. Contact person and phone number:

Julie Nelson, Associate Planner
209.385.6967

4. Project location:

The approximately 68.6-acre project site is located in Merced County on the north side of Yosemite Avenue between Gardner Avenue and Hatch Road.

5. Project sponsor's name and address:

John Heintz
University Village Merced, LLC
952 W. Main Street,
Merced, California 95340

6. General plan designation:

Existing: Agricultural-Residential (A-R), Merced County

Proposed: Neighborhood Commercial (CN) and High-Medium Density Residential (HMD), City of Merced

7. Zoning:

Existing: Rural Residential (R-R), Merced County

Proposed: Planned Development (P-D), Low Density Residential (R-1-10), and Urban Transition (U-T), City of Merced

8. Description of project. (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary):

This section provides an overview of the proposed project. Refer to Draft EIR Chapter 2, Project Description, for a detailed discussion of the proposed project.

The proposed project consists of annexing 68.6 acres from Merced County to the City and development of a 28.4-acre residential and retail development (The Crossings). No development is proposed for the remaining 40.2 acres of the project site (the Remainder Area), however the proposed land use and zoning designations for that portion of the site would allow future development of single-family residential uses. This Initial Study and the project EIR evaluate The Crossings component at a project level and evaluate the Remainder Area at a program level, consistent with CEQA Guidelines Sections 15161 and 15168.

The project site is located adjacent to the north side of East Yosemite Avenue, the east side of Gardner Avenue, and the west side of Hatch Avenue. The Crossings component is proposed to be located in the western portion of the site, adjacent to the northeast corner of the intersection at Gardner Avenue and East Yosemite Avenue and extending to the center of the site. This area currently supports primarily agricultural land with four buildings, trailers, shipping containers, and various pieces of equipment located on 3 acres of this portion of the project site. All of the buildings within this portion of the site would be demolished as part of the project and the equipment removed. The Remainder Area consists of 9.4 acres in the northwest corner of the site that supports four single-family agricultural-residential properties and 30.8 acres in the eastern portion of the site that supports undeveloped agricultural lands, Yosemite Church and associated school, and several rural residences.

The Crossings component of the proposed project would include development of 540 apartments in 20 three-story residential buildings. There would be a total of 626,280 square feet of building space and a total of 300 one-bedroom units and 240 two-bedroom units. The apartment community would also include a 13,700 square-foot two-story clubhouse, and a network of walking and biking trails/outdoor recreation space. The mixed-use portion of The Crossings development would include five two-story mixed-use buildings totaling 111,000 square feet. The first floor of the mixed-use buildings would consist of commercial/retail space, totaling 66,000 square feet, while the second floor of the buildings would contain 45,000 square feet of residential apartments, providing 30 additional units within the project site (12 apartments and 18 extended stay dwelling units).

The proposed project would provide a total of 1,233 parking spaces, with 901 spaces designated for residential use and 322 spaces for commercial/retail use. A bus stop would be provided in the northeast portion of the mixed-use area.

No development is proposed in the Remainder Area. The northwestern corner of the project site is proposed to remain under the existing Rural Residential land use designation while the project proposes to apply the Low Density Residential land use designation to the eastern portion of the site. Approximately half of the Remainder Area is proposed to be zoned Urban Transition (U-T), while the area in the southeastern portion of the site is proposed to be zoned Low Density Residential with a minimum lot size of 10,000 square feet (R-1-10). The R-1-10 zone district allows single-family development with a minimum lot size of 10,000 square feet. The U-T zone district allows development of agricultural uses, large and small residential day care facilities, and home occupations but does not allow development of new residential, commercial, or industrial uses.

9. Surrounding land uses and setting (Briefly describe the project's surroundings):

The approximately 68.6-acre project site is located in Merced County on the north side of Yosemite Avenue between Gardner Avenue and Hatch Road. The site is unincorporated land contiguous with the City of Merced and is located approximately three miles from the UC Merced campus. The project site is bounded by the City on two sides and would be annexed into the City to receive full urban services. The project site is bounded by the City on the west and to the south. The areas to the west and south are residential and the areas to the north and east are mainly agricultural.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

The proposed project requires discretionary approvals from the Merced County Local Agency Formation Commission (LAFCo).

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

The City of Merced sent notification letters to each of the Native American tribes who have requested such notification under Public Resources Code section 21080.3.1. No responses were received; thus, no consultation was requested, and none has been conducted.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages. All impacts identified in this Initial Study as potentially significant are evaluated in the Draft EIR.

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS

2.1 Aesthetics

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS –** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality??	☒	☐	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

Environmental Setting

The project site is located within the San Joaquin Valley in Merced County and directly adjacent to the City of Merced's northeastern boundary. The project site is bound by Gardner Avenue, East Yosemite Avenue, and Hatch Road to the west, south, and east respectively as well as an irrigation canal and agricultural land to the north. The project site currently supports rural residences, a church (Yosemite Church) and associated school, and agricultural activities.

To the east of the City is the western slope of the Sierra Nevada Mountains; the southern portion of the City is relatively flat whereas the northern portion is defined by gently rolling hills. In addition, the northern, western, and eastern areas contain four creeks and their corresponding watersheds: Bear Creek, Black Rascal Creek, Fahrens Creek, and Cottonwood Creek. Lake Yosemite is located three miles northeast of the City and is bordered by UC Merced. The project site is located between the City limits and Lake Yosemite.

The City of Merced Vision 2030 General Plan identifies eleven scenic corridors; however, the project site is not within any of the City's defined scenic corridors (City of Merced 2012a).

Impact Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

As identified in Policy OS-1.3 of the City's General Plan, the City has designated 11 scenic corridors subject to special development review and regulation. None of these designated scenic corridors are adjacent to the project site or visible from the project site. Thus, the implementation of the proposed project would not result in an impact to a designated scenic corridor.

Views of the project site are generally of relatively flat land. In the western portion of the site, views include the four rural residential properties in the northwest corner of the site, row crops that surround a 3-acre area used for equipment storage and supporting several agricultural buildings and one residence. There are a few trees near the residences and along the site's frontages on adjacent public streets but the interior of this portion of the site does not support any trees. Views of the eastern portion of the site include additional agricultural land, Yosemite Church and the associated school, and several rural residential parcels. Several trees occur in this portion of the site, as part of the landscaping for the developed properties. Visual features in the background of views across the project site include trees on nearby residential parcels, walls and roofs of residences, and additional agricultural land to the north. There are no unique or highly scenic resources visible within or across the project site and there are no scenic vistas associated with the site or the immediate area around the site. Thus, the project would have **no impact** on scenic vistas and this issue is not evaluated in the EIR.

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

None of the three state route (SR) highways that pass through the City of Merced (SR-140, 59, and 99) are listed as state scenic highways (Caltrans 2020). Therefore, alterations to the project site would have **no impact** on scenic resources within view of a state scenic highway.

In addition, the project site is currently tilled land used for growing crops or developed with a church, school, and rural residences. As noted above, the western portion of the site supports a few trees near the residences and along the site's frontages on adjacent public streets but there are no trees in the interior of this portion of the site and there are several trees in the eastern portion of the site in the landscaped areas of the developed parcels. The site does not contain any trees or rock outcroppings. The proposed project would require

removal of some trees throughout the site, but new trees would be planted as part of the proposed landscaping for the project, thus the project would have a **less than significant** impact on scenic resources. This issue is not evaluated in the Draft EIR.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project site is a point of transition between the urbanized area of the City of Merced to the south and west and the rural and agricultural areas in Merced County to the north and east. The project would convert the western portion of the site from agricultural to the urban uses proposed under The Crossings component of the project and could facilitate development of single-family residences in the Remainder Area. These activities have the potential to degrade the existing visual character and/or quality of views of the project site, thus this impact is considered **potentially significant** and is addressed in the Draft EIR.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The proposed project would include lighting for the residential units, clubhouse, retail uses, and parking areas. Nighttime lighting is necessary to ensure the safety of people living, working and patronizing the commercial and residential components of the project. There is the potential project lighting could affect adjacent uses; therefore, this is considered a **potentially significant** impact and this issue is evaluated in the EIR.

2.2 Agriculture and Forestry Resources

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	**AGRICULTURE AND FORESTRY RESOURCES** – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☒	☐	☐	☐

Environmental Setting

The project site is located within the County of Merced and within the City of Merced's SOI/SUDP. The County is listed as the fifth largest agricultural producing county in the State of California and produces billions of dollars' worth of milk, chickens, almonds, cattle, tomatoes and sweet potatoes (City of Merced 2012b). The project site contains land designated under the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program as Primate Farmland, Unique Farmland, and Farmland of Local Importance (DOC 2016). Refer to Draft EIR Section 3.2 for additional discussion of these designations.

The County of Merced maintains Williamson Act contracts as part of the State of California Williamson Act agricultural land preservation program. The Act aims to preserve open space and agricultural land from unnecessary development pressures. The project site is not subject to a Williamson Act contract (City of Merced 2012b).

Impact Analysis

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

As stated above, the project site includes land designated as Prime Farmland, Unique Farmland, and Farmland of Local Importance (DOC 2016). The Crossings component of the project would result in the conversion of these designated farmlands to urban uses. Thus, this impact is **potentially significant** and is evaluated in the Draft EIR.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The Merced Vision 2030 General Plan provides a map of all the agricultural areas that maintain a Williamson Act contract. Neither the project site nor the surrounding areas are under active Williamson Act contracts (City of Merced 2012a). The project site is currently outside of the city limits and thus does not have a City zoning designation. However, the project site is within the City's SOI and is designated for Rural Residential land uses in the Merced Vision 2030 General Plan (City of Merced 2012a). Under Merced County's General Plan, the site is designated as a Rural Residential Center and the County's zoning designation for the site is Rural Residential (Merced County 2010). Therefore, the project would have **no impact** associated with a Williamson Act contract or conflict with existing agricultural zoning and this issue is not evaluated in the Draft EIR.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The project site is currently used as agricultural land and does not contain any forest land, timberland, or timberland zoned Timberland Production. Therefore, the project would have **no impact** on the removal of forest land or land zoned for timberland production. This issue is not evaluated in the Draft EIR.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

As discussed in response c) above, there are no forest lands on or within the vicinity of the project site. The project site does not support any forest resources, as it is currently used for agricultural purposes. Thus, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, the project would have **no impact** in regard to forest resources and this issue is not evaluated in the Draft EIR.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The project site is currently used as agricultural land and is bordered by agricultural land to the north and east. Development of the site would require the conversion of Prime Farmland, Farmland of Local Importance, and Unique Farmland to non-agricultural uses. Therefore, this impact is considered **potentially significant** and is evaluated in the Draft EIR.As discussed in responses c) and d) above, the proposed project would have **no impact** associated with the conversion of forest land as neither the project site nor surround lands support forest resources and this issue is not evaluated in the Draft EIR.

2.3 Air Quality

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III.	**AIR QUALITY** – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b)	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?	☒	☐	☐	☐
c)	Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Environmental Setting

The project site is located in the San Joaquin Valley Air Basin (SJVAB) and within the jurisdiction and regulation of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The Basin encompasses the southern half of the San Joaquin Valley and is bounded by the Sierra Nevada Mountains, the Coast Range, and the Tehachapi Mountains and San Emigdio Mountains to the east, west, and south, respectively. The Basin exists in a 'bowl,' as the mountain ranges block the free circulation of air. As such, air pollutants produced within the Basin linger and accumulate, resulting in poor air quality. These stagnant conditions occur with the highest frequency happening in the colder, winter months. Air quality in a majority of the City is monitored and managed by the SJVAPCD. The SJVAPCD is responsible for establishing programs, plans and regulations enforcing air pollution controls in order to attain all state and federal ambient air quality standards.

Vehicle use is the primary source of pollutants in the City, which contributes both directly and indirectly to air pollution. Additional sources of air pollutants include wood smoke from residential fireplaces, construction activities, consumer productions, architectural coatings, fertilizers, asphalt paving, and agriculture operations (City of Merced 2012b).

Sensitive receptors refer to those segments of the population most susceptible to poor air quality and typically include children, elderly people and sick people, as well as sensitive land uses such as schools, hospitals, parks, and residential communities.

Impact Analysis

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

The Project site is located within the SJVAB, under the jurisdiction of the SJVAPCD, which is the applicable agency principally responsible for air pollution control within the SJVAB. The SJVAPCD has adopted a series of Air Quality Management Plans that detail the regulatory and incentive-based measures that would allow the SJVAPCD to meet the EPA National Ambient Air Quality Standards. Construction and operation of the proposed project would result in emissions of criteria pollutants which could result in a conflict with or obstructing implementation of the applicable air quality plan. Therefore, this impact is **potentially significant** and is evaluated in the Draft EIR.

b) Would the project 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)?

The SJVAPCD has adopted thresholds for criteria air pollutant emissions to identify whether a project could result in a cumulatively considerable increase in pollutant concentrations that could lead or contribute to violations of the federal and state standards. Project-specific emissions associated with construction and operation of the proposed project could exceed these thresholds thus, this impact is **potentially significant** and is evaluated in the Draft EIR.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

The closest sensitive receptors (single-family residences) to the project site are located adjacent to the project site, across East Yosemite Avenue and Gardner Avenue on the south and western boundaries of the site. Since project-specific emissions associated with construction and operation of the proposed project may exceed applicable thresholds and could expose sensitive receptors to substantial pollutant concentrations. This impact is **potentially significant** and is evaluated in the Draft EIR.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people??

Odor impacts from construction activity occurring within the project site would be generated from vehicles and/or equipment exhaust emissions during construction of the proposed project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and to architectural coatings associated with building painting during construction. Most of the people within the project area who could be subjected to odors would include construction workers. During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. However, these odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for construction-related odor impacts would be **less than significant**.

Land uses that are typically associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. Once constructed, the proposed Project would include the operation of residential and commercial uses, which are land uses that are not expected to produce offensive odors that would result in frequent odor complaints. Therefore, impacts associated with odors during construction and operation would be considered **less than significant**. This issue is not evaluated in the Draft EIR.

2.4 Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Environmental Setting

The project site is within the Central Valley that extends from the Sacramento Valley to the San Joaquin Valley; the Central Valley contains its own ecoregion that is defined by extensive farmland and long, hot dry summers and cool, wet winters.

A Biological Resources Assessment was prepared for the project site and is provided in EIR Appendix E. Preparation of the Biological Resources Assessment included a field assessment of The Crossings component of the project site and observation of the Remainder Area. The project site has been extensively farmed or supports rural residential and institutional land uses and thus contains very few native/natural plant communities. Agriculture and developed/rural residential

were the two land cover types observed within the survey area and two potentially jurisdictional drainages were identified within the study area.

a) 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?

As determined in the Biological Resources Assessment, the project site has the potential to support special-status plant and wildlife species. Therefore, this impact is **potentially significant** and is evaluated in the Draft EIR.

b) 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?

No sensitive natural communities were identified within The Crossings component of the project site. However, a detailed field assessment of the Remainder Area was not conducted due to the existing development within that portion of the site and because there is no current proposal for development within the Remainder Area. Thus, it is possible that sensitive natural communities could be present within the Remainder Area and development within that portion of the site would have a **potentially significant** impact to such communities if they are present. This impact is evaluated in the Draft EIR.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

As determined in the Biological Resources Assessment, The Crossings component of the project site contains two drainages that may be considered jurisdictional waters of the State, under the joint regulation of the RWQCB and CDFW. Additionally, as discussed in response b) above, a detailed field assessment of the Remainder Area was not conducted, and it is possible for state or federally protected wetlands to be present in that portion of the site. Therefore, this impact is **potentially significant** and is evaluated in the Draft EIR.

d) 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?

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as steppingstones for wildlife dispersal. As determined in the Biological Resources Assessment, the 68.6-acre project area is a non-linear feature that is bound by existing roads and development and portions of the site support rural and institutional land uses. Thus, the site has little value as a potential wildlife corridor or habitat linkage (EIR Appendix E) and the project's impact to wildlife movement and nursery sites would be **less than significant**. This issue is not evaluated in the Draft EIR.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

If the project site is annexed to the City of Merced, as proposed, the project would be subject to all City policies or ordinances protecting biological resources. It is possible that the conversion of agricultural land to developed, urban land would result in the loss of biological resources and therefore conflict with General Plan Policy OS-1.1, which requires that impacts to habitats that support rare, endangered, or threatened species be identified and mitigated, or the City of Merced Municipal Code pertaining to trees, shrubs, and plants. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

f) 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?

The project site is not located within or adjacent to any preserve or conservation area and there is no adopted Habitat Conservation Plan or Natural Community Conservation Plan in Merced County. Therefore, the project would have **no impact** and this issue is not evaluated in the Draft EIR.

2.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Environmental Setting

Refer to Draft EIR Section 3.5 for a discussion of the history and pre-history of the project region.

A Cultural Resources Letter Report (provided in EIR Appendix F) found that there are no known archeological resources within The Crossings component of the project site, but a detailed field assessment of the Remainder Area was not conducted due to the existing development within that portion of the site and because there is no current proposal for development within the Remainder Area.

Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

As discussed further in Draft EIR Section 3.5, the Cultural Resources Letter Report for the project found that there are no historical resources within The Crossings portion of the project area, but the Remainder Area was not subject to a historic resources evaluation and thus the project could result in **potentially significant** impacts to historic resources. This issue is evaluated in the Draft EIR.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

As discussed further in Draft EIR Section 3.5, the Cultural Resources Letter Report for the project found that there are no known archaeological resources within The Crossings

portion of the project area, but the Remainder Area was not subject to an archaeological resources evaluation and thus the project could result in **potentially significant** impacts to archaeological resources. This issue is evaluated in the Draft EIR.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

There are no known human burial sites within the project site, however earth disturbance during construction has the potential to uncover and impact previously unrecorded human remains. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

2.6 Energy

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐

Environmental Setting

As required by CEQA Guidelines Appendix F, Draft EIR Section 3.6 evaluates the potential for the proposed project to result in potentially significant energy impacts during both the project's construction and operational phases.

Impact Analysis

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction and operation of the proposed project would result in the consumption of energy resources, and could result in energy usage that is wasteful, inefficient, or unnecessary. Therefore, this impact is considered **potentially significant** and is evaluated in the Draft EIR.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Construction and operation of the proposed project could result in energy usage that conflicts with or obstructs a state or local plan for renewable energy or energy efficiency. Therefore, this impact is considered **potentially significant** and is evaluated in the Draft EIR.

2.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

Environmental Setting

The City of Merced is located along the western edge of the Great Valley Geomorphic Province, also known as the San Joaquin Valley. The Valley is filled with thick sedimentary deposits, and as discussed in the Merced Vision 2030 General Plan EIR, the area around Merced is primarily underlain with Pleistocene Modesto and Riverbank Formations with Holocene alluvial deposits. Modesto and Riverbank Formation deposits are characterized by sand and silt alluvium derived from the weathering of rocks. In addition, indications of the Miocene-Pliocene Mehrten and Pliocene Laguna Formations are found on the eastern portion of the SOI/SUDP area, which includes the project site (City of Merced 2012b). The Laguna Formation is characterized by consolidated gravel sand and silt alluvium while the Mehrten Formation is characterized by well consolidated andesitic mudflow breccia conglomerate.

The City is not located in an area known for active faults or Alquist-Priolo Earthquake Fault Zones (City of Merced 2012b). The closest active fault line is Great Valley, Segment 9, which is located approximately 30 miles from the City. The greatest concern stemming from earthquake activity is the damage or destruction of buildings and the risk is poses to people.

Liquefaction is the sudden loss of soil stiffness and loss of bearing capacity, most often as a result of seismic activity. It is most common with granular soils, especially will saturated, loose granular soils. The Merced Vision 2030 General Plan EIR states that the general liquefaction potential is low within the City and that "based on the predicted seismic accelerations, and soil and groundwater conditions typically encountered in the region, general liquefaction potential is low within the SUDP/SOI" (City of Merced 2012b). The General Plan Safety Element states "although no liquefaction hazard areas have been identified to date in the SUDP/SOI, the future potential of liquefaction is recognized because unconsolidated sediments and a high water table do coincide in many areas" (City of Merced 2012a). The Merced Groundwater Sustainability Plan Figure 2-46 shows that groundwater levels in the project area are between 60 and 80 feet above mean sea level (Merced SGMA 2019), while the project site is at an elevation of approximately 185 feet above mean sea level. Thus, the depth to groundwater in the project area is approximately 100 feet, which indicates that the site has a low liquefaction potential.

There are two dams in the area that could experience dam failure: Lake Yosemite Dam and Bear Reservoir Dam. Both are earthen dams and thus are more flexible to seismic activity but may fail if the reservoirs become too full and over-top. The project site is not within the inundation area of either dam (City of Merced 2012a).

The Merced Vision 2030 General Plan EIR states that the soils in the project area are generally moderate to deep, silty and clayey loams. Thus, they are not considered to be expansive and they have a generally low to moderate erosion potential (City of Merced 2012b).

Impact Analysis

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i-ii) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

There are no active or potentially active faults that cross the project site, and the project site is not located within an Alquist-Priolo Fault Zone (DOC 2019). In addition, there are no active faults in proximity to the project site. As discussed above, the closest active fault line is located 30 miles from the City. Therefore, the project would have a **less-than-significant** impact related to exposing people or structures to adverse effects from rupture of a known earthquake fault. This impact is not evaluated in the Draft EIR.

ii) Strong seismic ground shaking?

As noted above, the closest fault line is located 30 miles from the project site, and since the project site is located within the seismically active State of California, ground shaking of moderate severity may be expected to be experienced on the project site during a large seismic event. However, all building permits would be reviewed to ensure compliance with the California Building Code. Since all structures would be designed and built in accordance with the standards of the California Building Code, impacts associated with strong seismic ground shaking would be **less than significant**. This impact is not evaluated in the Draft EIR.

iii) Seismic-related ground failure, including liquefaction?

Liquefaction occurs when seismic vibrations affect loose, granular, and saturated soil and result in the soil's loss of strength and stiffness. Soils in and around the City of Merced are moderate to deep, silty and clayey loams which are not considered to be expansive and have a generally low to moderate erosion potential. Groundwater in the project area is approximately 100 feet below ground surface. The Merced Vision 2030 General Plan EIR concluded that soils and groundwater conditions in the region carry a low potential for liquefaction (City of Merced

2012b). Therefore, the project's impact would be **less than significant.** This impact is not evaluated in the Draft EIR.

iv) Landslides?

The proposed project site and surrounding area is relatively level with no steep slopes or exposed cut slopes and thus has a low risk of landslides. The proposed project would maintain the generally flat slopes within the project site, with the exception of the detention basin proposed to be located north of the mixed-use area within The Crossings component of the project. All sloped areas associated with construction of the detention basin would be within the interior of the basin and would not create sloped areas above any existing or planned buildings, parking lots, pedestrian pathways, or other areas where people may be present. Therefore, the project would have **no impact.** This impact is not evaluated in the Draft EIR.

b) Would the project result in substantial soil erosion or the loss of topsoil?

The Merced Vision 2030 General Plan EIR describes the soils in and around the City of Merced as being moderate to deep silty and clayey loams that have a low to moderate erosion potential. Construction within the project site could result in temporary soil erosion and the loss of top soil due to construction activities, including clearing, grading, site preparation activities, construction of the detention basin, and installation of on-site infrastructure (stormwater, sewer, and water conveyance pipelines). Construction activities disturbing one or more acres are required by the State Water Resources Board (SWRCB) to obtain a General Construction Activity Stormwater Permit, which would require the proposed project to implement a Storm Water Pollution Prevention Plan (SWPPP). Compliance with SWRCB and City of Merced regulations would ensure that erosion and associated siltation effects are avoided. During construction, best management practices would be followed as well as compliance with state and local construction standards in order to restrict and minimize any and all soil erosion and/or loss of topsoil. Therefore, the project impact due to soil erosion and loss of topsoil would be **less than significant**. This impact is not evaluated in the Draft EIR.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Soils in the area are moderate to deep, and silty and clayey loams (City of Merced 2012b); these soils are not considered to be expansive and, thus in conjunction with the general lack

of slopes in the area, the soils on the project site are considered relatively stable. As discussed in response a.iii) above, the liquefaction potential at the project site is low. During construction, BMPs will be utilized in order to restrict and minimize any and all concerns regarding landslide, lateral spreading, subsidence, liquefaction or collapse. Therefore, the project impact would be **less than significant**. This impact is not evaluated in the Draft EIR.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soils are defined as soils that shrink and swell in relation to the amount of water in the soil. Soils in the area are classified as moderate to deep, and silty and clayey loams (City of Merced 2012b); these soils are not considered to be expansive and have a low to moderate erosion potential. Therefore, the project impact would be **less than significant.** This impact is not evaluated in the Draft EIR.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project proposes to annex the project site to the City of Merced; therefore, public utilities would be available, and the project would tie into the City's wastewater system. The project does not propose using septic tanks or other alternative wastewater disposal systems. Therefore, the project would have **no impact**. This impact is not evaluated in the Draft EIR.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The project site is generally flat and does not contain any unique geologic features, such as rock outcroppings, or topographic formations. There are no known paleontological resources within or adjacent to the site. However, construction of the proposed project would result in ground-disturbing activities on vacant and undeveloped portions of the project site, which could damage or destroy paleontological resources if any are encountered during earth disturbance activities. Although the project site has been in use for agricultural resources, grading activity may have the potential to impact previously undisturbed paleontological resources. Therefore, impacts are considered **potentially significant**. This impact is evaluated in the Draft EIR.

2.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Environmental Setting

Greenhouse gas emissions are regulated by the State of California under multiple Executive Orders and legislative actions. The primary legislation is the California Global Warming Solutions Act of 2006 (California Health and Safety Code, Sections 38500–38599 et seq), also referred to as Assembly Bill (AB) 32. AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions to 1990 levels by 2020, and initiate the transformations required to achieve the state's long-range climate objectives. Under AB 32, the California Air Resources Board (CARB) adopted a Climate Change Scoping Plan in 2008, which was updated in 2014 and 2017. In part, the Scoping Plan updates recognize the newer GHG emissions targets, established by Executive Orders, to reduce emissions to 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050.

In addition, the City of Merced adopted a Climate Action Plan in 2009. This plan establishes a goal to reduce GHG emissions and a variety of incentive-based actions, communication-based actions, and encouragement-based actions that will help to achieve broadly-supported community values including: 1) protecting water and air resources; 2) reducing the waste-stream to the landfill; 3) improving energy-efficiency; 4) enhancing choice in mobility; and 5) creating healthy and livable communities.

The CAP recognizes that the City and larger region is expected to grow substantially, but that growth can and must occur in a manner that allows the City to achieve its GHG reduction goals. The CAP notes that the "urban village" concept that informs the City's General Plan encourages transit-oriented development and mixed-use development, "which are foundational elements of reducing GHG emissions through land use planning" (Merced 2009).

Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction and operation of the proposed project would generate greenhouse gas emissions, and additional information is needed to determine if the proposed project could directly or indirectly have a significant impact on the environment. Therefore, impacts are considered **potentially significant**. This issue is evaluated in the Draft EIR.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Construction and operation of the proposed project would generate greenhouse gas emissions, and additional information is needed to determine if the proposed project could directly or indirectly have a significant impact on the environment. Therefore, impacts are considered **potentially significant**. This issue is evaluated in the Draft EIR.

2.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Environmental Setting

Hazardous materials and hazardous wastes are heavily regulated by federal, state and local agencies including the California Environmental Protection Agency (EPA), the California Department of Toxic Substances Control (DTSC), and the California State Water Resources Control Board (SWRCB). Hazardous wastes that are common in the City are typically generated by gasoline service stations, dry cleaners, automotive mechanics, auto body repair shops, machine shops, printers, photo processors and agricultural operations.

The proposed project would be expected to generate limited amounts of household hazardous waste but would not be anticipated to generate hazardous waste generated by the sources listed above, which are regulated by the Merced County Hazardous Waste Management Plan. The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Cortese List) (DTSC 2020; SWRCB 2020).

The nearest school to the project site is Peterson Elementary, which is located approximately 0.6 miles to the southwest. The project site is not included in the area of influence for Merced County Castle Airport (7.25 miles northwest) and Merced Regional Airport (4.75 miles southwest). The project site is not mapped in an area of high wildland fire risk; however, open space agricultural lands in near the project site pose a threat related to grass fires.

Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The proposed project includes development of residential and mixed-use commercial/residential buildings within the project site. During construction, there is the potential for short-term use of hazardous materials and fuels including diesel fuel, gasoline, and other oils and lubricants. These hazardous materials would be handled, transported and disposed of in compliance with all existing local, state and federal regulations established by the Department of Toxic Substances Control (DTSC), the United States Environmental Protection Agency, and the Occupational Safety and Health Administration (OSHA). Operation of the proposed project would not require the routine, use, transport or disposal of hazardous waste other than typical household materials, such as cleaning products and landscape maintenance products. The types and quantities of these common household materials would not be substantial and would not pose a health risk to those utilizing the project site or adjacent users. Therefore, the project's impact associated with the routine transport, use, or disposal of hazardous materials would be **less than significant**. This impact is not evaluated in the Draft EIR.

b) Would the project 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?

As stated above, the project site is not located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Thus, it is not expected that hazardous material conditions would be encountered within the project site during construction. Any hazardous materials used during construction would be handled according to required regulations (refer to response a) above). Therefore, construction of the proposed project would not 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.

Operation of the mixed-use and residential buddings may involve the use of small quantities of typical household and commercially available hazardous materials that could be potentially hazardous if handled improperly. However, these typical household products are not generally considered unsafe. All storage, handling, and disposal of hazardous materials during project construction and operation would comply with applicable standards and regulations. Therefore, the proposed project would not result in a significant

hazard to the public or the environment through a reasonably foreseeable upset or accident condition related to the release of hazardous materials, and the impact would be **less than significant**. This impact is not evaluated in the Draft EIR.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The project site is not within one-quarter mile of an existing or proposed school. The closest schools are as follows: Peterson Elementary is 0.6 mile to the southwest; Donn B Chenoweth Elementary is 0.8 mile to the south; Merced College is 1.44 miles to the west; Rudolph Rivera Intermediate School is 1.84 miles to the west; and UC Merced is 2.5 miles to the northeast. As there are no schools within one-quarter mile of the project site, the proposed project would have **no impact.** This impact is not evaluated in the Draft EIR.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

California Government Code Section 65962.5 combines several regulatory lists of sites that may pose a hazard related to hazardous materials or substances. The DTSC's EnviroStor database and SWRCB's GeoTracker database identify sites that have known contamination or sites for which there may be reasons to investigate further. The project site is not designated as a hazardous materials site on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and is not included on any state or federal list of potentially hazardous materials (DTSC 2020; SWRCB 2020). There are no sites within 1,000 feet of the project site mapped on the EnviroStor or GeoTracker databases (DTSC 2020; SWRCB 2020). Therefore, the project would have **no impact** related to being located on a listed hazardous materials site. This impact is not evaluated in the Draft EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

As discussed above in the environmental setting for hazards and hazardous materials, the project site is located approximately 4.75 miles to the northeast of the Merced Regional Airport, and approximately 7.25 miles to the southeast of the Merced County Castle

Airport. The project site is not located within the Airport Influence Area or Noise Compatibly Zones for either airport, as designated by the Merced County Airport Land Use Compatibility Plans (Merced County ALUCP 2012). Thus, implementation of the proposed project would not expose people residing or working in the project area to a safety hazard or excessive noise levels from aviation activity, since the project site is not within the Airport Influence Area or Noise Compatibility Zone a designated by an applicable airport land use plan, and is not within two miles of an existing public or private use airport. Therefore, there would be **no impact.** This impact is not evaluated in the Draft EIR.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The Merced Vision 2030 General Plan Safety Element includes Policy S-1.1, which aims to develop and maintain an evacuation plan through Implementation Actions 1.1a through 1.1f. These implementation actions require an annual review of the City's evacuation plan, evaluation and creation of evacuation routes contingent on type of emergency, and creation of process by which local agencies and emergency responders are continuously updated on current evacuation measures and plans (City of Merced 2012b). In addition, the City has adopted an emergency response plan that identifies potential hazards that threaten the City of Merced and provides strategies to minimize such hazards. The City adopted the Local Hazard Mitigation Plan in March of 2015 in an effort to reduce future loss of life and property resulting from disasters (City of Merced 2015). This plan outlines the implementation programs needed to prevent risks to occupants and to minimize injury from an unavoidable disaster or emergency. Any potential impacts created by the proposed project would be less than significant with implementation of the Local Hazard Mitigation Plan programs. The entrance to the project site would be located along Yosemite Avenue, which is approximately one mile east of the G Street intersection, which is a designated evacuation route per Figure 11.8 of the City's General Plan (Merced Vision 2030 General Plan, Figure 11.8). The proposed site plan, including the access driveways, would be reviewed and approved by the City, the police department, and the fire department during plan review to ensure that emergency access would be provided at all times. Therefore, implementation of the proposed project would not physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be **less than significant**. This impact is not evaluated in the Draft EIR.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The California Department of Forestry and Fire Projection (CAL FIRE) identifies the project site and surrounding areas as having a moderate risk for fire danger. The project site is not located within or near a State Responsibility Area, as designated on the Fire Hazard Severity Zones in State Responsibility Areas for Merced County (CAL FIRE 2007a). Further, CAL FIRE has determined that Merced County has no Very High Fire Hazard Severity Zones in the Local Responsibility Area (LRA). The project site is in an LRA unzoned fire hazard severity area while properties to the north are zoned as LRA Moderate fire hazard severity per the CALFIRE Draft Fire Hazard Severity Zones in Local Responsibility Area map (CAL FIRE 2007b). The project site and surrounding areas would be serviced by fire protection agencies, including the City of Merced. Potential impacts associated with the City's provision of fire protection services to the site are evaluated in Draft EIR Section 3.11.

Development of the site with urban uses would also reduce the opportunity for wildfires to occur onsite. Therefore, the project's impact associated with exposing people or structures to a significant risk of loss, injury or death involving wildland fires would be **less than significant**. This impact is not evaluated in the Draft EIR.

2.10 Hydrology and Water Quality

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	**HYDROLOGY AND WATER QUALITY** – Would the project:				
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☒	☐	☐	☐
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces , in a manner which would:				
	i) result in a substantial erosion or siltation on- or off-site;	☒	☐	☐	☐
	ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☒	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☒	☐	☐	☐
iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

Environmental Setting

The topography in the region is relatively flat with slopes that are less than 1 percent. Elevation throughout the City ranges from 150 to 200 feet above mean sea level. The project site is located adjacent to the City of Merced and within the San Joaquin Valley drainage basin. The basin stretches from south of Stockton to north of Fresno and from the western Sierra Nevada Range to east of the Coastal Ranges; this watershed encompasses 11,000 square miles of land. The San Joaquin River, the primary river, begins in the Sierra Nevada, runs through Mendota, and ultimately connects to Suisun Bay. Main tributaries to the San Joaquin River include the Stanislaus, Tuolumne, and Merced rivers. In addition, an extensive network of irrigation canals, levees, and ditches characterize the region around Merced, and throughout the Central Valley (City of Merced 2012b).

The City of Merced is located in the Middle San Joaquin-Lower Chowchilla watershed, which in turn is part of the San Joaquin River Groundwater Basin. The larger basin spans 15,200 square miles. Groundwater is a significant source of water for the City. There are four recognized aquifers underneath the City and its proposed annexation area: the Mehrten Formation, the confined aquifer, the intermediate aquifer, and the shallow unconfined aquifer. Groundwater is the main source of drinking water for the City and, therefore, the water quality of groundwater is important (City of Merced 2012b).

Since the project site generally slopes from the northeast to the southwest, it drains to the southwest corner of the parcel at Yosemite Avenue and Gardner Avenue. This drainage is conveyed to the city's storm drain system via a 24-inch storm pipe that crosses under Yosemite Avenue and continues south through a detention basin and pump station which ultimately discharges to Black Rascal Creek.

Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Development of the project site and conversion of agricultural lands to urban uses has the potential to increase erosion and discharge of sediments that could degrade water quality. Construction activities that disturb one-acre or more of land is required to comply with the Central Valley Regional Water Quality Control Board's NPDES permit, which requires development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must list BMPs to protect stormwater runoff, prevent or reduce erosion, improve sediment control, control run-on and runoff and prevent pollutants from entering stormwater runoff. The proposed project would convert agricultural land to urban uses, which would increase impervious surface area and could generate a new source of water pollution. The addition of impervious surfaces within the project site could result in increased runoff and could violate water quality standards or waste discharge requirements, or substantially degrade surface water or groundwater quality. The project would be required to comply with all applicable state and local standards; however, to confirm that the project-specific impacts can be adequately addressed by existing and planned drainage infrastructure for this area, a drainage report would be prepared. Impacts are considered to be **potentially significant**. This impact is evaluated in the Draft EIR.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The proposed project includes annexation of the project site to the City and development of residential and commercial land uses on approximately 28.4 acres of the site. The project would connect to City services for water supply; the City's sole source of potable water is groundwater. Therefore, while the proposed project would directly draw groundwater from wells within the project site, the proposed land uses would be served by groundwater supplies through the City's water supply system. Additionally, conversion of agricultural lands to a developed, urban environment would result in a decrease in permeable surfaces that may reduce groundwater recharge. These impacts are **potentially significant** and are evaluated in the Draft EIR.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in a substantial erosion or siltation on- or off-site?

Implementation of the proposed project would result in grading and landform alterations on the project site that would have the potential to result in modifications of the existing drainage patterns within the site. Grading and construction activity could expose soils that could be subject to the effects associated with wind and water erosion unless adequate measures are taken to limit the transport of soils in surface water from the site to downstream locations. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

The proposed project has the potential to substantially increase the rate or amount of surface runoff within the project site by constructing residential and mixed-use buildings and new parking areas where no structures or impervious landscapes currently exist. Implementation of the proposed project would alter the existing drainage within the project site and could cause an increase in peak flows and volume discharged due to the increase in impervious surface area. Since the proposed project has the potential to increase surface runoff, this impact is considered **potentially significant** and is evaluated in the Draft EIR. A Storm Drainage Report was prepared for the project to support the EIR analysis; it is provided in EIR Appendix H.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

As noted above under the environmental setting for hydrology and water quality, construction of the proposed project would include connecting on-site drainage facilities to the City's storm drain system. Currently, drainage from the project site is conveyed to the city's storm drain system via a 24-inch storm pipe that crosses under Yosemite Avenue and continues south through a detention basin and pump station which ultimately discharges to Black Rascal Creek. Because the proposed project would construct new buildings and paved parking lots in areas within the project site where no structures or impervious landscapes currently exist, the

proposed project could result in the increase of surface water runoff. Thus, runoff conditions within the project site would change as compared to the current condition, and the proposed project could create or contribute runoff water which could exceed the capacity of existing or planned stormwater drainage systems, or could provide substantial additional sources of polluted runoff. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

iv) Impede or redirect flood flows?

A Flood Study was prepared for the proposed project and is provided in EIR Appendix G. The project site is not located within a Federal Emergency Management Agency (FEMA) mapped Special Flood Hazard Area subject to inundation by the 1 percent annual chance flood. As shown on FEMA Flood Insurance Rate Map (FIRM) 06047C0429G, the project site is located in Zone X, which is defined as an area determined to be outside of the 0.2 percent annual chance floodplain (FEMA 2008).

The City also requires consideration of potential localized flooding effects. Portions of the project site would be subject to shallow (less than 3 feet deep) flooding from Black Rascal Creek (located south of the project site) and Cottonwood Creek (located north of the project site) in the event of a 200-year storm event. Specifically, flooding of the Black Rascal Creek channel could create flooding of between 0 feet at the northeast corner of the Crossings component of the project site to 1.4 feet at the southwest corner of the Crossings component. Flooding of the Cottonwood Creek channel could add approximately 0.3 feet of flooding depth to the Crossings component of the project site. Additionally, the southeastern portion of the Remainder Area would be subject to shallow (less than one foot) flooding from flooding of the Black Rascal Creek channel (Appendix G).

As demonstrated in the Flood Study Report, implementation of the proposed project would not impede or redirect flood flows. **No impact** would occur. This impact is not evaluated in the Draft EIR.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project site is not located within a flood hazard, tsunami, or seiche zone. As shown on FEMA Flood Insurance Rate Map (FIRM) 06047C0429G, the project site is located in Zone X, which is defined as an area determined to be outside of the 0.2 percent annual chance floodplain. In addition, based on the maps provided in the City's General Plan,

the project site is not within a dam failure inundation area (City of Merced 2012a). The project site is located in the middle of the Central Valley in California, approximately 83 miles from the nearest ocean and 2.5 miles from the nearest large body of water. The site and surrounding land is relatively flat. Therefore, there is no risk of inundation by seiche or tsunami. **No impact** would occur as a result of implementation the proposed project. This impact is not evaluated in the Draft EIR.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Because the proposed project would involve the construction of new buildings, would create new impervious surfaces, would involve off-pavement construction operations, and would require ground-disturbing activities, the proposed project has the potential to conflict with existing water quality or groundwater management plans. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

2.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

Environmental Setting

The City of Merced is the largest city in the County as well as the county seat. The City contains a mix of residential, commercial, industrial and public land uses; it is surrounded by mainly agricultural land. The project site is located within the unincorporated County and is designated as a Rural Residential Center on the Merced County City Planning Area-Merced land use map (County of Merced 2013). The City's General Plan is the primary planning document that sets forth a vision for future development. The project site is designated for future annexation and development in the City's General Plan and is within the City's SOI/SUDP. The project site is designated Rural Residential (RR) in the City's General Plan (Merced Vision 2030 General Plan, Figure 2-3). The project requires redesignating the site from Rural Residential (RR) to Neighborhood Commercial (CN) and High-Medium Density Residential (HMD). Since the project site is not located within City boundaries, there is no City zoning designation for the site. The

project would require a pre-zoning to Planned Development (P-D) for The Crossings component of the proposed project, and to Low Density Residential (R-1-10) and Urban Transition (U-T) for the Remainder Area.

Impact Analysis

a) Would the project physically divide an established community?

If approved, the project site would be annexed to the City. The project site is currently located adjacent to the City limits as well as on the border between urban and agricultural uses. Development of the proposed project would not divide an established community because construction of the residential and mixed-use buildings would provide additional housing and local-serving retail/commercial buildings adjacent to existing residential development within the City.

The Remainder Area supports rural residential uses, a church and associated private school, and agricultural uses. The portions of the Remainder Area proposed to be pre-zoned U-T would support only continued operation of the existing land uses and new agricultural uses; the portions of the Remainder Area proposed to be pre-zoned R-1-10 would allow development of single-family residences on minimum 10,000-square-foot lots. The lands surrounding the Remainder Area do not comprise an established community because rural residential/agricultural use exists to the north while a separate area of rural residential exists to the east. Any future development within the Remainder Area subject to the proposed zoning designations would not divide any established communities, and there would be **no impact**. Therefore, this impact is not evaluated in the Draft EIR.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

As discussed throughout this Initial Study, the proposed project could result in significant environmental effects in a wide range of environmental resource areas. These effects may include conflicts with adopted plans, policies, and regulations that identify standards and requirements related to avoiding or mitigating environmental effects. Therefore, this impact is considered **potentially significant** and is evaluated in the Draft EIR.

2.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Environmental Setting

The Merced Vision 2030 General Plan states that neither the City nor any areas within its SOI/SUDP contain any mineral resources that necessitate management or are areas expected to contain mineral resources (City of Merced 2012a). The General Plan does acknowledge that there is minor aggregate production to the west and north of the City; however, it is not within proximity to the City or its SOI/SUDP and, therefore, not in proximity to the project site.

Impact Analysis

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

There are no known mineral resources within the project site and no mineral recovery activities have been known to occur on the site. In addition, there are neither known nor expected mineral deposits within the City or its SOI/SUDP. Therefore, future development of the project site would not adversely affect any mineral resources of value to the state or region. The project would have **no impact** related to mineral resources. This impact is not evaluated in the Draft EIR.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

There are no known mineral resources within the project site and no mineral recovery activities have been known to occur on the site. In addition, there are neither known nor expected mineral deposits within the City or its SOI/SUDP, nor are there any locally important mineral resource recovery sites delineated on a local general plan or other land

use plan within the City. Therefore, future development of the project site would not adversely affect any mineral resources delineated on a local general plan, specific plan, or other land use plan. The proposed project would have **no impact**. This issue is not evaluated in the Draft EIR.

2.13 Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	☒

Environmental Setting

Typical sources of noise include, but are not limited to, vehicle traffic, aircraft overflights, heavy equipment operations, construction activity, loading and unloading operations, commercial activities, dogs barking, birds chirping, wind blowing and people conversing. Potential noise impacts of the proposed project can be categorized as those resulting from construction and those from operational activities. Construction noise would have a short-term effect; operational noise would continue throughout the lifetime of the project. The project site is adjacent to undeveloped agricultural lands to the north and east and residential development to the west and to the south.

Impact Analysis

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

It is possible that construction of the project would temporarily increase noise levels in the area during the construction period in excess of standards established by the City. Regarding operation of the proposed project, noise from the residential and mixed-use development would be primarily traffic related. However, there would be added noise from outdoor activities such as loading and unloading of materials and products for the retail uses and possible outdoor activities of the tenants, as well as more frequent refuse collection to serve the site. Thus, operation of the proposed project may result in the exceedance of noise standards and threshold established by the City. The project's impact is considered **potentially significant**. This impact is evaluated in the Draft EIR.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Future construction activities could result in disturbance to adjacent residences from groundborne vibration and noise associated with construction equipment. Consistency with the City's Land Use Compatibility Standards would ensure that groundborne vibration is minimized. General Plan policies require the use of noise barriers, setbacks, and control measures that reduce exposure of noise sensitive land uses to construction-related groundborne vibration and noise. The proposed project does not include any pile driving or use of other types of construction equipment that typically generates groundborne vibration. However, as it is possible that the project may have a **potentially significant** impact due to groundborne vibration. This impact is evaluated in the Draft EIR.

c) For a project located within the vicinity of a private airstrip or 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?

As discussed in Section 2.9(e), project site is located approximately 4.75 miles to the northeast of the Merced Regional Airport, and approximately 7.25 miles to the southeast of the Merced County Castle Airport. The project site is not located within the Airport Influence Area or Noise Compatibly Zones for either airport, as designated by the Merced County Airport Land Use Compatibility Plans (County of Merced ALUCP 2012). Thus,

implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels from aviation activity, since the project site is not within the Airport Influence Area or Noise Compatibility Zone a designated by an applicable airport land use plan, and is not within two miles of an existing public or private use airport. Therefore, there would be **no impact.** This impact is not evaluated in the Draft EIR.

2.14 Population and Housing

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

Environmental Setting

The City's General Plan Urban Expansion Element reports on the City's existing and projected residential population based on data obtained from the Merced Council of Governments in 2010. At that time, the city's population was projected to be 107,600 people in 2020 (City of Merced 2015). The General Plan also identified a projected population for 2030 of 116,800 residents (City of Merced 2012a). However, growth did not occur as rapidly as anticipated, based on the US Census Quick Facts data, which indicates that there were 83,676 residents in the City of Merced in 2019 (US Census 2020), and the California Department of Finance (DOF) data that reports 88,120 city residents in 2020 (DOF 2020). The US Census data also shows that the City has an average household size of 3.2 persons.

Population data from the California Department of Finance (DOF) also shows that there were approximately 255,793 people in Merced County in 2020, which is projected to increase to 298,184 by 2025 and 314,690 by 2030 (DOF 2021).

A major source of employment in Merced is in the "Educational, Health and Social Services" with UC Merced employing over 2,000 people in 2015, which is expected to increase as UC Merced reaches full student capacity. The second major source of employment is retail, which is expected

to increase as UC Merced reaches full student capacity, and as students and employees increase their dependence on local goods and services for food, housing, and entertainment (City of Merced 2012b).

Impact Analysis

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project is requesting to be annexed into the City of Merced. The project site is within the City's SOI/SUDP and annexation of this area is anticipated under the Merced Vision 2030 General Plan (City of Merced 2012a). The project proposes to construct a residential and mixed-use project that would include 570 dwelling units which could support 1,824 residents based on the City's current average household size. In addition, the vacant land within the Remainder Area that is proposed to be zoned R-1-10 could support approximately 29 new single-family residences, generating a new population within the City of 93 people. This new population would not exceed the population projections for the City, which are based on planned development within the SUDP, including the Remainder Area.

Given the year 2020 estimated population of 88,120 and the General Plan population projection of up to 116,800 residents by 2030, the addition of up to 1,917 residents within the City as a result of the proposed project would not result in unplanned population growth. Further, the project would not indirectly encourage unplanned population growth because it would not construct any new roadways or offsite public service and utility infrastructure that could support additional development. Therefore, impacts would be **less than significant**. This impact is not evaluated in the project-specific impacts analysis in Draft EIR Chapter 3. However, as required by the CEQA Guidelines, a discussion of the project's potential to induce growth in the project area is presented in Draft EIR Chapter 5, CEQA Considerations.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The majority of The Crossings component of the project site is currently undeveloped, with the exception of one farmhouse and associated outbuildings, while the Remainder Area supports nine rural residences and Yosemite Church and associated school. The Crossings component of the proposed project includes the demolition of all existing structures within

the 28.4-acre portion of the project site and construction of 570 dwelling units and 66,000 square feet of retail. No development is proposed within the Remainder Area of the project site, however the proposed zoning for the Remainder Area would allow development of new single-family residences. There are nine existing single-family residences within the Remainder Area; it is not expected that these would be demolished as a result of the proposed annexation, pre-zoning, and General Plan designations. Thus, the proposed project would not displace a substantial number of people or housing units and would add to the overall availably of housing within the City. Impacts would be **less than significant**. This impact is not evaluated in the Draft EIR.

2.15 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☒	☐	☐	☐
Police protection?	☒	☐	☐	☐
Schools?	☒	☐	☐	☐
Parks?	☒	☐	☐	☐
Other public facilities?	☒	☐	☐	☐

Environmental Setting

This discussion lists the public service providers that would serve residents of the project site under the proposed annexation and development. Draft EIR Section 3.11 provides a detailed discussion of existing public services for City of Merced residents.

Fire protection - City of Merced Fire Department

Law enforcement - City of Merced Police Department

Schools - Merced City School District (elementary and middle schools) and Merced Union High School District (MUHSD)

Parks – City of Merced

Impact Analysis

*a) **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:***

Fire protection?

Police protection?

Schools?

Parks?

Other governmental facilities?

The proposed project involves annexation of the project site to the City and development of 570 dwelling units and 66,000 square feet of commercial space. Additional development of single-family residences is also possible in portions of the Remainder Area within the project site. The proposed project is anticipated to introduce up to 1,917 new residents to the City, which would require public services including fire protection, law enforcement, schools, parks, and other public services and facilities such as libraries. Thus, development of the proposed project could impact the maintenance of public facilities and could generate impacts to other governmental services. The project's impacts are **potentially significant** and are evaluated in the Draft EIR.

2.16 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☒	☐	☐	☐

Environmental Setting

The City maintains numerous parks and recreational facilities including approximately 187 acres of active parkland, more than 120 acres of linear parkland where the bike paths are located, and more than 56 acres of undeveloped parkland, for a total of 328 acres of developed, usable parks and open space (City of Merced 2012a). Under the Merced Vision 2030 General Plan, the City establishes a goal of providing five acres of parkland for every 1,000 residents (City of Merced 2012a).

Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

As a residential and mixed-use development, the proposed project would increase the City's population, which would be expected to increase the use of existing recreational facilities. Thus, this impact is **potentially significant** and is evaluated in the Draft EIR.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

The proposed project does not include any public recreational facilities. It does include a 13,700 square foot clubhouse that is expected to provide recreational facility such as an indoor gymnasium and an outdoor pool area. Because the proposed project would result in potentially significant physical effects, as documented in this Initial Study, this impact is also considered **potentially significant**. The physical effects of development of the recreational facilities included in the project are addressed in the impact analysis presented throughout the Draft EIR and this Initial Study, and mitigation measures are identified in the Draft EIR to address such effects.

2.17 Transportation and Traffic

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☒	☐	☐	☐
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

Environmental Setting

The City of Merced is served by one major freeway (SR 99) and two major highways (SR 140 and SR 59). SR 99 is a major north-south transportation route that connects the Central Valley and serves as a parallel road to Interstate-5 (I-5). SR 59 connects Route 152, south of El Nido, to Snelling, north of Merced. SR 140 connects I-5 to Yosemite National Park. SR 140 is highly used by those visiting Yosemite, hence Merced's title of the 'Gateway of Yosemite.'

The City of Merced maintains a grid system of streets to minimize traffic delays and maximize ease of use. As part of the Merced Vision 2030 General Plan, the City set forth the proposal of a circulation plan of major streets and expressways for the projected growth areas. North-south roads would serve as major traffic arteries whereas east-west streets would serve as connectors (City of Merced 2012b).

The City of Merced is served by a variety of public transit options: local public bus system, inter-regional private bus companies, rail, and air services. The Merced Transit System has served as the City's public transit since 1974; it maintains several fixed lines as well as connections to County and regional public transit options. The City is currently served by Amtrak and is proposed to include a station for the State's high-speed rail once it is developed.

The City also maintains and encourages the use of bicycles by providing off-road bicycle/pedestrian trail systems and through planned expansions of these facilities as the population grows and more land is developed. The Merced Bicycle Plan, 2013, is a comprehensive planning document that describes Merced's existing bikeway system, a vision for its future, and a prioritized list of projects to be constructed (City of Merced 2013).

A Transportation Impact Study was prepared for the proposed project and is provided in EIR Appendix M.

Impact Analysis

a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The project site is located along a major roadway (Yosemite Avenue) that provides vehicular access to existing residential, commercial, and public facility land uses west of the site and to UC Merced northeast of the site. The proposed project would not construct or modify any existing offsite roadways and thus would not change the City's circulation system. The project includes provision of a bus stop at the northern edge of the mixed-use portion of The Crossings component of the project and a bus stop on East Yosemite Avenue directly in front of the project site. The proposed project could increase use of transit, bicycle, and pedestrian facilities in the area. This is a **potentially significant** impact that is evaluated in the Draft EIR.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)??

Operation of the proposed project would result in increased traffic in the area because new traffic-generating land uses would be added to a site that is primarily vacant and undeveloped, which could result in increased vehicle miles traveled (VMT) associated with both the residential and commercial land uses included in the proposed project. This is a **potentially significant** impact that is evaluated in the Draft EIR.

c) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project would create two new access driveways on East Yosemite Avenue and two new access driveways on Gardner Avenue. Traffic entering and exiting the project site through these driveways could result in conflicts (safety hazards) with through traffic on both streets. This is a **potentially significant** impact that is evaluated in the Draft EIR.

d) Would the project result in inadequate emergency access?

The project proposes development of a mixed-use area and a multi-family residential area, with four points of access onto existing public roadways, with two driveways onto East

Yosemite Avenue and two driveways onto Gardner Avenue. The sufficiency of the proposed access to meet emergency access needs will be reviewed in the Draft EIR.

2.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☒	☐	☐	☐

Environmental Setting

Native American cultural resources are not limited to physical archaeological resources with scientific significance, but could also include cultural landscapes, tribal cultural resources, and non-unique archaeological resources. The Merced area was part of the ancestral territory of Native Americans, and there is the potential for unrecorded cultural resources to be present in the area.

Specifically, the area around Merced was home to the Yokuts people, who were member of the Penutian language family that dominated the Central Valley, San Francisco Bay Area, and the Pacific Coast from Marin County to near Point Sur. The historical territory of the Yokuts stretched from the Tehachapis in the south to Stockton in the north. Trade in the region was well-developed and Yokuts had access to shell beads, acorns, and obsidian. Yokut settlements were oriented around waterways and houses varied in size and shape.

Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

In accordance with Public Resources Code section 21080.3.1 and Assembly Bill (AB) 52, the City of Merced sent a formal notice of the proposed project to those California Native American tribes that have requested such notice. None of the Native American tribes that were notified requested consultation or identified any Tribal Cultural Resources as being present within the project vicinity. Thus, the proposed project is not expected to affect tribal cultural resources. However, because there is a potential that cultural resources could be discovered during project construction, this impact is considered **potentially significant**. This impact is evaluated in the Draft EIR.

2.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☒	☐	☐	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☒	☐	☐	☐

Environmental Setting

This discussion provides a brief overview of the utilities and service systems that would serve residents of the project site under the proposed annexation and development. Draft EIR Section 3.11 provides a detailed discussion of these utilities and service systems, with the exception of stormwater drainage facilities which are discussed in Draft EIR Section 3.8.

Water

The City's sole source of water supply is groundwater. The City's system consists of 22 active groundwater wells, and 340 miles of distribution pipeline, as well as other related equipment, such as hydrants, meters, valves, fluoridation and chlorination systems, pumps, and motors, supplying approximately seven billion gallons of water annually (City of Merced 2016).

The City's water system has historically expanded to keep pace with population growth. Water production increased by approximately 2 percent per year, from approximately 16,500 acre-feet per year (AFY) in 1990 to 25,899 AFY in 2012, consistent with the 2 percent annual population growth rate over the same period (City of Merced 2014). In 2012, the average water usage was 23.4 million gallons per day (mgd). The service area population (which includes UC Merced) is projected to grow by approximately 94 percent from 87,575 people in 2012 to 169,585 people by 2030.

In 2017, the City adopted the Urban Water Management Plan (UWMP), as required by state law, to describe the availability of water and to discuss water use, reclamation, and recycling activities as well as conservation practices (City of Merced 2017). The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions.

Because the project proposes to construct more than 500 dwelling units, a Water Supply Assessment was prepared, as required under Senate Bill 610. The Water Supply Assessment is provided in EIR Appendix L

Wastewater

Wastewater collection and treatment is provided by the City of Merced. The wastewater collection system handles wastewater generated by residential, commercial, and industrial uses within the City. The City's Wastewater Treatment Plant (WWTP) is located in the southwest portion of the City and has been expanded and upgraded to meet the needs of the city. The WWTP has a design capacity of 12 mgd and in 2017 the average dry weather flows were 8 mgd (City of Merced 2017). The WWTP is planned to be expanded to treat 20 mgd by buildout in 2024, which is sufficient to meet the demands from development of the City's SUDP area and UC Merced campus planned wastewater loads that would be generated at that time (City of Merced 2017). The design capacity of 20 mgd could support a population of 150,000 (City of Merced 2012).

Stormwater

In 2002, the City established the City of Merced Storm Drainage Master Plan to manage the collection and disposal of surface water runoff. The plan addresses both the collection and disposal of storm water. Systems of storm drain pipes and catch basins are laid out, sized, and costed in the plan to serve present and projected urban land uses. The City also developed the Storm Water Management Plan (SWMP) to fulfill requirements of storm water discharges from Small Municipal Separate Storm Sewer System (MS4) operators to comply with Section 402 of the Federal Clean Water Act (CWA). The SWMP was implemented to limit, to the maximum extent practicable, the discharge of pollutants from the Merced Storm Water Group's storm sewer systems, as well as to comply with General Permit Number CA000004, Water Quality Order No. 2013-0001 DWQ, which became effective on July 1, 2013. The General Permit requires regulated small Municipal Separate Storm Sewer System (MS4) in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for their stormwater discharges. The proposed project would construct a stormwater detention basin adjacent to the commercial portion on the western half of the project site. Stormwater would be discharged from

the basin into an existing 24-inch storm drain pipe that crosses under Yosemite Avenue, flows into an existing storm detention basin within the Silverado subdivision, and then flows to a storm pump station that discharges into Black Rascal Creek.

Solid Waste and Recycling

The City is served by the Highway 59 Landfill and Compost Facility, located at 6040 North Highway 59. The City provides all collection services within the city limits.

Impact Analysis

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The proposed project would increase the intensity of uses on the project site, resulting in increased use of water, wastewater treatment, electric power, natural gas, and telecommunication systems. Further, the proposed project would result in an increase in impervious area within the project site. An increase in runoff from impervious surface can cause alterations to drainage courses, requiring new or expanded stormwater drainage systems. In addition, the proposed project would generate an additional population base within the project site that would require new utility lines to be constructed within the project site in order to serve the proposed development. Therefore, implementation of the proposed project would require construction of new water, wastewater, and stormwater drainage connections. Due to the size of the proposed project, the addition of impervious surface, and the potential for the project to require water and to generate wastewater in quantities beyond those currently handled by the City's existing service infrastructure, impacts are considered **potentially significant**. These impacts are evaluated in the Draft EIR.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

As discussed above in the environmental setting for utilities and service systems, the City provides water services to serve development within the city. Because the project proposes to construct more than 500 dwelling units, a Water Supply Assessment has been prepared (EIR Appendix L). The increased water demand resulting from the proposed project is considered a **potentially significant** impact**.** This impact is evaluated in the Draft EIR.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

As discussed above, the proposed project would be served by the City's WWTP. The wastewater generated by the proposed project could affect the capacity of the existing wastewater treatment plant and conveyance facilities. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

As stated above, the City maintains a contract with the Highway 59 landfill for waste disposal. Construction of the proposed project would result in the generation of solid waste, such as scrap lumber, concrete, residual wastes, packing materials, and plastics. Operation of the proposed project would result in an increase in intensity of uses on the project site, which would likely be associated with increased generation of solid waste, which could contribute to a reduction in the capacity or lifespan of the landfill. Therefore, project's impact is **potentially significant**. This impact is evaluated in the Draft EIR.

e) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The project proposes to construct residential and commercial land uses. There are several state and local regulations that set goals for reducing the amount of solid waste disposed of at landfills, as discussed in Draft EIR Section 3.11. Because it is possible that solid waste generated by the project would not meet these goals, this impact is considered **potentially significant** and is evaluated in the Draft EIR.

2.20 Wildfire

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Wildfire – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Environmental Setting

As discussed in the Merced Vision 2030 General Plan, the wildland and vegetation fire hazards that exist in Merced County are located mostly outside of urban areas. The area's long, hot, dry summers and extensive vegetation creates a fire season that extends from late spring to early fall. More than one hundred wildland fires can occur in Merced County on an annual basis. Irrigated agricultural land, however, is less susceptible to wildland fires than grazing areas. The project site is not located within or near a State Responsibility Area, as designated on the Fire Hazard Severity Zones in State Responsibility Areas for Merced County (CAL FIRE 2007a). The project site is located within an unzoned Fire Hazard Severity Zone per the CALFIRE Draft Fire Hazard Severity Zones in Local Responsibility Area map (CAL FIRE 2007b). Thus, the project site is not located within or near a State Responsibility Area or lands classified as a very high fire hazard severity zone.

Impact Analysis

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

As noted above, the project site is not located within or near a state responsibility area or a very high fire hazard severity zone. The City adopted a Local Hazard Mitigation Plan in March of 2015 in an effort to reduce future loss of life and property resulting from disasters (City of Merced 2015). This plan outlines the implementation programs and strategies needed to prevent risks to occupants and to minimize injury from an unavoidable disaster

or emergency. Any potential impacts created by the proposed project would be less than significant with implementation of the Local Hazard Mitigation Plan programs. The entrance to the project site would be located along Yosemite Avenue, which is approximately 1 mile east of the G Street intersection, which is a designated evacuation route per Figure 11.8 of the City's General Plan (Merced Vision 2030 General Plan, Figure 11.8). The proposed site plan, including the access driveways, would be reviewed and approved by the City, the police department, and the fire department during plan review to ensure that emergency access would be provided at all times. Therefore, implementation of the proposed project would not physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be **less than significant**. This impact is not evaluated in the Draft EIR.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

As discussed above, the project site is not located within or near a state responsibility area or very high fire hazard severity zone. The areas surrounding the project site are mostly developed with residential uses, intermixed with some agricultural land. There is a low potential for wildland fires within these parameters. Thus, the proposed project would not exacerbate wildfire risks, exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, impacts would be **less than significant**. This impact is not evaluated in the Draft EIR.

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The proposed project would not require the installation or maintenance of new infrastructure such as roads, fuel breaks, emergency water sources, power lines, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Additionally, the project site is not located in a very high fire hazard severity zone, as described in the environmental setting for wildfire, above. **No impact** would occur. This issue will not be further evaluated in the EIR.

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

As discussed above, the project site is not located within or near a state responsibility area or very high fire hazard severity zone. Thus, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes within or near a local or state responsibility area or very high fire hazard severity zone. The project site and surrounding area is relatively flat with no risk of downslope or downstream flooding or landslides. Although there are existing drainage features traversing the site, given that the site is not located in a designated fire hazard zone, impacts would be **less than significant**. This impact is not evaluated in the Draft EIR.

2.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

The proposed project has the potential to affect biological resources including special-status species, riparian areas, wetlands and other sensitive natural communities. The project's potential to impact biological resources is considered **potentially significant** and is evaluated in the Draft EIR.

The project site is currently used for agriculture and contains agriculture-related buildings and equipment on site. Though no cultural resources are known to exist within the project site there is potential for cultural resources to be discovered during construction. Thus, the project is considered to have a **potentially significant** impact to cultural resources and this impact is evaluated in the Draft EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Future growth in Merced, including the project, could contribute to the cumulatively significant loss of agriculture in the region. This is a **potentially significant** impact and is evaluated in the Draft EIR.

The project could also contribute to significant cumulative impacts in the areas of biological and cultural resources, air quality, greenhouse gas emissions, and provision of public services and utilities. These impacts are considered **potentially significant** and are evaluated in the Draft EIR.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project would generate an increase in air emissions associated with construction and operation that may directly or indirectly have an adverse effect on residents living in the area. This impact is considered **potentially significant** and is evaluated in the Draft EIR.

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Appendix C

The Crossings Architectural Plans

Hochhauser Blatter Architecture and Planning, February 2020

VICINITY MAP

PROJECT SITE:
YOSEMITE AVE & GARDNER AVE.
MERCED, CA 95340

PROJECT DIRECTORY

OWNER
CLIFF CATON
952 W. MAIN STREET
MERCED, CA 95340
T 831.262.8747
CONTACT: CLIFF CATON

ARCHITECT
HOCHHAUSER BLATTER
ARCHITECTURE & PLANNING
122 E. ARRELLAGA ST.
SANTA BARBARA, CA, 93101
T 805.962.2746
CONTACT: JAY BLATTER
EMAIL: jay@hbarchitects.com

CIVIL ENGINEER
QUAD KNOPF
2816 PARK AVENUE
MERCED, CA 95348
T 209.723.2066
CONTACT: DESMOND JOHNSTON
EMAIL: Des.Johnston@qkinc.com

LEGEND

- MIXED -USE : COMMERCIAL/RETAIL SPACE 66,000 SF & RESIDENTIAL APARTMENTS 45,000 SF (2 STORIES - 111,000 SF)
- LEASING OFFICE/ CLUB HOUSE/GYMNASIUM
- RESIDENTIAL BUILDINGS [20 BLDGS (1 BEDROOM & 2 BEDROOM UNITS)]



PROJECT STATISTICS

RESIDENTIAL UNITS/ BLDG.	:	15 - 1-BEDROOM UNITS 12 - 2-BEDROOM UNITS
TOTAL NO.	:	15 X 20 = 300- 1-BEDROOM UNITS 12 X 20 = 240- 2-BEDROOM UNITS 540 TOTAL RESIDENTIAL UNITS
PROJECT	:	THE CROSSINGS
APN	:	060-570-010
ADDRESS	:	YOSEMITE AVENUE & GARDNER AVENUE, MERCED, CA 95340
PROPERTY OWNER	:	CLIFF CATON 952 W. MAIN STREET, MERCED CA 95340
APPLICANT	:	CLIFF CATON 952 W. MAIN STREET, MERCED CA 95340
TOTAL LOT AREA	:	1,245,415 SQ FT. (28.6 ACRES)
MIXED-USE BUILDINGS	:	TWO STORIES (C1, C2, C3, C4 & C5)
FIRST FLOOR COMMERCIAL/ RETAIL	: :	 66,000 SQ. FT.
SECOND FLOOR RESIDENTIAL UNITS	: :	 45,000 SQ. FT.
RETAIL RESIDENTIAL (EXTENDED STAY)	:	12 - 1-BEDROOM UNITS (950 SF EACH) 6 - 2-BEDROOM UNITS (1,300 SF EACH)
RETAIL RESIDENTIAL (APARTMENTS)	:	12 - 2-BEDROOM UNITS (1,400 SF EACH)
CLUBHOUSE	:	13,700 SQ. FT (TWO STORIES)
RESIDENTIAL BUILDINGS	:	626,280 SQ. FT. (20 BUILDINGS @ 31,314 SQ. FT. EACH)
RESIDENTIAL UNITS/ BLDG.	:	15 - 1-BEDROOM UNITS 12 - 2-BEDROOM UNITS
TOTAL NO.	:	15 X 20 = 300 12 X 20 = 240 540 RESIDENTIAL UNITS

PARKING

COMMERCIAL/ RETAIL		
STANDARD	:	311 SPACES
ACCESSIBLE	:	11 SPACES
TOTAL	:	322 SPACES
RESIDENTIAL		
STANDARD	:	766 SPACES
COMPACT	:	102 SPACES
ACCESSIBLE	:	33 SPACES
TOTAL	:	901 SPACES
TOTAL PARKING	:	1,223 SPACES

SHEET INDEX

A1.1 SITE PLAN AND STATISTICS
A2.1 RESIDENTIAL BUILDING FLOOR PLANS
A3.1 COMMERCIAL AREA ELEVATIONS
A3.2 COMMERCIAL AREA ELEVATIONS
A3.5 3D VIEWS OF RESIDENTIAL BUILDING
A3.6 CLUB HOUSE FLOOR PLAN AND IT'S 3D VIEWS
A3.7 3D VIEWS OF MASTER SITE PLAN
A3.8 3D VIEW OF COURTYARD
A3.9 3D VIEW ON THE RESIDENTIAL AND COMMERCIAL AREAS
A3.10 AERIAL 3D VIEW OVER SITE AND COMMERCIAL AREAS

PROJECT DESCRIPTION

The Crossings is a proposal mixed use project located on a 28.6 acre site that fronts Yosemite Avenue and Gardner Avenue. The project includes:

- A 540 unit residential project that includes 20 three story residential buildings, an approximate 13,700 SF clubhouse and a network of walking and biking trails and outdoor recreation space, and a community bus stop.
- The 111,000 SF, five 2-story mixed use builings consist of 66,000 SF commercial retail at first floor and 45,000 SF of residential units at second floor, located around a central community square with pedestrian linkages to the residential development. The residential spaces located at second floor include one & two bedroom apartments.

The project master plan is based on sustainable and green principles of design as follows:

- There will be an internal bus stop to allow guests to and from near the University of California Merced campus to discourage use of automobiles.
- The landscape palette will incorporate drought tolerant, indigenous plantings to minimize water use.
- The individual building designs incorporate open and naturally ventilated circulation spaces to minimize energy use.
- Energy efficient mechanical and plumbing systems
- Opportunities for photovoltaic panels to be connected to individual building electric systems.
- Solar shading devices to minimize heat gain on south and west facing facades.
- Secure bicycle storage to encourage use of bicycles in lieu of automobiles.
- Maximum sized fenestration to facilitate both natural ventilation and daylight
- Outdoor terraces and balconies
- Non-toxic, non V.O.C finish materials
- Low flow plumbing fixtures
- LED or other energy efficient lighting fixtures.

0' 30' 60' 120' 240'

Hochhauser Blatter
ARCHITECTURE AND PLANNING
122 E. ARRELLAGA
SANTA BARBARA
CALIFORNIA 93101
805 962 2746

THE CROSSINGS
MIXED USE DEVELOPMENT
YOSEMITE AVENUE & GARDNER AVENUE.
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION

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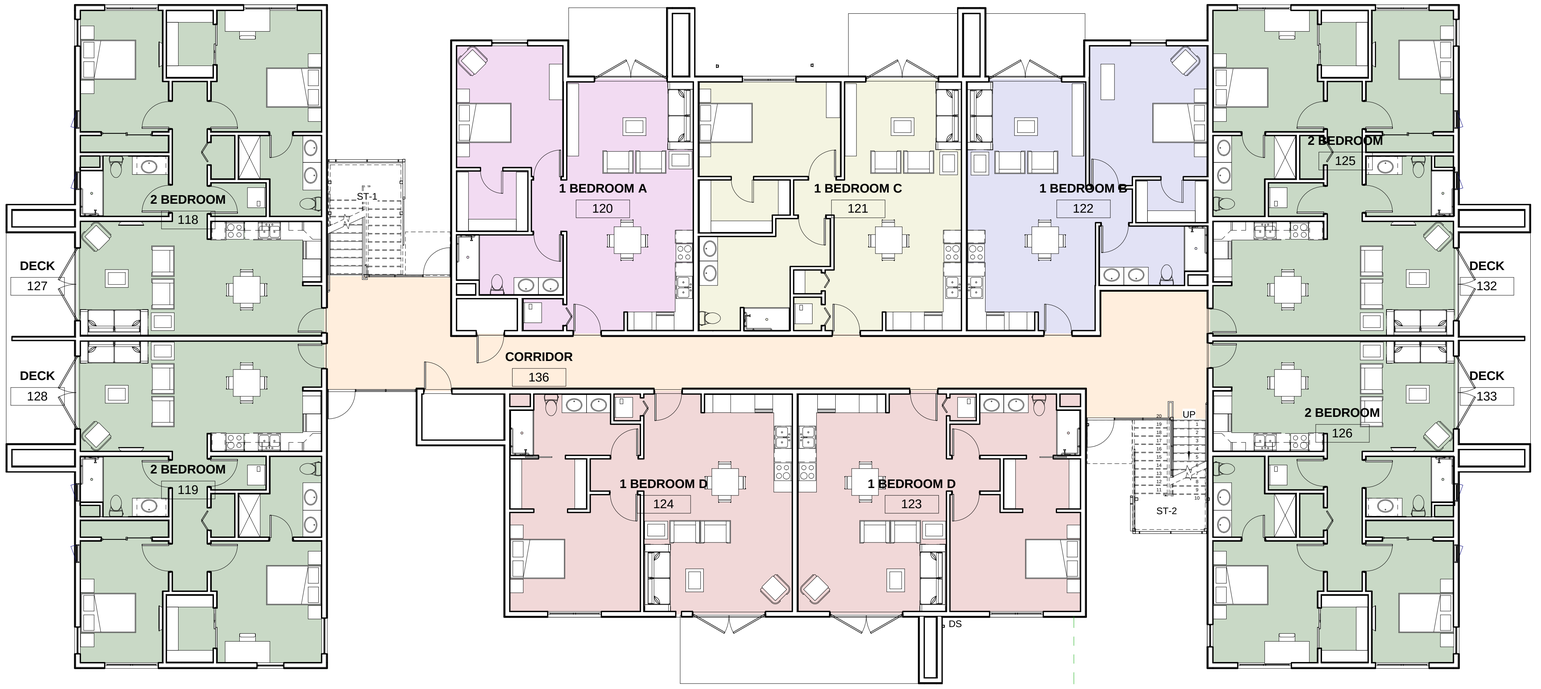
SHEET CONTENTS

SITE PLAN & PROJECT STATISTICS

PROJECT NO: 9913

SHEET

A1.1



1ST FLOOR 1/8" = 1'-0" | 1



SCALE 1/8" = 1'- 0

0' 4' 8' 16'

2ND FLOOR AND 3RD FLOOR PLANS 1/8" = 1'-0" | 2

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SANTA BARBARA
CALIFORNIA 93101
805 962 2746

THE CROSSINGS
MIXED USE DEVELOPMENT

E. YOSEMITE AVENUE & LAKE ROAD,
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION

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SHEET CONTENTS

FLOOR PLANS

PROJECT NO: 9811

SHEET

A2.1



South 3/32" = 1'-0" | 3



East 3/32" = 1'-0" | 1



West 3/32" = 1'-0" | 4



North 3/32" = 1'-0" | 2

Keynote Legend	
Key Value	Keynote Text
52C	GALVANIZED METAL CONDUCTOR HEAD AND DOWNSPOUT SYSTEM) PRIMED AND PAINTED
53	GALVANIZED METAL STAIR AND GUARDRAIL SYSTEM
62	ALUNMINUM AND GLASS BALCONY GUARDRAIL SYSTEM
66	DARK BRONZE ALUMINUM SUNSHADE / AWNING
72	
80	DARK BRONZE PREMIUM VINYL WINDOW SYSTEM
81	DARK BRONZE ALUMINUM CLAD PATIO DOOR SYSTEM
85	ALUMINUM COLOR / VINYL WINDOW SYSTEM
90	HORIZONTAL CLAD SIDING, PRIMED AND PAINTED
91	3 - COAT & STUCCO SYSTEM, PAINTED
93	PORTLAND CEMENT PLASTER W/ COLOR No. 3

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SANTA BARBARA
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805 962 2746

THE CROSSINGS
MIXED USE DEVELOPMENT
E. YOSEMITE AVENUE & LAKE ROAD,
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION

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SHEET CONTENTS

ELEVATIONS

PROJECT NO: 9811

SCALE 1/8" = 1'- 0

0' 4' 8' 16'

SHEET

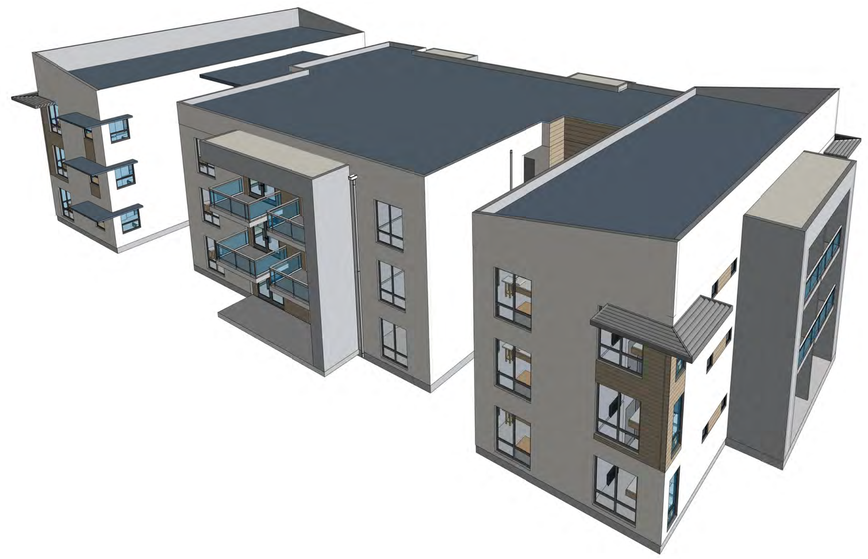
A3.2



MAIN VIEW



SIDE VIEW



THE UPPER VIEW

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AND PLANNING

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SANTA BARBARA
CALIFORNIA 93101
805 962 2746

UNIVERSITY VILLAGE AT LAKE
MIXED USE DEVELOPMENT

E. YOSEMITE AVENUE & LAKE ROAD,
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION
06.29.2016	PRE-APPLICATION
07.14.2016	PLANNING SUBMISSION
08.17.2016	REVISED SITE
09.01.2016	UPDATED PLANS SET
01.06.2017	UPDATED SITE PLAN
02.06.2017	PLANNING SUBMITTAL

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SHEET CONTENTS

3D VEWS

PROJECT NO: 9811

SHEET

A3.5



Elevation 20 - a 1/16" = 1'-0" | 1



Elevation 21 - a 1/16" = 1'-0" | 2



Elevation 22 - a 1/16" = 1'-0" | 3



Elevation 23 - a 1/16" = 1'-0" | 4



Elevation 24 - a 1/16" = 1'-0" | 5



Elevation 25 - a 1/16" = 1'-0" | 6

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ARCHITECTURE AND PLANNING

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SANTA BARBARA
CALIFORNIA 93101
805 962 2746

UNIVERSITY VILLAGE MIXED USE DEVELOPMENT

YOSEMITE AVENUE & GARDNER AVENUE.
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION
06.29.2016	PRE-APPLICATION
07.14.2016	PLANNING SUBMISSION
08.17.2016	REVISED SITE
09.01.2016	UPDATED PLANS SET

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SHEET CONTENTS

ELEVATIONS

PROJECT NO: 9811

SHEET

A3.1



Elevation 26 - a 1/16" = 1'-0" | 1



Elevation 27 - a 1/16" = 1'-0" | 2



Elevation 28 - a 1/16" = 1'-0" | 3

Elevation 29 - a 1/16" = 1'-0" | 4

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ARCHITECTURE AND PLANNING

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CALIFORNIA 93101
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UNIVERSITY VILLAGE
MIXED USE DEVELOPMENT

YOSEMITE AVENUE & GARDNER AVENUE.
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION
06.29.2016	PRE-APPLICATION
07.14.2016	PLANNING SUBMISSION
08.17.2016	REVISED SITE
09.01.2016	UPDATED PLANS SET

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SHEET CONTENTS

ELEVATIONS

PROJECT NO: 9811

SHEET

A3.2



UNIVERSITY CAMPUS OVERLOOK



CAMPUS NORTH-WEST VIEW



OVERLOOK ON THE FIRE LINE IN BETWEEN

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AND PLANNING

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805 962 2746

THE CROSSINGS
MIXED USE DEVELOPMENT

YOSEMITE AVENUE & GARDNER AVENUE.
MERCED, CA 95340

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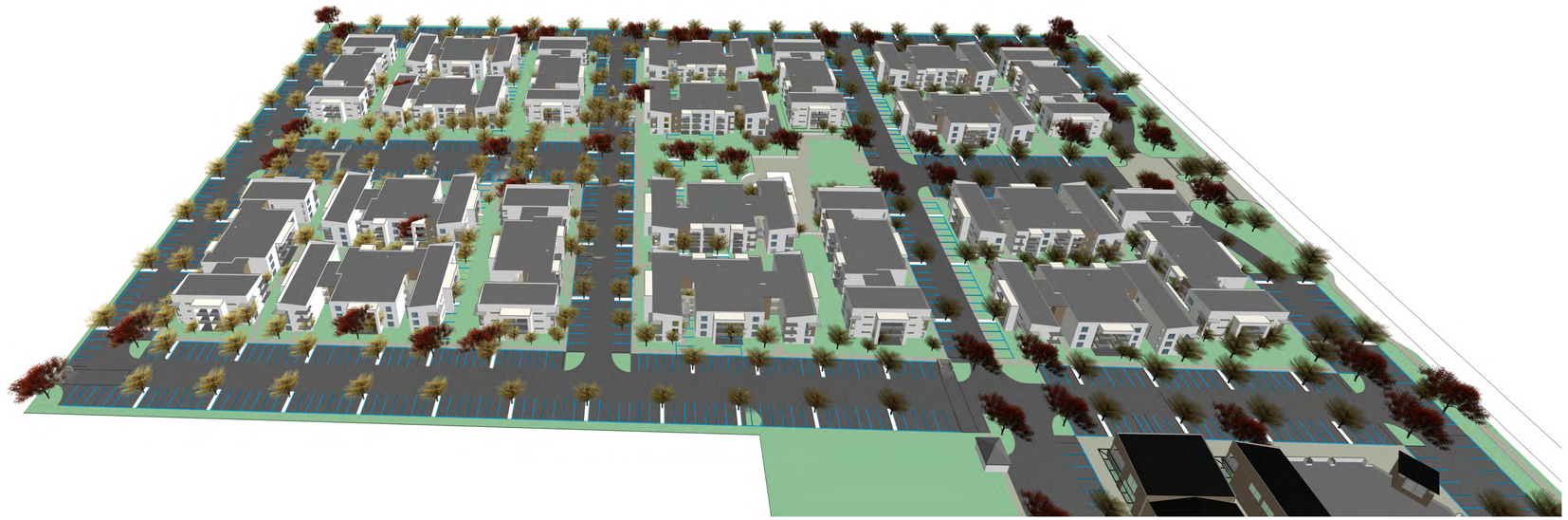
SHEET CONTENTS

3D VIEWS

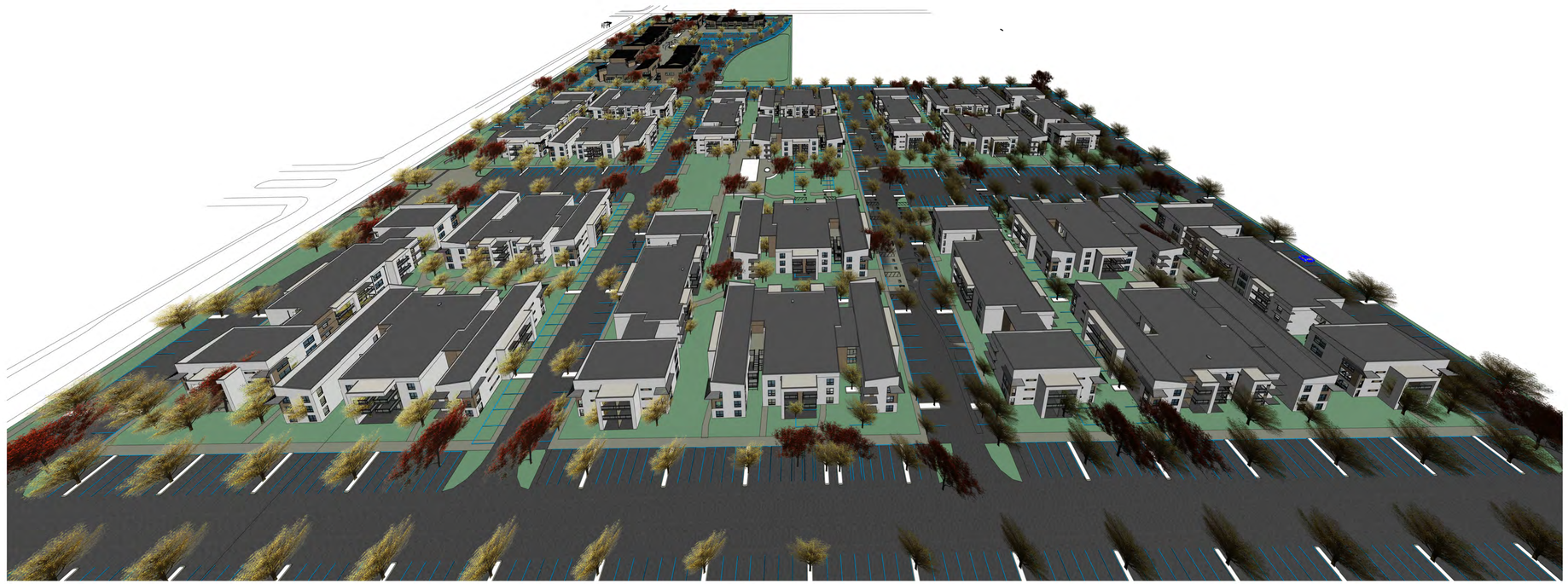
PROJECT NO: 9913

SHEET

A3.5



WEST AREAL VIEW



EAST AREAL VIEW

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CALIFORNIA 93101
805 962 2746

THE CROSSINGS
MIXED USE DEVELOPMENT

YOSEMITE AVENUE & GARDNER AVENUE.
MERCED, CA 95340

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SHEET CONTENTS

3d view overall

PROJECT NO: 9913

SHEET

A3.6



COURTYARD VIEW

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AND PLANNING

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SANTA BARBARA
CALIFORNIA 93101
805 962 2746

THE CROSSINGS
MIXED USE DEVELOPMENT
YOSEMITE AVENUE & GARDNER AVENUE.
MERCED, CA 95340

DATE:	ISSUANCE OR REVISION

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SHEET CONTENTS

COURTYARD VIEW

PROJECT NO: 9913

SHEET

A3.8

Appendix D

CalEEMod Output

Dudek, August 2021

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

The Crossings

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,223.00	Space	0.00	489,200.00	0
Health Club	13.70	1000sqft	0.00	13,700.00	0
Apartments Low Rise	540.00	Dwelling Unit	28.60	626,280.00	1713
Apartments Mid Rise	30.00	Dwelling Unit	0.00	45,000.00	95
Strip Mall	66.00	1000sqft	0.00	66,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - a

Construction Phase - a

Trips and VMT - a

Grading -

Architectural Coating - Three phases of AC split evenly

Vehicle Trips - z

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - a

Water And Wastewater - 100 Aerobic. Indoor water residential use provided by WSA for residentail buildings. All caputered under Low rise.

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - a

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
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tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	35.00	40.00
tblConstructionPhase	NumDays	35.00	40.00
tblConstructionPhase	NumDays	35.00	40.00

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	147.91	694.40
tblEnergyUse	T24E	1.75	1.96
tblEnergyUse	T24E	1.91	2.14
tblEnergyUse	T24NG	9,924.02	10,413.46
tblEnergyUse	T24NG	16.86	17.03
tblEnergyUse	T24NG	8.53	8.62
tblFireplaces	NumberGas	297.00	313.50
tblFireplaces	NumberNoFireplace	243.00	256.50
tblLandUse	LandUseSquareFeet	540,000.00	626,280.00
tblLandUse	LandUseSquareFeet	30,000.00	45,000.00
tblLandUse	LotAcreage	11.01	0.00
tblLandUse	LotAcreage	0.31	0.00
tblLandUse	LotAcreage	33.75	28.60
tblLandUse	LotAcreage	0.79	0.00
tblLandUse	LotAcreage	1.52	0.00
tblSolidWaste	SolidWasteGenerationRate	248.40	262.20
tblTripsAndVMT	WorkerTripNumber	643.00	644.00
tblTripsAndVMT	WorkerTripNumber	129.00	130.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	4.91	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	6.28	5.66
tblVehicleTrips	SU_TR	4.09	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	WD_TR	7.32	6.39
tblVehicleTrips	WD_TR	5.44	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	44.32	43.08
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
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tblWater	IndoorWaterUseRate	35,183,173.84	26,643,175.00
tblWater	IndoorWaterUseRate	1,954,620.77	0.00
tblWater	OutdoorWaterUseRate	1,232,260.92	0.00
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tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

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					
2021	1.0163	4.2782	4.3877	0.0111	0.9088	0.1823	1.0910	0.3194	0.1700	0.4894	0.0000	1,006.7578	1,006.7578	0.1251	0.0498	1,024.7210
2022	2.4843	3.3867	4.8966	0.0141	0.8357	0.1240	0.9597	0.2252	0.1169	0.3421	0.0000	1,292.3764	1,292.3764	0.0951	0.0783	1,318.0954
2023	1.2469	0.4472	0.7227	1.7400e-003	0.0877	0.0186	0.1062	0.0235	0.0174	0.0409	0.0000	157.2742	157.2742	0.0195	6.4900e-003	159.6956
Maximum	**2.4843**	**4.2782**	**4.8966**	**0.0141**	**0.9088**	**0.1823**	**1.0910**	**0.3194**	**0.1700**	**0.4894**	**0.0000**	**1,292.3764**	**1,292.3764**	**0.1251**	**0.0783**	**1,318.0954**

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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					
2021	1.0163	4.2782	4.3877	0.0111	0.6868	0.1823	0.8690	0.2186	0.1700	0.3886	0.0000	1,006.7573	1,006.7573	0.1251	0.0498	1,024.7205
2022	2.4843	3.3867	4.8966	0.0141	0.8357	0.1240	0.9597	0.2252	0.1169	0.3421	0.0000	1,292.3760	1,292.3760	0.0951	0.0783	1,318.0950
2023	1.2469	0.4472	0.7227	1.7400e-003	0.0877	0.0186	0.1062	0.0235	0.0174	0.0409	0.0000	157.2741	157.2741	0.0195	6.4900e-003	159.6955
Maximum	**2.4843**	**4.2782**	**4.8966**	**0.0141**	**0.8357**	**0.1823**	**0.9597**	**0.2252**	**0.1700**	**0.3886**	**0.0000**	**1,292.3760**	**1,292.3760**	**0.1251**	**0.0783**	**1,318.0950**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**12.12**	**0.00**	**10.29**	**17.74**	**0.00**	**11.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-12-2021	4-11-2021	1.3281	1.3281
2	4-12-2021	7-11-2021	1.3639	1.3639
3	7-12-2021	10-11-2021	1.1234	1.1234
4	10-12-2021	1-11-2022	1.7818	1.7818
5	1-12-2022	4-11-2022	1.4955	1.4955
6	4-12-2022	7-11-2022	1.1415	1.1415
7	7-12-2022	10-11-2022	1.9852	1.9852
8	10-12-2022	1-11-2023	0.9801	0.9801
9	1-12-2023	4-11-2023	0.8585	0.8585
10	4-12-2023	7-11-2023	0.7412	0.7412
		Highest	1.9852	1.9852

2.2 Overall Operational

Unmitigated Operational

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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					
Area	5.6653	0.2943	6.3792	4.8900e-003		0.3212	0.3212		0.3212	0.3212	24.9247	266.8611	291.7858	0.0117	6.9600e-003	294.1531
Energy	0.0484	0.4167	0.1975	2.6400e-003		0.0335	0.0335		0.0335	0.0335	0.0000	800.6077	800.6077	0.0612	0.0151	806.6337
Mobile	2.7911	4.6127	24.3060	0.0554	5.2683	0.0501	5.3185	1.4101	0.0471	1.4571	0.0000	5,129.3382	5,129.3382	0.2968	0.3021	5,226.7905
Waste						0.0000	0.0000		0.0000	0.0000	85.9443	0.0000	85.9443	5.0792	0.0000	212.9235
Water						0.0000	0.0000		0.0000	0.0000	11.4427	24.5060	35.9487	0.0434	0.0254	44.5912
Total	**8.5048**	**5.3236**	**30.8827**	**0.0629**	**5.2683**	**0.4048**	**5.6731**	**1.4101**	**0.4017**	**1.8118**	**122.3117**	**6,221.3130**	**6,343.6247**	**5.4922**	**0.3495**	**6,585.0919**

Mitigated Operational

	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					
Area	3.7886	0.0489	4.2425	2.2000e-004		0.0235	0.0235		0.0235	0.0235	0.0000	6.9367	6.9367	6.6900e-003	0.0000	7.1040
Energy	0.0484	0.4167	0.1975	2.6400e-003		0.0335	0.0335		0.0335	0.0335	0.0000	800.6077	800.6077	0.0612	0.0151	806.6337
Mobile	2.7911	4.6127	24.3060	0.0554	5.2683	0.0501	5.3185	1.4101	0.0471	1.4571	0.0000	5,129.3382	5,129.3382	0.2968	0.3021	5,226.7905
Waste						0.0000	0.0000		0.0000	0.0000	85.9443	0.0000	85.9443	5.0792	0.0000	212.9235
Water						0.0000	0.0000		0.0000	0.0000	9.1542	20.7604	29.9146	0.0349	0.0203	36.8400
Total	**6.6280**	**5.0782**	**28.7460**	**0.0583**	**5.2683**	**0.1071**	**5.3754**	**1.4101**	**0.1040**	**1.5141**	**95.0985**	**5,957.6430**	**6,052.7415**	**5.4787**	**0.3375**	**6,290.2917**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	N20	CO2e
Percent Reduction	22.07	4.61	6.92	7.42	0.00	73.55	5.25	0.00	74.11	16.43	22.25	4.24	4.59	0.25	3.44	4.48

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	1/12/2021	2/22/2021	5	30	
2	Site Preparation	Site Preparation	2/23/2021	3/22/2021	5	20	
3	Grading	Grading	3/23/2021	5/24/2021	5	45	
4	Building Construction	Building Construction	5/25/2021	1/30/2023	5	440	
5	Architectural Coating 1	Architectural Coating	12/13/2021	2/4/2022	5	40	
6	Architectural Coating 2	Architectural Coating	7/4/2022	8/26/2022	5	40	
7	Paving	Paving	1/31/2023	3/20/2023	5	35	
8	Architectual Coating 3	Architectural Coating	3/21/2023	5/15/2023	5	40	

Acres of Grading (Site Preparation Phase): 30

Acres of Grading (Grading Phase): 135

Acres of Paving: 0

Residential Indoor: 453,114; Residential Outdoor: 151,038; Non-Residential Indoor: 39,850; Non-Residential Outdoor: 13,283; Striped Parking Area: 9,784

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectual Coating 3	Air Compressors	1	6.00	78	0.48

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	0.00	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	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	644.00	154.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	129.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectual Coating 3	1	129.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**		**0.0233**	**0.0233**		**0.0216**	**0.0216**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

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	8.4000e-004	6.2000e-004	6.7600e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5340	1.5340	6.0000e-005	5.0000e-005	1.5505
Total	**8.4000e-004**	**6.2000e-004**	**6.7600e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5340**	**1.5340**	**6.0000e-005**	**5.0000e-005**	**1.5505**

Mitigated 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	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**		**0.0233**	**0.0233**		**0.0216**	**0.0216**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	8.4000e-004	6.2000e-004	6.7600e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5340	1.5340	6.0000e-005	5.0000e-005	1.5505
Total	**8.4000e-004**	**6.2000e-004**	**6.7600e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5340**	**1.5340**	**6.0000e-005**	**5.0000e-005**	**1.5505**

3.3 Site Preparation - 2021

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					0.1966	0.0000	0.1966	0.1010	0.0000	0.1010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1966**	**0.0204**	**0.2170**	**0.1010**	**0.0188**	**0.1198**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

Unmitigated Construction Off-Site

Date: 7/28/2021 3:17 PM

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	6.7000e-004	5.0000e-004	5.4100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2272	1.2272	5.0000e-005	4.0000e-005	1.2404
Total	**6.7000e-004**	**5.0000e-004**	**5.4100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2272**	**1.2272**	**5.0000e-005**	**4.0000e-005**	**1.2404**

Mitigated 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					0.0885	0.0000	0.0885	0.0455	0.0000	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.0885**	**0.0204**	**0.1089**	**0.0455**	**0.0188**	**0.0643**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

Mitigated 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					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	6.7000e-004	5.0000e-004	5.4100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2272	1.2272	5.0000e-005	4.0000e-005	1.2404
Total	**6.7000e-004**	**5.0000e-004**	**5.4100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2272**	**1.2272**	**5.0000e-005**	**4.0000e-005**	**1.2404**

3.4 Grading - 2021

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					0.2071	0.0000	0.2071	0.0822	0.0000	0.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0943	1.0440	0.6948	1.4000e-003		0.0447	0.0447		0.0411	0.0411	0.0000	122.6137	122.6137	0.0397	0.0000	123.6051
Total	**0.0943**	**1.0440**	**0.6948**	**1.4000e-003**	**0.2071**	**0.0447**	**0.2518**	**0.0822**	**0.0411**	**0.1233**	**0.0000**	**122.6137**	**122.6137**	**0.0397**	**0.0000**	**123.6051**

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	1.6800e-003	1.2500e-003	0.0135	3.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0680	3.0680	1.1000e-004	1.0000e-004	3.1010

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**1.6800e-003**	**1.2500e-003**	**0.0135**	**3.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**3.0680**	**3.0680**	**1.1000e-004**	**1.0000e-004**	**3.1010**

Mitigated 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					0.0932	0.0000	0.0932	0.0370	0.0000	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0943	1.0440	0.6948	1.4000e-003		0.0447	0.0447		0.0411	0.0411	0.0000	122.6136	122.6136	0.0397	0.0000	123.6050
Total	**0.0943**	**1.0440**	**0.6948**	**1.4000e-003**	**0.0932**	**0.0447**	**0.1379**	**0.0370**	**0.0411**	**0.0781**	**0.0000**	**122.6136**	**122.6136**	**0.0397**	**0.0000**	**123.6050**

Mitigated 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	1.6800e-003	1.2500e-003	0.0135	3.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0680	3.0680	1.1000e-004	1.0000e-004	3.1010
Total	**1.6800e-003**	**1.2500e-003**	**0.0135**	**3.0000e-005**	**3.6000e-003**	**2.0000e-005**	**3.6200e-003**	**9.6000e-004**	**2.0000e-005**	**9.8000e-004**	**0.0000**	**3.0680**	**3.0680**	**1.1000e-004**	**1.0000e-004**	**3.1010**

3.5 Building Construction - 2021

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.1511	1.3859	1.3177	2.1400e-003		0.0762	0.0762		0.0717	0.0717	0.0000	184.1516	184.1516	0.0444	0.0000	185.2623
Total	**0.1511**	**1.3859**	**1.3177**	**2.1400e-003**		**0.0762**	**0.0762**		**0.0717**	**0.0717**	**0.0000**	**184.1516**	**184.1516**	**0.0444**	**0.0000**	**185.2623**

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	0.0434	0.8134	0.2337	2.6300e-003	0.0812	0.0144	0.0956	0.0235	0.0138	0.0373	0.0000	252.1103	252.1103	2.3400e-003	0.0379	263.4473
Worker	0.1915	0.1419	1.5378	3.8100e-003	0.4093	2.4500e-003	0.4118	0.1088	2.2600e-003	0.1111	0.0000	349.0539	349.0539	0.0129	0.0115	352.8112
Total	**0.2349**	**0.9553**	**1.7715**	**6.4400e-003**	**0.4905**	**0.0169**	**0.5074**	**0.1323**	**0.0161**	**0.1483**	**0.0000**	**601.1642**	**601.1642**	**0.0153**	**0.0494**	**616.2585**

Mitigated 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					

The Crossings - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	0.1511	1.3859	1.3177	2.1400e-003		0.0762	0.0762		0.0717	0.0717	0.0000	184.1514	184.1514	0.0444	0.0000	185.2621
Total	**0.1511**	**1.3859**	**1.3177**	**2.1400e-003**		**0.0762**	**0.0762**		**0.0717**	**0.0717**	**0.0000**	**184.1514**	**184.1514**	**0.0444**	**0.0000**	**185.2621**

Mitigated 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	0.0434	0.8134	0.2337	2.6300e-003	0.0812	0.0144	0.0956	0.0235	0.0138	0.0373	0.0000	252.1103	252.1103	2.3400e-003	0.0379	263.4473
Worker	0.1915	0.1419	1.5378	3.8100e-003	0.4093	2.4500e-003	0.4118	0.1088	2.2600e-003	0.1111	0.0000	349.0539	349.0539	0.0129	0.0115	352.8112
Total	**0.2349**	**0.9553**	**1.7715**	**6.4400e-003**	**0.4905**	**0.0169**	**0.5074**	**0.1323**	**0.0161**	**0.1483**	**0.0000**	**601.1642**	**601.1642**	**0.0153**	**0.0494**	**616.2585**

3.5 Building Construction - 2022

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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0433	1.0990	0.3163	4.1900e-003	0.1328	0.0122	0.1450	0.0384	0.0117	0.0500	0.0000	402.0083	402.0083	2.6000e-003	0.0603	420.0333
Worker	0.2864	0.2018	2.2796	6.0300e-003	0.6693	3.7600e-003	0.6731	0.1779	3.4600e-003	0.1814	0.0000	553.0492	553.0492	0.0189	0.0172	558.6444
Total	**0.3297**	**1.3008**	**2.5959**	**0.0102**	**0.8021**	**0.0160**	**0.8181**	**0.2163**	**0.0152**	**0.2314**	**0.0000**	**955.0575**	**955.0575**	**0.0215**	**0.0775**	**978.6777**

Mitigated 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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

Mitigated 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					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.0433	1.0990	0.3163	4.1900e-003	0.1328	0.0122	0.1450	0.0384	0.0117	0.0500	0.0000	402.0083	402.0083	2.6000e-003	0.0603	420.0333
Worker	0.2864	0.2018	2.2796	6.0300e-003	0.6693	3.7600e-003	0.6731	0.1779	3.4600e-003	0.1814	0.0000	553.0492	553.0492	0.0189	0.0172	558.6444
Total	**0.3297**	**1.3008**	**2.5959**	**0.0102**	**0.8021**	**0.0160**	**0.8181**	**0.2163**	**0.0152**	**0.2314**	**0.0000**	**955.0575**	**955.0575**	**0.0215**	**0.0775**	**978.6777**

3.5 Building Construction - 2023

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	0.0165	0.1510	0.1706	2.8000e-004		7.3500e-003	7.3500e-003		6.9100e-003	6.9100e-003	0.0000	24.3395	24.3395	5.7900e-003	0.0000	24.4843
Total	**0.0165**	**0.1510**	**0.1706**	**2.8000e-004**		**7.3500e-003**	**7.3500e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**24.3395**	**24.3395**	**5.7900e-003**	**0.0000**	**24.4843**

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	1.7800e-003	0.0715	0.0219	3.3000e-004	0.0107	4.6000e-004	0.0112	3.1000e-003	4.4000e-004	3.5400e-003	0.0000	31.2593	31.2593	1.3000e-004	4.6800e-003	32.6564
Worker	0.0212	0.0142	0.1678	4.7000e-004	0.0541	2.9000e-004	0.0544	0.0144	2.6000e-004	0.0146	0.0000	43.2354	43.2354	1.3600e-003	1.2700e-003	43.6490
Total	**0.0230**	**0.0857**	**0.1897**	**8.0000e-004**	**0.0648**	**7.5000e-004**	**0.0655**	**0.0175**	**7.0000e-004**	**0.0182**	**0.0000**	**74.4947**	**74.4947**	**1.4900e-003**	**5.9500e-003**	**76.3054**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	0.0165	0.1510	0.1706	2.8000e-004		7.3500e-003	7.3500e-003		6.9100e-003	6.9100e-003	0.0000	24.3395	24.3395	5.7900e-003	0.0000	24.4842
Total	**0.0165**	**0.1510**	**0.1706**	**2.8000e-004**		**7.3500e-003**	**7.3500e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**24.3395**	**24.3395**	**5.7900e-003**	**0.0000**	**24.4842**

Mitigated 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	1.7800e-003	0.0715	0.0219	3.3000e-004	0.0107	4.6000e-004	0.0112	3.1000e-003	4.4000e-004	3.5400e-003	0.0000	31.2593	31.2593	1.3000e-004	4.6800e-003	32.6564
Worker	0.0212	0.0142	0.1678	4.7000e-004	0.0541	2.9000e-004	0.0544	0.0144	2.6000e-004	0.0146	0.0000	43.2354	43.2354	1.3600e-003	1.2700e-003	43.6490
Total	**0.0230**	**0.0857**	**0.1897**	**8.0000e-004**	**0.0648**	**7.5000e-004**	**0.0655**	**0.0175**	**7.0000e-004**	**0.0182**	**0.0000**	**74.4947**	**74.4947**	**1.4900e-003**	**5.9500e-003**	**76.3054**

3.6 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	0.4412					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6400e-003	0.0115	0.0136	2.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	1.9149	1.9149	1.3000e-004	0.0000	1.9182
Total	**0.4428**	**0.0115**	**0.0136**	**2.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.3000e-004**	**0.0000**	**1.9182**

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	3.6500e-003	2.7000e-003	0.0293	7.0000e-005	7.7900e-003	5.0000e-005	7.8400e-003	2.0700e-003	4.0000e-005	2.1100e-003	0.0000	6.6473	6.6473	2.5000e-004	2.2000e-004	6.7188
Total	**3.6500e-003**	**2.7000e-003**	**0.0293**	**7.0000e-005**	**7.7900e-003**	**5.0000e-005**	**7.8400e-003**	**2.0700e-003**	**4.0000e-005**	**2.1100e-003**	**0.0000**	**6.6473**	**6.6473**	**2.5000e-004**	**2.2000e-004**	**6.7188**

Mitigated 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	0.4412					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	1.6400e-003	0.0115	0.0136	2.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	1.9149	1.9149	1.3000e-004	0.0000	1.9182
Total	**0.4428**	**0.0115**	**0.0136**	**2.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.3000e-004**	**0.0000**	**1.9182**

Mitigated 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	3.6500e-003	2.7000e-003	0.0293	7.0000e-005	7.7900e-003	5.0000e-005	7.8400e-003	2.0700e-003	4.0000e-005	2.1100e-003	0.0000	6.6473	6.6473	2.5000e-004	2.2000e-004	6.7188
Total	**3.6500e-003**	**2.7000e-003**	**0.0293**	**7.0000e-005**	**7.7900e-003**	**5.0000e-005**	**7.8400e-003**	**2.0700e-003**	**4.0000e-005**	**2.1100e-003**	**0.0000**	**6.6473**	**6.6473**	**2.5000e-004**	**2.2000e-004**	**6.7188**

3.6 Architectural Coating 1 - 2022

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	0.7353					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0176	0.0227	4.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	3.1916	3.1916	2.1000e-004	0.0000	3.1968
Total	**0.7378**	**0.0176**	**0.0227**	**4.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**3.1916**	**3.1916**	**2.1000e-004**	**0.0000**	**3.1968**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	5.5600e-003	3.9200e-003	0.0443	1.2000e-004	0.0130	7.0000e-005	0.0131	3.4500e-003	7.0000e-005	3.5200e-003	0.0000	10.7347	10.7347	3.7000e-004	3.3000e-004	10.8433
Total	**5.5600e-003**	**3.9200e-003**	**0.0443**	**1.2000e-004**	**0.0130**	**7.0000e-005**	**0.0131**	**3.4500e-003**	**7.0000e-005**	**3.5200e-003**	**0.0000**	**10.7347**	**10.7347**	**3.7000e-004**	**3.3000e-004**	**10.8433**

Mitigated 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	0.7353					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0176	0.0227	4.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	3.1916	3.1916	2.1000e-004	0.0000	3.1968
Total	**0.7378**	**0.0176**	**0.0227**	**4.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**3.1916**	**3.1916**	**2.1000e-004**	**0.0000**	**3.1968**

Mitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	5.5600e-003	3.9200e-003	0.0443	1.2000e-004	0.0130	7.0000e-005	0.0131	3.4500e-003	7.0000e-005	3.5200e-003	0.0000	10.7347	10.7347	3.7000e-004	3.3000e-004	10.8433
Total	**5.5600e-003**	**3.9200e-003**	**0.0443**	**1.2000e-004**	**0.0130**	**7.0000e-005**	**0.0131**	**3.4500e-003**	**7.0000e-005**	**3.5200e-003**	**0.0000**	**10.7347**	**10.7347**	**3.7000e-004**	**3.3000e-004**	**10.8433**

3.7 Architectural Coating 2 - 2022

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	1.1765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0900e-003	0.0282	0.0363	6.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	5.1065	5.1065	3.3000e-004	0.0000	5.1148
Total	**1.1805**	**0.0282**	**0.0363**	**6.0000e-005**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**5.1065**	**5.1065**	**3.3000e-004**	**0.0000**	**5.1148**

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

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	8.8300e-003	6.2200e-003	0.0703	1.9000e-004	0.0206	1.2000e-004	0.0207	5.4800e-003	1.1000e-004	5.5900e-003	0.0000	17.0433	17.0433	5.8000e-004	5.3000e-004	17.2158
Total	**8.8300e-003**	**6.2200e-003**	**0.0703**	**1.9000e-004**	**0.0206**	**1.2000e-004**	**0.0207**	**5.4800e-003**	**1.1000e-004**	**5.5900e-003**	**0.0000**	**17.0433**	**17.0433**	**5.8000e-004**	**5.3000e-004**	**17.2158**

Mitigated 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	1.1765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0900e-003	0.0282	0.0363	6.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	5.1065	5.1065	3.3000e-004	0.0000	5.1148
Total	**1.1805**	**0.0282**	**0.0363**	**6.0000e-005**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**5.1065**	**5.1065**	**3.3000e-004**	**0.0000**	**5.1148**

Mitigated 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	8.8300e-003	6.2200e-003	0.0703	1.9000e-004	0.0206	1.2000e-004	0.0207	5.4800e-003	1.1000e-004	5.5900e-003	0.0000	17.0433	17.0433	5.8000e-004	5.3000e-004	17.2158
Total	**8.8300e-003**	**6.2200e-003**	**0.0703**	**1.9000e-004**	**0.0206**	**1.2000e-004**	**0.0207**	**5.4800e-003**	**1.1000e-004**	**5.5900e-003**	**0.0000**	**17.0433**	**17.0433**	**5.8000e-004**	**5.3000e-004**	**17.2158**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Paving - 2023

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	0.0181	0.1784	0.2552	4.0000e-004		8.9300e-003	8.9300e-003		8.2100e-003	8.2100e-003	0.0000	35.0470	35.0470	0.0113	0.0000	35.3304
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0181**	**0.1784**	**0.2552**	**4.0000e-004**		**8.9300e-003**	**8.9300e-003**		**8.2100e-003**	**8.2100e-003**	**0.0000**	**35.0470**	**35.0470**	**0.0113**	**0.0000**	**35.3304**

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	8.8000e-004	5.9000e-004	6.9500e-003	2.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.7903	1.7903	6.0000e-005	5.0000e-005	1.8074
Total	**8.8000e-004**	**5.9000e-004**	**6.9500e-003**	**2.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.7903**	**1.7903**	**6.0000e-005**	**5.0000e-005**	**1.8074**

Mitigated Construction On-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	0.0181	0.1784	0.2552	4.0000e-004		8.9300e-003	8.9300e-003		8.2100e-003	8.2100e-003	0.0000	35.0470	35.0470	0.0113	0.0000	35.3304
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0181**	**0.1784**	**0.2552**	**4.0000e-004**		**8.9300e-003**	**8.9300e-003**		**8.2100e-003**	**8.2100e-003**	**0.0000**	**35.0470**	**35.0470**	**0.0113**	**0.0000**	**35.3304**

Mitigated 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	8.8000e-004	5.9000e-004	6.9500e-003	2.0000e-005	2.2400e-003	1.0000e-005	2.2500e-003	5.9000e-004	1.0000e-005	6.1000e-004	0.0000	1.7903	1.7903	6.0000e-005	5.0000e-005	1.8074
Total	**8.8000e-004**	**5.9000e-004**	**6.9500e-003**	**2.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**5.9000e-004**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**1.7903**	**1.7903**	**6.0000e-005**	**5.0000e-005**	**1.8074**

3.9 Architectual Coating 3 - 2023

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					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Archit. Coating	1.1765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8300e-003	0.0261	0.0362	6.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	5.1065	5.1065	3.1000e-004	0.0000	5.1142
Total	**1.1803**	**0.0261**	**0.0362**	**6.0000e-005**		**1.4200e-003**	**1.4200e-003**		**1.4200e-003**	**1.4200e-003**	**0.0000**	**5.1065**	**5.1065**	**3.1000e-004**	**0.0000**	**5.1142**

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	8.0900e-003	5.4300e-003	0.0640	1.8000e-004	0.0206	1.1000e-004	0.0207	5.4800e-003	1.0000e-004	5.5800e-003	0.0000	16.4962	16.4962	5.2000e-004	4.9000e-004	16.6540
Total	**8.0900e-003**	**5.4300e-003**	**0.0640**	**1.8000e-004**	**0.0206**	**1.1000e-004**	**0.0207**	**5.4800e-003**	**1.0000e-004**	**5.5800e-003**	**0.0000**	**16.4962**	**16.4962**	**5.2000e-004**	**4.9000e-004**	**16.6540**

Mitigated 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	1.1765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8300e-003	0.0261	0.0362	6.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	5.1065	5.1065	3.1000e-004	0.0000	5.1141
Total	**1.1803**	**0.0261**	**0.0362**	**6.0000e-005**		**1.4200e-003**	**1.4200e-003**		**1.4200e-003**	**1.4200e-003**	**0.0000**	**5.1065**	**5.1065**	**3.1000e-004**	**0.0000**	**5.1141**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	8.0900e-003	5.4300e-003	0.0640	1.8000e-004	0.0206	1.1000e-004	0.0207	5.4800e-003	1.0000e-004	5.5800e-003	0.0000	16.4962	16.4962	5.2000e-004	4.9000e-004	16.6540
Total	**8.0900e-003**	**5.4300e-003**	**0.0640**	**1.8000e-004**	**0.0206**	**1.1000e-004**	**0.0207**	**5.4800e-003**	**1.0000e-004**	**5.5800e-003**	**0.0000**	**16.4962**	**16.4962**	**5.2000e-004**	**4.9000e-004**	**16.6540**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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					
Mitigated	2.7911	4.6127	24.3060	0.0554	5.2683	0.0501	5.3185	1.4101	0.0471	1.4571	0.0000	5,129.3382	5,129.3382	0.2968	0.3021	5,226.7905
Unmitigated	2.7911	4.6127	24.3060	0.0554	5.2683	0.0501	5.3185	1.4101	0.0471	1.4571	0.0000	5,129.3382	5,129.3382	0.2968	0.3021	5,226.7905

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	3,450.60	3,855.60	3056.40	10,003,677	10,003,677
Apartments Mid Rise	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	2,843.28	2,774.64	1348.38	4,034,759	4,034,759
Total	6,293.88	6,630.24	4,404.78	14,038,436	14,038,436

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Apartments Mid Rise	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Health Club	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Parking Lot	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Strip Mall	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	321.4423	321.4423	0.0520	6.3000e-003	324.6207
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	321.4423	321.4423	0.0520	6.3000e-003	324.6207
NaturalGas Mitigated	0.0484	0.4167	0.1975	2.6400e-003		0.0335	0.0335		0.0335	0.0335	0.0000	479.1655	479.1655	9.1800e-003	8.7800e-003	482.0129
NaturalGas Unmitigated	0.0484	0.4167	0.1975	2.6400e-003		0.0335	0.0335		0.0335	0.0335	0.0000	479.1655	479.1655	9.1800e-003	8.7800e-003	482.0129

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	7.63369e+006	0.0412	0.3518	0.1497	2.2500e-003		0.0284	0.0284		0.0284	0.0284	0.0000	407.3627	407.3627	7.8100e-003	7.4700e-003	409.7834
Apartments Mid Rise	353415	1.9100e-003	0.0163	6.9300e-003	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8596	18.8596	3.6000e-004	3.5000e-004	18.9716
Health Club	285919	1.5400e-003	0.0140	0.0118	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.2577	15.2577	2.9000e-004	2.8000e-004	15.3484
Parking Lot	0	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
Strip Mall	706200	3.8100e-003	0.0346	0.0291	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.6855	37.6855	7.2000e-004	6.9000e-004	37.9095
Total		**0.0484**	**0.4167**	**0.1975**	**2.6400e-003**		**0.0335**	**0.0335**		**0.0335**	**0.0335**	**0.0000**	**479.1655**	**479.1655**	**9.1800e-003**	**8.7900e-003**	**482.0129**

Mitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	7.63369e+006	0.0412	0.3518	0.1497	2.2500e-003		0.0284	0.0284		0.0284	0.0284	0.0000	407.3627	407.3627	7.8100e-003	7.4700e-003	409.7834
Apartments Mid Rise	353415	1.9100e-003	0.0163	6.9300e-003	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8596	18.8596	3.6000e-004	3.5000e-004	18.9716
Health Club	285919	1.5400e-003	0.0140	0.0118	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.2577	15.2577	2.9000e-004	2.8000e-004	15.3484
Parking Lot	0	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
Strip Mall	706200	3.8100e-003	0.0346	0.0291	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.6855	37.6855	7.2000e-004	6.9000e-004	37.9095
Total		**0.0484**	**0.4167**	**0.1975**	**2.6400e-003**		**0.0335**	**0.0335**		**0.0335**	**0.0335**	**0.0000**	**479.1655**	**479.1655**	**9.1800e-003**	**8.7900e-003**	**482.0129**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.52586e+006	233.7022	0.0378	4.5800e-003	236.0131
Apartments Mid Rise	118344	10.9496	1.7700e-003	2.1000e-004	11.0579
Health Club	120834	11.1800	1.8100e-003	2.2000e-004	11.2906
Parking Lot	171220	15.8419	2.5600e-003	3.1000e-004	15.9986
Strip Mall	537900	49.7685	8.0500e-003	9.8000e-004	50.2607
Total		**321.4423**	**0.0520**	**6.3000e-003**	**324.6208**

Mitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.52586e+006	233.7022	0.0378	4.5800e-003	236.0131
Apartments Mid Rise	118344	10.9496	1.7700e-003	2.1000e-004	11.0579
Health Club	120834	11.1800	1.8100e-003	2.2000e-004	11.2906
Parking Lot	171220	15.8419	2.5600e-003	3.1000e-004	15.9986
Strip Mall	537900	49.7685	8.0500e-003	9.8000e-004	50.2607
Total		**321.4423**	**0.0520**	**6.3000e-003**	**324.6208**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

No Hearths Installed

	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					
Mitigated	3.7886	0.0489	4.2425	2.2000e-004		0.0235	0.0235		0.0235	0.0235	0.0000	6.9367	6.9367	6.6900e-003	0.0000	7.1040
Unmitigated	5.6653	0.2943	6.3792	4.8900e-003		0.3212	0.3212		0.3212	0.3212	24.9247	266.8611	291.7858	0.0117	6.9600e-003	294.1531

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.6957					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.9646					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.8768	0.2455	2.1367	4.6600e-003		0.2977	0.2977		0.2977	0.2977	24.9247	259.9244	284.8491	4.9800e-003	6.9600e-003	287.0491
Landscaping	0.1283	0.0489	4.2425	2.2000e-004		0.0235	0.0235		0.0235	0.0235	0.0000	6.9367	6.9367	6.6900e-003	0.0000	7.1040
Total	**5.6653**	**0.2943**	**6.3792**	**4.8800e-003**		**0.3212**	**0.3212**		**0.3212**	**0.3212**	**24.9247**	**266.8611**	**291.7858**	**0.0117**	**6.9600e-003**	**294.1531**

Mitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.6957					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.9646					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.1283	0.0489	4.2425	2.2000e-004		0.0235	0.0235		0.0235	0.0235	0.0000	6.9367	6.9367	6.6900e-003	0.0000	7.1040
Total	**3.7886**	**0.0489**	**4.2425**	**2.2000e-004**		**0.0235**	**0.0235**		**0.0235**	**0.0235**	**0.0000**	**6.9367**	**6.9367**	**6.6900e-003**	**0.0000**	**7.1040**

7.0 Water Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

The Crossings

San Joaquin Valley Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,223.00	Space	0.00	489,200.00	0
Health Club	13.70	1000sqft	0.00	13,700.00	0
Apartments Low Rise	540.00	Dwelling Unit	28.60	626,280.00	1713
Apartments Mid Rise	30.00	Dwelling Unit	0.00	45,000.00	95
Strip Mall	66.00	1000sqft	0.00	66,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - a

Construction Phase - a

Trips and VMT - a

Grading -

Architectural Coating - Three phases of AC split evenly

Vehicle Trips - z

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - a

Water And Wastewater - 100 Aerobic. Indoor water residential use provided by WSA for residentail buildings. All caputered under Low rise.

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Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - a

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	35.00	40.00
tblConstructionPhase	NumDays	35.00	40.00
tblConstructionPhase	NumDays	35.00	40.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	147.91	694.40
tblEnergyUse	T24E	1.75	1.96
tblEnergyUse	T24E	1.91	2.14
tblEnergyUse	T24NG	9,924.02	10,413.46
tblEnergyUse	T24NG	16.86	17.03
tblEnergyUse	T24NG	8.53	8.62
tblFireplaces	NumberGas	297.00	313.50
tblFireplaces	NumberNoFireplace	243.00	256.50
tblLandUse	LandUseSquareFeet	540,000.00	626,280.00
tblLandUse	LandUseSquareFeet	30,000.00	45,000.00
tblLandUse	LotAcreage	11.01	0.00
tblLandUse	LotAcreage	0.31	0.00
tblLandUse	LotAcreage	33.75	28.60
tblLandUse	LotAcreage	0.79	0.00
tblLandUse	LotAcreage	1.52	0.00
tblSolidWaste	SolidWasteGenerationRate	248.40	262.20
tblTripsAndVMT	WorkerTripNumber	643.00	644.00
tblTripsAndVMT	WorkerTripNumber	129.00	130.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	4.91	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	6.28	5.66
tblVehicleTrips	SU_TR	4.09	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	WD_TR	7.32	6.39
tblVehicleTrips	WD_TR	5.44	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	44.32	43.08
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	35,183,173.84	26,643,175.00
tblWater	IndoorWaterUseRate	1,954,620.77	0.00
tblWater	OutdoorWaterUseRate	1,232,260.92	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2021	64.8515	46.4513	48.3159	0.1256	19.8049	2.0453	21.8502	10.1417	1.8817	12.0234	0.0000	12,658.0483	12,658.0483	1.9482	0.7073	12,890.7308
2022	64.1387	26.8427	44.9925	0.1228	7.4023	1.0194	8.4217	1.9872	0.9647	2.9519	0.0000	12,373.2140	12,373.2140	0.8382	0.6775	12,596.0696
2023	59.4823	22.1539	36.7651	0.1068	6.3344	0.7709	7.1053	1.7039	0.7255	2.4294	0.0000	10,769.4589	10,769.4589	0.7597	0.6178	10,972.5533
Maximum	**64.8515**	**46.4513**	**48.3159**	**0.1256**	**19.8049**	**2.0453**	**21.8502**	**10.1417**	**1.8817**	**12.0234**	**0.0000**	**12,658.0483**	**12,658.0483**	**1.9482**	**0.7073**	**12,890.7308**

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Mitigated 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	lb/day										lb/day					
2021	64.8515	46.4513	48.3159	0.1256	8.9935	2.0453	11.0388	4.5853	1.8817	6.4670	0.0000	12,658.0483	12,658.0483	1.9482	0.7073	12,890.7308
2022	64.1387	26.8427	44.9925	0.1228	7.4023	1.0194	8.4217	1.9872	0.9647	2.9519	0.0000	12,373.2140	12,373.2140	0.8382	0.6775	12,596.0696
2023	59.4823	22.1539	36.7651	0.1068	6.3344	0.7709	7.1053	1.7039	0.7255	2.4294	0.0000	10,769.4589	10,769.4589	0.7597	0.6178	10,972.5533
Maximum	**64.8515**	**46.4513**	**48.3159**	**0.1256**	**8.9935**	**2.0453**	**11.0388**	**4.5853**	**1.8817**	**6.4670**	**0.0000**	**12,658.0483**	**12,658.0483**	**1.9482**	**0.7073**	**12,890.7308**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**32.23**	**0.00**	**28.93**	**40.17**	**0.00**	**31.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	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	lb/day										lb/day					
Area	67.2566	6.5294	99.2538	0.1163		7.5230	7.5230		7.5230	7.5230	670.1151	7,073.1952	7,743.3103	0.2159	0.1873	7,804.5077
Energy	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880
Mobile	20.6215	26.3895	157.2307	0.3583	32.9375	0.3052	33.2426	8.7964	0.2866	9.0829		36,532.6055	36,532.6055	1.8847	1.9719	37,167.3483
Total	**88.1434**	**35.2019**	**257.5665**	**0.4890**	**32.9375**	**8.0115**	**40.9489**	**8.7964**	**7.9929**	**16.7892**	**670.1151**	**46,499.9899**	**47,170.1051**	**2.1561**	**2.2122**	**47,883.2440**

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Mitigated Operational

	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	lb/day										lb/day					
Area	21.4818	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610	0.0000	84.9599	84.9599	0.0820	0.0000	87.0096
Energy	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880
Mobile	20.6215	26.3895	157.2307	0.3583	32.9375	0.3052	33.2426	8.7964	0.2866	9.0829		36,532.6055	36,532.6055	1.8847	1.9719	37,167.3483
Total	**42.3686**	**29.2154**	**205.4515**	**0.3752**	**32.9375**	**0.7495**	**33.6869**	**8.7964**	**0.7309**	**9.5273**	**0.0000**	**39,511.7546**	**39,511.7546**	**2.0221**	**2.0250**	**40,165.7459**

	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	N20	CO2e
Percent Reduction	**51.93**	**17.01**	**20.23**	**23.27**	**0.00**	**90.65**	**17.73**	**0.00**	**90.86**	**43.25**	**100.00**	**15.03**	**16.24**	**6.21**	**8.46**	**16.12**

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	1/12/2021	2/22/2021	5	30	
2	Site Preparation	Site Preparation	2/23/2021	3/22/2021	5	20	
3	Grading	Grading	3/23/2021	5/24/2021	5	45	
4	Building Construction	Building Construction	5/25/2021	1/30/2023	5	440	
5	Architectural Coating 1	Architectural Coating	12/13/2021	2/4/2022	5	40	
6	Architectural Coating 2	Architectural Coating	7/4/2022	8/26/2022	5	40	
7	Paving	Paving	1/31/2023	3/20/2023	5	35	
8	Architectual Coating 3	Architectural Coating	3/21/2023	5/15/2023	5	40	

Acres of Grading (Site Preparation Phase): 30

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Acres of Grading (Grading Phase): 135

Acres of Paving: 0

Residential Indoor: 453,114; Residential Outdoor: 151,038; Non-Residential Indoor: 39,850; Non-Residential Outdoor: 13,283; Striped Parking Area: 9,784

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectual Coating 3	Air Compressors	1	6.00	78	0.48

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	0.00	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

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	644.00	154.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	129.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectual Coating 3	1	129.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

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	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**		**1.5513**	**1.5513**		**1.4411**	**1.4411**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	lb/day										lb/day					
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
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

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	0.0651	0.0386	0.5237	1.2100e-003	0.1232	7.2000e-004	0.1239	0.0327	6.6000e-004	0.0333		122.6428	122.6428	4.0500e-003	3.5500e-003	123.8005
Total	**0.0651**	**0.0386**	**0.5237**	**1.2100e-003**	**0.1232**	**7.2000e-004**	**0.1239**	**0.0327**	**6.6000e-004**	**0.0333**		**122.6428**	**122.6428**	**4.0500e-003**	**3.5500e-003**	**123.8005**

Mitigated 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	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**		**1.5513**	**1.5513**		**1.4411**	**1.4411**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.0651	0.0386	0.5237	1.2100e-003	0.1232	7.2000e-004	0.1239	0.0327	6.6000e-004	0.0333		122.6428	122.6428	4.0500e-003	3.5500e-003	123.8005
Total	**0.0651**	**0.0386**	**0.5237**	**1.2100e-003**	**0.1232**	**7.2000e-004**	**0.1239**	**0.0327**	**6.6000e-004**	**0.0333**		**122.6428**	**122.6428**	**4.0500e-003**	**3.5500e-003**	**123.8005**

3.3 Site Preparation - 2021

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The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**19.6570**	**2.0445**	**21.7015**	**10.1025**	**1.8809**	**11.9834**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	lb/day										lb/day					
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
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
Worker	0.0781	0.0463	0.6284	1.4600e-003	0.1479	8.6000e-004	0.1487	0.0392	7.9000e-004	0.0400		147.1714	147.1714	4.8600e-003	4.2500e-003	148.5605
Total	**0.0781**	**0.0463**	**0.6284**	**1.4600e-003**	**0.1479**	**8.6000e-004**	**0.1487**	**0.0392**	**7.9000e-004**	**0.0400**		**147.1714**	**147.1714**	**4.8600e-003**	**4.2500e-003**	**148.5605**

Mitigated 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

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.8457**	**2.0445**	**10.8901**	**4.5461**	**1.8809**	**6.4270**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.0781	0.0463	0.6284	1.4600e-003	0.1479	8.6000e-004	0.1487	0.0392	7.9000e-004	0.0400		147.1714	147.1714	4.8600e-003	4.2500e-003	148.5605
Total	**0.0781**	**0.0463**	**0.6284**	**1.4600e-003**	**0.1479**	**8.6000e-004**	**0.1487**	**0.0392**	**7.9000e-004**	**0.0400**		**147.1714**	**147.1714**	**4.8600e-003**	**4.2500e-003**	**148.5605**

3.4 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**9.2036**	**1.9853**	**11.1889**	**3.6538**	**1.8265**	**5.4803**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	lb/day										lb/day					
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
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
Worker	0.0868	0.0515	0.6982	1.6200e-003	0.1643	9.6000e-004	0.1653	0.0436	8.8000e-004	0.0445		163.5238	163.5238	5.4000e-003	4.7300e-003	165.0673
Total	**0.0868**	**0.0515**	**0.6982**	**1.6200e-003**	**0.1643**	**9.6000e-004**	**0.1653**	**0.0436**	**8.8000e-004**	**0.0445**		**163.5238**	**163.5238**	**5.4000e-003**	**4.7300e-003**	**165.0673**

Mitigated 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	lb/day										lb/day					
Fugitive Dust					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**4.1416**	**1.9853**	**6.1270**	**1.6442**	**1.8265**	**3.4707**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.0868	0.0515	0.6982	1.6200e-003	0.1643	9.6000e-004	0.1653	0.0436	8.8000e-004	0.0445		163.5238	163.5238	5.4000e-003	4.7300e-003	165.0673
Total	**0.0868**	**0.0515**	**0.6982**	**1.6200e-003**	**0.1643**	**9.6000e-004**	**0.1653**	**0.0436**	**8.8000e-004**	**0.0445**		**163.5238**	**163.5238**	**5.4000e-003**	**4.7300e-003**	**165.0673**

3.5 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	lb/day										lb/day					

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Vendor	0.5512	9.7791	2.9027	0.0331	1.0441	0.1812	1.2252	0.3007	0.1733	0.4740		3,494.8671	3,494.8671	0.0326	0.5243	3,651.9325
Worker	2.7938	1.6575	22.4821	0.0521	5.2903	0.0308	5.3211	1.4032	0.0284	1.4316		5,265.4648	5,265.4648	0.1738	0.1522	5,315.1659
Total	**3.3450**	**11.4366**	**25.3848**	**0.0852**	**6.3344**	**0.2120**	**6.5464**	**1.7039**	**0.2017**	**1.9056**		**8,760.3319**	**8,760.3319**	**0.2064**	**0.6765**	**8,967.0984**

Mitigated 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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated 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	lb/day										lb/day					
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
Vendor	0.5512	9.7791	2.9027	0.0331	1.0441	0.1812	1.2252	0.3007	0.1733	0.4740		3,494.8671	3,494.8671	0.0326	0.5243	3,651.9325
Worker	2.7938	1.6575	22.4821	0.0521	5.2903	0.0308	5.3211	1.4032	0.0284	1.4316		5,265.4648	5,265.4648	0.1738	0.1522	5,315.1659
Total	**3.3450**	**11.4366**	**25.3848**	**0.0852**	**6.3344**	**0.2120**	**6.5464**	**1.7039**	**0.2017**	**1.9056**		**8,760.3319**	**8,760.3319**	**0.2064**	**0.6765**	**8,967.0984**

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
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
Vendor	0.3387	8.0852	2.3972	0.0323	1.0441	0.0939	1.1380	0.3007	0.0898	0.3905		3,407.4755	3,407.4755	0.0222	0.5106	3,560.1760
Worker	2.5515	1.4422	20.3170	0.0505	5.2903	0.0289	5.3192	1.4032	0.0266	1.4299		5,100.3776	5,100.3776	0.1545	0.1389	5,145.6392
Total	**2.8901**	**9.5275**	**22.7142**	**0.0827**	**6.3344**	**0.1228**	**6.4572**	**1.7039**	**0.1164**	**1.8203**		**8,507.8531**	**8,507.8531**	**0.1767**	**0.6495**	**8,705.8152**

Mitigated Construction On-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated 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	lb/day										lb/day					
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
Vendor	0.3387	8.0852	2.3972	0.0323	1.0441	0.0939	1.1380	0.3007	0.0898	0.3905		3,407.4755	3,407.4755	0.0222	0.5106	3,560.1760
Worker	2.5515	1.4422	20.3170	0.0505	5.2903	0.0289	5.3192	1.4032	0.0266	1.4299		5,100.3776	5,100.3776	0.1545	0.1389	5,145.6392
Total	**2.8901**	**9.5275**	**22.7142**	**0.0827**	**6.3344**	**0.1228**	**6.4572**	**1.7039**	**0.1164**	**1.8203**		**8,507.8531**	**8,507.8531**	**0.1767**	**0.6495**	**8,705.8152**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
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
Vendor	0.1759	6.5088	2.0551	0.0310	1.0441	0.0440	1.0880	0.3007	0.0420	0.3427		3,278.9789	3,278.9789	0.0142	0.4903	3,425.4522
Worker	2.3359	1.2602	18.4661	0.0488	5.2903	0.0272	5.3175	1.4032	0.0250	1.4283		4,935.2701	4,935.2701	0.1377	0.1275	4,976.6951
Total	**2.5117**	**7.7690**	**20.5211**	**0.0799**	**6.3344**	**0.0712**	**6.4055**	**1.7039**	**0.0671**	**1.7710**		**8,214.2490**	**8,214.2490**	**0.1519**	**0.6178**	**8,402.1472**

Mitigated 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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
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
Vendor	0.1759	6.5088	2.0551	0.0310	1.0441	0.0440	1.0880	0.3007	0.0420	0.3427		3,278.9789	3,278.9789	0.0142	0.4903	3,425.4522
Worker	2.3359	1.2602	18.4661	0.0488	5.2903	0.0272	5.3175	1.4032	0.0250	1.4283		4,935.2701	4,935.2701	0.1377	0.1275	4,976.6951
Total	**2.5117**	**7.7690**	**20.5211**	**0.0799**	**6.3344**	**0.0712**	**6.4055**	**1.7039**	**0.0671**	**1.7710**		**8,214.2490**	**8,214.2490**	**0.1519**	**0.6178**	**8,402.1472**

3.6 Architectural Coating 1 - 2021

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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**59.0416**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	lb/day										lb/day					
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

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Worker	0.5640	0.3346	4.5383	0.0105	1.0679	6.2200e-003	1.0741	0.2833	5.7300e-003	0.2890		1,062.9044	1,062.9044	0.0351	0.0307	1,072.9372
Total	**0.5640**	**0.3346**	**4.5383**	**0.0105**	**1.0679**	**6.2200e-003**	**1.0741**	**0.2833**	**5.7300e-003**	**0.2890**		**1,062.9044**	**1,062.9044**	**0.0351**	**0.0307**	**1,072.9372**

Mitigated 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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**59.0416**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.5640	0.3346	4.5383	0.0105	1.0679	6.2200e-003	1.0741	0.2833	5.7300e-003	0.2890		1,062.9044	1,062.9044	0.0351	0.0307	1,072.9372
Total	**0.5640**	**0.3346**	**4.5383**	**0.0105**	**1.0679**	**6.2200e-003**	**1.0741**	**0.2833**	**5.7300e-003**	**0.2890**		**1,062.9044**	**1,062.9044**	**0.0351**	**0.0307**	**1,072.9372**

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating 1 - 2022

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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	lb/day										lb/day					
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
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
Worker	0.5151	0.2911	4.1013	0.0102	1.0679	5.8400e-003	1.0738	0.2833	5.3700e-003	0.2886		1,029.5793	1,029.5793	0.0312	0.0280	1,038.7160
Total	**0.5151**	**0.2911**	**4.1013**	**0.0102**	**1.0679**	**5.8400e-003**	**1.0738**	**0.2833**	**5.3700e-003**	**0.2886**		**1,029.5793**	**1,029.5793**	**0.0312**	**0.0280**	**1,038.7160**

Mitigated Construction On-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.5151	0.2911	4.1013	0.0102	1.0679	5.8400e-003	1.0738	0.2833	5.3700e-003	0.2886		1,029.5793	1,029.5793	0.0312	0.0280	1,038.7160
Total	**0.5151**	**0.2911**	**4.1013**	**0.0102**	**1.0679**	**5.8400e-003**	**1.0738**	**0.2833**	**5.3700e-003**	**0.2886**		**1,029.5793**	**1,029.5793**	**0.0312**	**0.0280**	**1,038.7160**

3.7 Architectural Coating 2 - 2022

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	lb/day										lb/day					

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	lb/day										lb/day					
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
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
Worker	0.5111	0.2889	4.0697	0.0101	1.0597	5.7900e-003	1.0655	0.2811	5.3300e-003	0.2864		1,021.6595	1,021.6595	0.0310	0.0278	1,030.7259
Total	**0.5111**	**0.2889**	**4.0697**	**0.0101**	**1.0597**	**5.7900e-003**	**1.0655**	**0.2811**	**5.3300e-003**	**0.2864**		**1,021.6595**	**1,021.6595**	**0.0310**	**0.0278**	**1,030.7259**

Mitigated 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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.5111	0.2889	4.0697	0.0101	1.0597	5.7900e-003	1.0655	0.2811	5.3300e-003	0.2864		1,021.6595	1,021.6595	0.0310	0.0278	1,030.7259
Total	**0.5111**	**0.2889**	**4.0697**	**0.0101**	**1.0597**	**5.7900e-003**	**1.0655**	**0.2811**	**5.3300e-003**	**0.2864**		**1,021.6595**	**1,021.6595**	**0.0310**	**0.0278**	**1,030.7259**

3.8 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

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The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
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
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
Worker	0.0580	0.0313	0.4588	1.2100e-003	0.1314	6.8000e-004	0.1321	0.0349	6.2000e-004	0.0355		122.6154	122.6154	3.4200e-003	3.1700e-003	123.6446
Total	**0.0580**	**0.0313**	**0.4588**	**1.2100e-003**	**0.1314**	**6.8000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**122.6154**	**122.6154**	**3.4200e-003**	**3.1700e-003**	**123.6446**

Mitigated 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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated 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	lb/day										lb/day					

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
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
Worker	0.0580	0.0313	0.4588	1.2100e-003	0.1314	6.8000e-004	0.1321	0.0349	6.2000e-004	0.0355		122.6154	122.6154	3.4200e-003	3.1700e-003	123.6446
Total	**0.0580**	**0.0313**	**0.4588**	**1.2100e-003**	**0.1314**	**6.8000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**122.6154**	**122.6154**	**3.4200e-003**	**3.1700e-003**	**123.6446**

3.9 Architectual Coating 3 - 2023

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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**59.0144**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	lb/day										lb/day					
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
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
Worker	0.4679	0.2524	3.6989	9.7800e-003	1.0597	5.4500e-003	1.0652	0.2811	5.0100e-003	0.2861		988.5867	988.5867	0.0276	0.0255	996.8846

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.4679**	**0.2524**	**3.6989**	**9.7800e-003**	**1.0597**	**5.4500e-003**	**1.0652**	**0.2811**	**5.0100e-003**	**0.2861**		**988.5867**	**988.5867**	**0.0276**	**0.0255**	**996.8846**

Mitigated 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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**59.0144**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.4679	0.2524	3.6989	9.7800e-003	1.0597	5.4500e-003	1.0652	0.2811	5.0100e-003	0.2861		988.5867	988.5867	0.0276	0.0255	996.8846
Total	**0.4679**	**0.2524**	**3.6989**	**9.7800e-003**	**1.0597**	**5.4500e-003**	**1.0652**	**0.2811**	**5.0100e-003**	**0.2861**		**988.5867**	**988.5867**	**0.0276**	**0.0255**	**996.8846**

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	20.6215	26.3895	157.2307	0.3583	32.9375	0.3052	33.2426	8.7964	0.2866	9.0829		36,532.6055	36,532.6055	1.8847	1.9719	37,167.3483
Unmitigated	20.6215	26.3895	157.2307	0.3583	32.9375	0.3052	33.2426	8.7964	0.2866	9.0829		36,532.6055	36,532.6055	1.8847	1.9719	37,167.3483

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	3,450.60	3,855.60	3056.40	10,003,677	10,003,677
Apartments Mid Rise	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	2,843.28	2,774.64	1348.38	4,034,759	4,034,759
Total	6,293.88	6,630.24	4,404.78	14,038,436	14,038,436

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Apartments Mid Rise	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Health Club	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Parking Lot	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Strip Mall	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880
NaturalGas Unmitigated	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	20914.2	0.2256	1.9274	0.8202	0.0123		0.1558	0.1558		0.1558	0.1558		2,460.4959	2,460.4959	0.0472	0.0451	2,475.1174
Apartments Mid Rise	968.259	0.0104	0.0892	0.0380	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9129	113.9129	2.1800e-003	2.0900e-003	114.5898
Health Club	783.34	8.4500e-003	0.0768	0.0645	4.6000e-004		5.8400e-003	5.8400e-003		5.8400e-003	5.8400e-003		92.1576	92.1576	1.7700e-003	1.6900e-003	92.7053
Parking Lot	0	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

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Strip Mall	1934.79	0.0209	0.1897	0.1593	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.6229	227.6229	4.3600e-003	4.1700e-003	228.9755
Total		**0.2653**	**2.2831**	**1.0820**	**0.0145**		**0.1833**	**0.1833**		**0.1833**	**0.1833**		**2,894.1892**	**2,894.1892**	**0.0555**	**0.0531**	**2,911.3879**

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	20.9142	0.2256	1.9274	0.8202	0.0123		0.1558	0.1558		0.1558	0.1558		2,460.4959	2,460.4959	0.0472	0.0451	2,475.1174
Apartments Mid Rise	0.968259	0.0104	0.0892	0.0380	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9129	113.9129	2.1800e-003	2.0900e-003	114.5898
Health Club	0.78334	8.4500e-003	0.0768	0.0645	4.6000e-004		5.8400e-003	5.8400e-003		5.8400e-003	5.8400e-003		92.1576	92.1576	1.7700e-003	1.6900e-003	92.7053
Parking Lot	0	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
Strip Mall	1.93479	0.0209	0.1897	0.1593	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.6229	227.6229	4.3600e-003	4.1700e-003	228.9755
Total		**0.2653**	**2.2831**	**1.0820**	**0.0145**		**0.1833**	**0.1833**		**0.1833**	**0.1833**		**2,894.1892**	**2,894.1892**	**0.0555**	**0.0531**	**2,911.3879**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

No Hearths Installed

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
Mitigated	21.4818	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610	0.0000	84.9599	84.9599	0.0820	0.0000	87.0096
Unmitigated	67.2566	6.5294	99.2538	0.1163		7.5230	7.5230		7.5230	7.5230	670.1151	7,073.1952	7,743.3103	0.2159	0.1873	7,804.5077

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	3.8119					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.2443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	45.7748	5.9866	52.1150	0.1138		7.2620	7.2620		7.2620	7.2620	670.1151	6,988.2353	7,658.3504	0.1339	0.1873	7,717.4981
Landscaping	1.4256	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610		84.9599	84.9599	0.0820		87.0096
Total	**67.2566**	**6.5294**	**99.2538**	**0.1163**		**7.5230**	**7.5230**		**7.5230**	**7.5230**	**670.1151**	**7,073.1952**	**7,743.3103**	**0.2159**	**0.1873**	**7,804.5077**

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	3.8119					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Consumer Products	16.2443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	1.4256	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610		84.9599	84.9599	0.0820		87.0096
Total	**21.4818**	**0.5428**	**47.1387**	**2.4900e-003**		**0.2610**	**0.2610**		**0.2610**	**0.2610**	**0.0000**	**84.9599**	**84.9599**	**0.0820**	**0.0000**	**87.0096**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

The Crossings - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.0 Vegetation

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

The Crossings

San Joaquin Valley Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,223.00	Space	0.00	489,200.00	0
Health Club	13.70	1000sqft	0.00	13,700.00	0
Apartments Low Rise	540.00	Dwelling Unit	28.60	626,280.00	1713
Apartments Mid Rise	30.00	Dwelling Unit	0.00	45,000.00	95
Strip Mall	66.00	1000sqft	0.00	66,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - a

Construction Phase - a

Trips and VMT - a

Grading -

Architectural Coating - Three phases of AC split evenly

Vehicle Trips - z

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - a

Water And Wastewater - 100 Aerobic. Indoor water residential use provided by WSA for residentail buildings. All caputered under Low rise.

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The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix - a

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	39,850.00	13,283.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	119,550.00	39,850.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Parking	29,352.00	9,784.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	453,114.00	151,038.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	ConstArea_Residential_Interior	1,359,342.00	453,114.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	35.00	40.00
tblConstructionPhase	NumDays	35.00	40.00
tblConstructionPhase	NumDays	35.00	40.00

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The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblEnergyUse	T24E	147.91	694.40
tblEnergyUse	T24E	1.75	1.96
tblEnergyUse	T24E	1.91	2.14
tblEnergyUse	T24NG	9,924.02	10,413.46
tblEnergyUse	T24NG	16.86	17.03
tblEnergyUse	T24NG	8.53	8.62
tblFireplaces	NumberGas	297.00	313.50
tblFireplaces	NumberNoFireplace	243.00	256.50
tblLandUse	LandUseSquareFeet	540,000.00	626,280.00
tblLandUse	LandUseSquareFeet	30,000.00	45,000.00
tblLandUse	LotAcreage	11.01	0.00
tblLandUse	LotAcreage	0.31	0.00
tblLandUse	LotAcreage	33.75	28.60
tblLandUse	LotAcreage	0.79	0.00
tblLandUse	LotAcreage	1.52	0.00
tblSolidWaste	SolidWasteGenerationRate	248.40	262.20
tblTripsAndVMT	WorkerTripNumber	643.00	644.00
tblTripsAndVMT	WorkerTripNumber	129.00	130.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	4.91	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	6.28	5.66
tblVehicleTrips	SU_TR	4.09	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	WD_TR	7.32	6.39
tblVehicleTrips	WD_TR	5.44	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	44.32	43.08
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	35,183,173.84	26,643,175.00
tblWater	IndoorWaterUseRate	1,954,620.77	0.00
tblWater	OutdoorWaterUseRate	1,232,260.92	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2021	64.4628	46.4607	44.2568	0.1187	19.8049	2.0453	21.8502	10.1417	1.8817	12.0234	0.0000	11,958.1437	11,958.1437	1.9487	0.7298	12,198.0396
2022	63.7898	27.7072	41.4488	0.1161	7.4023	1.0196	8.4219	1.9872	0.9649	2.9521	0.0000	11,698.7338	11,698.7338	0.8573	0.6982	11,928.2153
2023	59.4317	22.8457	34.1743	0.1015	6.3344	0.7710	7.1054	1.7039	0.7256	2.4295	0.0000	10,232.0570	10,232.0570	0.7746	0.6342	10,440.4008
Maximum	**64.4628**	**46.4607**	**44.2568**	**0.1187**	**19.8049**	**2.0453**	**21.8502**	**10.1417**	**1.8817**	**12.0234**	**0.0000**	**11,958.1437**	**11,958.1437**	**1.9487**	**0.7298**	**12,198.0396**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	lb/day										lb/day					
2021	64.4628	46.4607	44.2568	0.1187	8.9935	2.0453	11.0388	4.5853	1.8817	6.4670	0.0000	11,958.1437	11,958.1437	1.9487	0.7298	12,198.0395
2022	63.7898	27.7072	41.4488	0.1161	7.4023	1.0196	8.4219	1.9872	0.9649	2.9521	0.0000	11,698.7338	11,698.7338	0.8573	0.6982	11,928.2153
2023	59.4317	22.8457	34.1743	0.1015	6.3344	0.7710	7.1054	1.7039	0.7256	2.4295	0.0000	10,232.0570	10,232.0570	0.7746	0.6342	10,440.4007
Maximum	**64.4628**	**46.4607**	**44.2568**	**0.1187**	**8.9935**	**2.0453**	**11.0388**	**4.5853**	**1.8817**	**6.4670**	**0.0000**	**11,958.1437**	**11,958.1437**	**1.9487**	**0.7298**	**12,198.0395**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**32.23**	**0.00**	**28.92**	**40.17**	**0.00**	**31.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	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	lb/day										lb/day					
Area	67.2566	6.5294	99.2538	0.1163		7.5230	7.5230		7.5230	7.5230	670.1151	7,073.1952	7,743.3103	0.2159	0.1873	7,804.5077
Energy	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880
Mobile	16.0578	29.5027	154.6685	0.3302	32.9375	0.3055	33.2430	8.7964	0.2869	9.0832		33,692.7611	33,692.7611	2.1342	2.0944	34,370.2343
Total	**83.5796**	**38.3152**	**255.0043**	**0.4609**	**32.9375**	**8.0118**	**40.9493**	**8.7964**	**7.9932**	**16.7895**	**670.1151**	**43,660.1456**	**44,330.2607**	**2.4056**	**2.3347**	**45,086.1300**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	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	lb/day										lb/day					
Area	21.4818	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610	0.0000	84.9599	84.9599	0.0820	0.0000	87.0096
Energy	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880
Mobile	16.0578	29.5027	154.6685	0.3302	32.9375	0.3055	33.2430	8.7964	0.2869	9.0832		33,692.7611	33,692.7611	2.1342	2.0944	34,370.2343
Total	**37.8048**	**32.3286**	**202.8892**	**0.3471**	**32.9375**	**0.7498**	**33.6873**	**8.7964**	**0.7312**	**9.5276**	**0.0000**	**36,671.9103**	**36,671.9103**	**2.2717**	**2.1474**	**37,368.6319**

	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	N20	CO2e
Percent Reduction	**54.77**	**15.62**	**20.44**	**24.69**	**0.00**	**90.64**	**17.73**	**0.00**	**90.85**	**43.25**	**100.00**	**16.01**	**17.28**	**5.57**	**8.02**	**17.12**

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	1/12/2021	2/22/2021	5	30	
2	Site Preparation	Site Preparation	2/23/2021	3/22/2021	5	20	
3	Grading	Grading	3/23/2021	5/24/2021	5	45	
4	Building Construction	Building Construction	5/25/2021	1/30/2023	5	440	
5	Architectural Coating 1	Architectural Coating	12/13/2021	2/4/2022	5	40	
6	Architectural Coating 2	Architectural Coating	7/4/2022	8/26/2022	5	40	
7	Paving	Paving	1/31/2023	3/20/2023	5	35	
8	Architectual Coating 3	Architectural Coating	3/21/2023	5/15/2023	5	40	

Acres of Grading (Site Preparation Phase): 30

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 135

Acres of Paving: 0

Residential Indoor: 453,114; Residential Outdoor: 151,038; Non-Residential Indoor: 39,850; Non-Residential Outdoor: 13,283; Striped Parking Area: 9,784

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectual Coating 3	Air Compressors	1	6.00	78	0.48

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	0.00	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

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	644.00	154.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	129.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectual Coating 3	1	129.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

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	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**		**1.5513**	**1.5513**		**1.4411**	**1.4411**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	lb/day										lb/day					
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
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

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	0.0577	0.0456	0.4433	1.0800e-003	0.1232	7.2000e-004	0.1239	0.0327	6.6000e-004	0.0333		109.0424	109.0424	4.4400e-003	3.9700e-003	110.3351
Total	**0.0577**	**0.0456**	**0.4433**	**1.0800e-003**	**0.1232**	**7.2000e-004**	**0.1239**	**0.0327**	**6.6000e-004**	**0.0333**		**109.0424**	**109.0424**	**4.4400e-003**	**3.9700e-003**	**110.3351**

Mitigated 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	lb/day										lb/day					
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**		**1.5513**	**1.5513**		**1.4411**	**1.4411**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.0577	0.0456	0.4433	1.0800e-003	0.1232	7.2000e-004	0.1239	0.0327	6.6000e-004	0.0333		109.0424	109.0424	4.4400e-003	3.9700e-003	110.3351
Total	**0.0577**	**0.0456**	**0.4433**	**1.0800e-003**	**0.1232**	**7.2000e-004**	**0.1239**	**0.0327**	**6.6000e-004**	**0.0333**		**109.0424**	**109.0424**	**4.4400e-003**	**3.9700e-003**	**110.3351**

3.3 Site Preparation - 2021

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**19.6570**	**2.0445**	**21.7015**	**10.1025**	**1.8809**	**11.9834**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	lb/day										lb/day					
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
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
Worker	0.0692	0.0548	0.5319	1.2900e-003	0.1479	8.6000e-004	0.1487	0.0392	7.9000e-004	0.0400		130.8509	130.8509	5.3300e-003	4.7600e-003	132.4022
Total	**0.0692**	**0.0548**	**0.5319**	**1.2900e-003**	**0.1479**	**8.6000e-004**	**0.1487**	**0.0392**	**7.9000e-004**	**0.0400**		**130.8509**	**130.8509**	**5.3300e-003**	**4.7600e-003**	**132.4022**

Mitigated 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

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**8.8457**	**2.0445**	**10.8901**	**4.5461**	**1.8809**	**6.4270**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.0692	0.0548	0.5319	1.2900e-003	0.1479	8.6000e-004	0.1487	0.0392	7.9000e-004	0.0400		130.8509	130.8509	5.3300e-003	4.7600e-003	132.4022
Total	**0.0692**	**0.0548**	**0.5319**	**1.2900e-003**	**0.1479**	**8.6000e-004**	**0.1487**	**0.0392**	**7.9000e-004**	**0.0400**		**130.8509**	**130.8509**	**5.3300e-003**	**4.7600e-003**	**132.4022**

3.4 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**9.2036**	**1.9853**	**11.1889**	**3.6538**	**1.8265**	**5.4803**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	lb/day										lb/day					
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
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
Worker	0.0769	0.0608	0.5910	1.4400e-003	0.1643	9.6000e-004	0.1653	0.0436	8.8000e-004	0.0445		145.3898	145.3898	5.9300e-003	5.2900e-003	147.1135
Total	**0.0769**	**0.0608**	**0.5910**	**1.4400e-003**	**0.1643**	**9.6000e-004**	**0.1653**	**0.0436**	**8.8000e-004**	**0.0445**		**145.3898**	**145.3898**	**5.9300e-003**	**5.2900e-003**	**147.1135**

Mitigated 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	lb/day										lb/day					
Fugitive Dust					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**4.1416**	**1.9853**	**6.1270**	**1.6442**	**1.8265**	**3.4707**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.0769	0.0608	0.5910	1.4400e-003	0.1643	9.6000e-004	0.1653	0.0436	8.8000e-004	0.0445		145.3898	145.3898	5.9300e-003	5.2900e-003	147.1135
Total	**0.0769**	**0.0608**	**0.5910**	**1.4400e-003**	**0.1643**	**9.6000e-004**	**0.1653**	**0.0436**	**8.8000e-004**	**0.0445**		**145.3898**	**145.3898**	**5.9300e-003**	**5.2900e-003**	**147.1135**

3.5 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	lb/day										lb/day					

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Vendor	0.5432	10.4382	2.9908	0.0331	1.0441	0.1815	1.2256	0.3007	0.1737	0.4743		3,496.7454	3,496.7454	0.0322	0.5252	3,654.0519
Worker	2.4770	1.9590	19.0315	0.0463	5.2903	0.0308	5.3211	1.4032	0.0284	1.4316		4,681.5525	4,681.5525	0.1908	0.1702	4,737.0547
Total	**3.0202**	**12.3972**	**22.0222**	**0.0794**	**6.3344**	**0.2124**	**6.5468**	**1.7039**	**0.2021**	**1.9059**		**8,178.2979**	**8,178.2979**	**0.2230**	**0.6954**	**8,391.1066**

Mitigated 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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated 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	lb/day										lb/day					
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
Vendor	0.5432	10.4382	2.9908	0.0331	1.0441	0.1815	1.2256	0.3007	0.1737	0.4743		3,496.7454	3,496.7454	0.0322	0.5252	3,654.0519
Worker	2.4770	1.9590	19.0315	0.0463	5.2903	0.0308	5.3211	1.4032	0.0284	1.4316		4,681.5525	4,681.5525	0.1908	0.1702	4,737.0547
Total	**3.0202**	**12.3972**	**22.0222**	**0.0794**	**6.3344**	**0.2124**	**6.5468**	**1.7039**	**0.2021**	**1.9059**		**8,178.2979**	**8,178.2979**	**0.2230**	**0.6954**	**8,391.1066**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
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
Vendor	0.3297	8.6354	2.4808	0.0323	1.0441	0.0941	1.1382	0.3007	0.0901	0.3907		3,410.5416	3,410.5416	0.0218	0.5115	3,563.5186
Worker	2.2686	1.7037	17.2991	0.0449	5.2903	0.0289	5.3192	1.4032	0.0266	1.4299		4,536.6310	4,536.6310	0.1708	0.1553	4,587.1757
Total	**2.5983**	**10.3392**	**19.7798**	**0.0772**	**6.3344**	**0.1231**	**6.4574**	**1.7039**	**0.1167**	**1.8206**		**7,947.1726**	**7,947.1726**	**0.1925**	**0.6668**	**8,150.6942**

Mitigated Construction On-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Mitigated 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	lb/day										lb/day					
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
Vendor	0.3297	8.6354	2.4808	0.0323	1.0441	0.0941	1.1382	0.3007	0.0901	0.3907		3,410.5416	3,410.5416	0.0218	0.5115	3,563.5186
Worker	2.2686	1.7037	17.2991	0.0449	5.2903	0.0289	5.3192	1.4032	0.0266	1.4299		4,536.6310	4,536.6310	0.1708	0.1553	4,587.1757
Total	**2.5983**	**10.3392**	**19.7798**	**0.0772**	**6.3344**	**0.1231**	**6.4574**	**1.7039**	**0.1167**	**1.8206**		**7,947.1726**	**7,947.1726**	**0.1925**	**0.6668**	**8,150.6942**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
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
Vendor	0.1651	6.9730	2.1241	0.0311	1.0441	0.0441	1.0882	0.3007	0.0422	0.3428		3,285.3923	3,285.3923	0.0137	0.4918	3,432.2815
Worker	2.0833	1.4878	15.8061	0.0435	5.2903	0.0272	5.3175	1.4032	0.0250	1.4283		4,391.4548	4,391.4548	0.1531	0.1424	4,437.7132
Total	**2.2485**	**8.4608**	**17.9303**	**0.0745**	**6.3344**	**0.0713**	**6.4057**	**1.7039**	**0.0672**	**1.7711**		**7,676.8470**	**7,676.8470**	**0.1668**	**0.6342**	**7,869.9947**

Mitigated 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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
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
Vendor	0.1651	6.9730	2.1241	0.0311	1.0441	0.0441	1.0882	0.3007	0.0422	0.3428		3,285.3923	3,285.3923	0.0137	0.4918	3,432.2815
Worker	2.0833	1.4878	15.8061	0.0435	5.2903	0.0272	5.3175	1.4032	0.0250	1.4283		4,391.4548	4,391.4548	0.1531	0.1424	4,437.7132
Total	**2.2485**	**8.4608**	**17.9303**	**0.0745**	**6.3344**	**0.0713**	**6.4057**	**1.7039**	**0.0672**	**1.7711**		**7,676.8470**	**7,676.8470**	**0.1668**	**0.6342**	**7,869.9947**

3.6 Architectural Coating 1 - 2021

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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**59.0416**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	lb/day										lb/day					
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

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Worker	0.5000	0.3955	3.8418	9.3500e-003	1.0679	6.2200e-003	1.0741	0.2833	5.7300e-003	0.2890		945.0339	945.0339	0.0385	0.0344	956.2378
Total	**0.5000**	**0.3955**	**3.8418**	**9.3500e-003**	**1.0679**	**6.2200e-003**	**1.0741**	**0.2833**	**5.7300e-003**	**0.2890**		**945.0339**	**945.0339**	**0.0385**	**0.0344**	**956.2378**

Mitigated 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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**59.0416**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.5000	0.3955	3.8418	9.3500e-003	1.0679	6.2200e-003	1.0741	0.2833	5.7300e-003	0.2890		945.0339	945.0339	0.0385	0.0344	956.2378
Total	**0.5000**	**0.3955**	**3.8418**	**9.3500e-003**	**1.0679**	**6.2200e-003**	**1.0741**	**0.2833**	**5.7300e-003**	**0.2890**		**945.0339**	**945.0339**	**0.0385**	**0.0344**	**956.2378**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating 1 - 2022

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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	lb/day										lb/day					
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
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
Worker	0.4580	0.3439	3.4920	9.0600e-003	1.0679	5.8400e-003	1.0738	0.2833	5.3700e-003	0.2886		915.7795	915.7795	0.0345	0.0314	925.9827
Total	**0.4580**	**0.3439**	**3.4920**	**9.0600e-003**	**1.0679**	**5.8400e-003**	**1.0738**	**0.2833**	**5.3700e-003**	**0.2886**		**915.7795**	**915.7795**	**0.0345**	**0.0314**	**925.9827**

Mitigated Construction On-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.4580	0.3439	3.4920	9.0600e-003	1.0679	5.8400e-003	1.0738	0.2833	5.3700e-003	0.2886		915.7795	915.7795	0.0345	0.0314	925.9827
Total	**0.4580**	**0.3439**	**3.4920**	**9.0600e-003**	**1.0679**	**5.8400e-003**	**1.0738**	**0.2833**	**5.3700e-003**	**0.2886**		**915.7795**	**915.7795**	**0.0345**	**0.0314**	**925.9827**

3.7 Architectural Coating 2 - 2022

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	lb/day										lb/day					

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	lb/day										lb/day					
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
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
Worker	0.4544	0.3413	3.4652	8.9900e-003	1.0597	5.7900e-003	1.0655	0.2811	5.3300e-003	0.2864		908.7351	908.7351	0.0342	0.0311	918.8597
Total	**0.4544**	**0.3413**	**3.4652**	**8.9900e-003**	**1.0597**	**5.7900e-003**	**1.0655**	**0.2811**	**5.3300e-003**	**0.2864**		**908.7351**	**908.7351**	**0.0342**	**0.0311**	**918.8597**

Mitigated 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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**59.0273**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.4544	0.3413	3.4652	8.9900e-003	1.0597	5.7900e-003	1.0655	0.2811	5.3300e-003	0.2864		908.7351	908.7351	0.0342	0.0311	918.8597
Total	**0.4544**	**0.3413**	**3.4652**	**8.9900e-003**	**1.0597**	**5.7900e-003**	**1.0655**	**0.2811**	**5.3300e-003**	**0.2864**		**908.7351**	**908.7351**	**0.0342**	**0.0311**	**918.8597**

3.8 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
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
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
Worker	0.0518	0.0370	0.3927	1.0800e-003	0.1314	6.8000e-004	0.1321	0.0349	6.2000e-004	0.0355		109.1045	109.1045	3.8000e-003	3.5400e-003	110.2537
Total	**0.0518**	**0.0370**	**0.3927**	**1.0800e-003**	**0.1314**	**6.8000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**109.1045**	**109.1045**	**3.8000e-003**	**3.5400e-003**	**110.2537**

Mitigated 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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated 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	lb/day										lb/day					

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
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
Worker	0.0518	0.0370	0.3927	1.0800e-003	0.1314	6.8000e-004	0.1321	0.0349	6.2000e-004	0.0355		109.1045	109.1045	3.8000e-003	3.5400e-003	110.2537
Total	**0.0518**	**0.0370**	**0.3927**	**1.0800e-003**	**0.1314**	**6.8000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**109.1045**	**109.1045**	**3.8000e-003**	**3.5400e-003**	**110.2537**

3.9 Architectual Coating 3 - 2023

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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**59.0144**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	lb/day										lb/day					
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
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
Worker	0.4173	0.2980	3.1661	8.7000e-003	1.0597	5.4500e-003	1.0652	0.2811	5.0100e-003	0.2861		879.6548	879.6548	0.0307	0.0285	888.9208

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.4173**	**0.2980**	**3.1661**	**8.7000e-003**	**1.0597**	**5.4500e-003**	**1.0652**	**0.2811**	**5.0100e-003**	**0.2861**		**879.6548**	**879.6548**	**0.0307**	**0.0285**	**888.9208**

Mitigated 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	lb/day										lb/day					
Archit. Coating	58.8227					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**59.0144**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated 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	lb/day										lb/day					
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
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
Worker	0.4173	0.2980	3.1661	8.7000e-003	1.0597	5.4500e-003	1.0652	0.2811	5.0100e-003	0.2861		879.6548	879.6548	0.0307	0.0285	888.9208
Total	**0.4173**	**0.2980**	**3.1661**	**8.7000e-003**	**1.0597**	**5.4500e-003**	**1.0652**	**0.2811**	**5.0100e-003**	**0.2861**		**879.6548**	**879.6548**	**0.0307**	**0.0285**	**888.9208**

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	16.0578	29.5027	154.6685	0.3302	32.9375	0.3055	33.2430	8.7964	0.2869	9.0832		33,692.7611	33,692.7611	2.1342	2.0944	34,370.2343
Unmitigated	16.0578	29.5027	154.6685	0.3302	32.9375	0.3055	33.2430	8.7964	0.2869	9.0832		33,692.7611	33,692.7611	2.1342	2.0944	34,370.2343

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	3,450.60	3,855.60	3056.40	10,003,677	10,003,677
Apartments Mid Rise	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	2,843.28	2,774.64	1348.38	4,034,759	4,034,759
Total	6,293.88	6,630.24	4,404.78	14,038,436	14,038,436

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Apartments Mid Rise	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Health Club	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Parking Lot	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552
Strip Mall	0.511221	0.052103	0.170611	0.160645	0.028932	0.007649	0.013284	0.025916	0.000654	0.000315	0.023645	0.001472	0.003552

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880
NaturalGas Unmitigated	0.2653	2.2831	1.0820	0.0145		0.1833	0.1833		0.1833	0.1833		2,894.1892	2,894.1892	0.0555	0.0531	2,911.3880

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	20914.2	0.2256	1.9274	0.8202	0.0123		0.1558	0.1558		0.1558	0.1558		2,460.4959	2,460.4959	0.0472	0.0451	2,475.1174
Apartments Mid Rise	968.259	0.0104	0.0892	0.0380	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9129	113.9129	2.1800e-003	2.0900e-003	114.5898
Health Club	783.34	8.4500e-003	0.0768	0.0645	4.6000e-004		5.8400e-003	5.8400e-003		5.8400e-003	5.8400e-003		92.1576	92.1576	1.7700e-003	1.6900e-003	92.7053
Parking Lot	0	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

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Strip Mall	1934.79	0.0209	0.1897	0.1593	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.6229	227.6229	4.3600e-003	4.1700e-003	228.9755
Total		**0.2653**	**2.2831**	**1.0820**	**0.0145**		**0.1833**	**0.1833**		**0.1833**	**0.1833**		**2,894.1892**	**2,894.1892**	**0.0555**	**0.0531**	**2,911.3879**

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	20.9142	0.2256	1.9274	0.8202	0.0123		0.1558	0.1558		0.1558	0.1558		2,460.4959	2,460.4959	0.0472	0.0451	2,475.1174
Apartments Mid Rise	0.968259	0.0104	0.0892	0.0380	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9129	113.9129	2.1800e-003	2.0900e-003	114.5898
Health Club	0.78334	8.4500e-003	0.0768	0.0645	4.6000e-004		5.8400e-003	5.8400e-003		5.8400e-003	5.8400e-003		92.1576	92.1576	1.7700e-003	1.6900e-003	92.7053
Parking Lot	0	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
Strip Mall	1.93479	0.0209	0.1897	0.1593	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.6229	227.6229	4.3600e-003	4.1700e-003	228.9755
Total		**0.2653**	**2.2831**	**1.0820**	**0.0145**		**0.1833**	**0.1833**		**0.1833**	**0.1833**		**2,894.1892**	**2,894.1892**	**0.0555**	**0.0531**	**2,911.3879**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

No Hearths Installed

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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	lb/day										lb/day					
Mitigated	21.4818	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610	0.0000	84.9599	84.9599	0.0820	0.0000	87.0096
Unmitigated	67.2566	6.5294	99.2538	0.1163		7.5230	7.5230		7.5230	7.5230	670.1151	7,073.1952	7,743.3103	0.2159	0.1873	7,804.5077

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	3.8119					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.2443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	45.7748	5.9866	52.1150	0.1138		7.2620	7.2620		7.2620	7.2620	670.1151	6,988.2353	7,658.3504	0.1339	0.1873	7,717.4981
Landscaping	1.4256	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610		84.9599	84.9599	0.0820		87.0096
Total	**67.2566**	**6.5294**	**99.2538**	**0.1163**		**7.5230**	**7.5230**		**7.5230**	**7.5230**	**670.1151**	**7,073.1952**	**7,743.3103**	**0.2159**	**0.1873**	**7,804.5077**

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	3.8119					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Consumer Products	16.2443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	1.4256	0.5428	47.1387	2.4900e-003		0.2610	0.2610		0.2610	0.2610		84.9599	84.9599	0.0820		87.0096
Total	**21.4818**	**0.5428**	**47.1387**	**2.4900e-003**		**0.2610**	**0.2610**		**0.2610**	**0.2610**	**0.0000**	**84.9599**	**84.9599**	**0.0820**	**0.0000**	**87.0096**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

The Crossings - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.0 Vegetation

Pacific Gas & Electric

Effect of 31% RPS

Based on 2008 Baseline Data

2008 Emission Factor[1]	641.35	lb CO2/MWh	
2008 Renewables[2]	14%		
Without RPS	745.76	lb CO2/MWh	
Future Renewables	31%		(by Dec 31 2016)
With Future RPS	514.57	lb CO2/MWh	
Reduction from 14% RPS	19.8%		

All renewable energy is assumed to be carbon neutral (i.e., no GHG emissions or from biogenic sources).

1. CalEEMod User's Guide, Appendix D, Table 1.2
2. PG&E 2008 Corporate Responsibility Report
   http://www.pgecorp.com/corp_responsibility/reports/2008/img/pge_cr r_summary_2008.pdf.

Pacific Gas & Electric

Effect of 33% RPS

Based on 2008 Baseline Data

2008 Emission Factor[1]	641.35	lb CO2/MWh
2008 Renewables[2]	14%	
Without RPS	745.76	lb CO2/MWh
Future Renewables	33%	
With Future RPS	499.66	lb CO2/MWh

Reduction from 14% RPS	22.1%
Reduction from 31% RPS	2.9%

Notes:

All renewable energy is assumed to be carbon neutral (i.e., no GHG emissions or from biogenic sources).

1. CalEEMod User's Guide, Appendix D, Table 1.2
2. PG&E 2008 Corporate Responsibility Report http://www.pgecorp.com/corp_responsibility/reports/2008/img/pge_cr r_summary_2008.pdf.

Pacific Gas & Electric

Effect of 50% RPS

Based on 2008 Baseline Data

2008 Emission Factor[1]	641.35	lb CO2/MWh
2008 Renewables[2]	14%	
Without RPS	745.76	lb CO2/MWh
Future Renewables	50%	
With Future RPS	372.88	lb CO2/MWh

Reduction from 14% RPS	41.9%
Reduction from 33% RPS	25.4%

Notes:

All renewable energy is assumed to be carbon neutral (i.e., no GHG emissions or from biogenic sources).

1. CalEEMod User's Guide, Appendix D, Table 1.2
2. PG&E 2008 Corporate Responsibility Report
   http://www.pgecorp.com/corp_responsibility/reports/2008/img/pge_cr r_summary_2008.pdf.

Appendix E

Biological Resources Assessment

Dudek, August 2021

DUDEK

1102 R STREET
SACRAMENTO, CALIFORNIA 95811
T 916.443.8335 F 916.443.5113

August 27, 2021 10049

Julie Nelson
City of Merced
678 West 18th Street
Merced, California 95340

Subject: ***Biological Resources Assessment for the Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project in Merced County, California***

Dear Ms. Nelson:

This biological resources assessment (BRA) describes the existing conditions at the proposed Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project (project) site in Merced, California (Figure 1, Regional Map). This report provides a preliminary assessment of the biological resources observed or potentially present in the project area, potential constraints associated with development of the project, and related regulatory requirements.

1. SITE LOCATION AND DESCRIPTION

The project site is approximately 2 miles southwest of the University of California, Merced campus (Figure 2, Vicinity Map), located in Section 9, Township 7 South, and Range 14 East of the U.S. Geological Survey (USGS) Merced 7.5' quadrangle. The approximate center of the site corresponds to 38°20'00.12" north latitude and 120°26'53.61" west longitude (Figure 3, Project Location Map). The 70-acre project area is divided into two sections: an approximately 30-acre section that would be developed as The Crossings, which is proposed as a mixed-use residential and commercial development, and an additional annexation area of approximately 40 acres located to the northwest and east of the 30-acre section. Future development of this area is anticipated, but no development is proposed at this time. Therefore, this portion of the project area was not included in the field survey (Figure 3). Henceforth, the term "70-acre project area" will refer to the entire 70 acres, the term "survey area" will refer to the 30-acre parcel that was surveyed on foot during the biological reconnaissance survey and the term "annexation area" will refer to the 40-acre annexation area. This BRA intends to describe existing conditions and recommendations regarding biological resources related to developing the 30-acre survey area in the context of the California Environmental Quality Act (CEQA); however, the annexation area would require an additional biological reconnaissance survey should plans to develop the property proceed in the future.

The 70-acre project area is characterized as developed/disturbed rural residential and agricultural land and is relatively flat, situated at an elevation of about 185 feet above mean sea level (AMSL). The 70-acre project area is bounded on the north by an irrigation canal immediately north of the site and rural residential development and agriculture north of the canal, on the east by Hatch Road, on the south by Yosemite Avenue and on the west by North Gardner Avenue (Figure 3). At the time of the field survey, the survey area was comprised mostly of a disked agricultural field that contains a residence and three other structures, as well as a variety of heavy equipment, tires and other debris in the south central portion of the parcel. The survey area is routinely used for agricultural production (row crops).

According to the Natural Resources Conservation Service (USDA 2016), three soil types are mapped within the 70-acre project area and include: Ryer clay loam, 0-2% slopes; Wyman clay loam (deep over hardpan), 0-1% slopes; and Yokohl clay loam, 0-3% slopes. Ryer clay loam and Wyman clay loam are well-drained alluvium soils derived from igneous rock. Yokohl clay loam is well-drained, non-saline to very slightly saline alluvium derived from igneous rock (Figure 4, Potentially Jurisdictional Features and Soils Map).

2. PROJECT DESCRIPTION

The Crossings residential and retail component would be constructed within the 30-acre study area described above. The facility would include 20 3-story apartment buildings containing 540 two- to four-bedroom units and a 13,700 square-foot clubhouse as well as a network of pedestrian and bike trails and a community bus stop; an approximately 66,000-square foot commercial/retail village; a retention basin; and an estimated 1,223 parking spaces distributed throughout the survey area. Site preparation prior to construction would be limited to the 30-acre survey area and would include demolition of existing structures, clearing vegetation and grading, trenching for installation of utilities, and cutting and filling the site, including excavating the detention basin.

3. REGULATORY SETTING

3.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) prohibits the taking, possession, sale or transport of endangered species. Pursuant to the requirements of FESA, a federal agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species could be present in the project site and determine the extent to which the project will

have an effect on such species. In addition, federal agencies are required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA, or if it would result in the destruction or adverse modification of critical habitat designated for such species (16 USC 1536[3]–[4]). Projects that would result in "take" of any federally listed threatened or endangered species are required to obtain authorization from the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service (USFWS) through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the Code of Federal Regulations. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50, Section 20 of the Code of Federal Regulations. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

Clean Water Act – Section 404

The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Under Section 404 of the CWA, the U.S. Army Corps of Engineers (ACOE) has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. The ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

Clean Water Act – Section 401

The State Water Resources Control Board has authority over wetlands through Section 401 of the CWA, as well as the Porter–Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine regional boards. The San Francisco Bay Regional Water Quality Control Board has

authority for Section 401 compliance in the project area. A request for certification is submitted to the regional board at the same time that an application is filed with the ACOE.

3.2 State

California Endangered Species Act

Under the California Endangered Species Act, the California Fish and Wildlife Commission has the responsibility of maintaining a list of threatened species and endangered species. The California Department of Fish and Wildlife (CDFW) also maintains lists of species of special concern. A Species of Special Concern is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- Is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role
- Is listed as threatened or endangered federally, but not by the state
- Meets the state definition of threatened or endangered, but has not formally been listed
- Is experiencing, or formerly experienced, serious noncyclical population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for threatened or endangered status by the state
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for threatened or endangered status by the state

The California Endangered Species Act prohibits the take of state-listed animals and plants in most cases, but CDFW may issue incidental take permits under special conditions. Pursuant to the requirements of the California Endangered Species Act, a state agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present on the property and determine whether the project would have a potentially significant impact on such species.

Fish and Game Code Section 1600 – Lake and Streambed Alteration Agreement

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates activities that would substantially alter the flow, bed, channel, or bank of streams and lakes. Such activities

require a 1602 Lake and Streambed Alteration Agreement from CDFW. The California Code of Regulations defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (Cal. Code Regs. tit. 14 § 1.72). The term "stream" includes rivers, creeks, ephemeral streams, dry washes, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Removal of riparian vegetation also requires a Section 1602 Lake and Stream Alteration Agreement from CDFW.

California Department of Fish and Wildlife Wetlands Protection Regulations

CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes Sections 1600–1616 of the Fish and Game Code (lake and streambed alteration agreements), the California Endangered Species Act (protection of state-listed species and their habitats, which could include wetlands), and the Keene–Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, the CDFW asserts authority over wetlands within the state through any of the following: review and comment on ACOE Section 404 permits, review and comment on California Environmental Quality Act (CEQA) documents, preservation of state-listed species, or through lake and streambed alteration agreements.

Fish and Game Code Section 1940 – Sensitive Natural Communities

Section 1940 of the California Fish and Game Code requires CDFW to develop and maintain a vegetation mapping standard for the state. More than half of the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program.

Natural vegetation communities are evaluated by CDFW and are assigned global (G) and state (S) ranks based on rarity of and threats to these vegetation communities in California. Natural communities with ranks of S1–S3 are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents. Sensitive natural communities are defined by CDFW as vegetation alliances with state ranks of S1–S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable), as identified in the List of Vegetation Alliances and Associations (CDFG 2010) and subsequent updates. Additionally, all vegetation associations within the alliances with ranks of S1–S3 are considered sensitive habitats. CEQA

requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible.

Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, sensitive natural communities are considered to include vegetation communities listed in CDFW's California Natural Diversity Database and communities listed in the Natural Communities List with a rarity rank of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable).

Fish and Game Code – Sections 3503, 3511, 3513

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Fish and Game Code – Section 4150

California Fish and Game Code Section 4150 states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take as stated in California Fish and Game Code Section 4150.

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act established the State Water Resources Control Board and each Regional Water Quality Control Board (RWQCB) as the principal state agencies responsible for the protection of water quality in California. The Porter–Cologne Water Quality Control Act provides that "All discharges of waste into the waters of the State are privileges, not rights." Waters of the state are defined in Section 13050(e) of the Porter–Cologne Water Quality Control Act as "…any surface water or groundwater, including saline waters, within the boundaries of the state." All dischargers are subject to regulation under the Porter–Cologne Water Quality Control Act, including both point and nonpoint source dischargers.

California Native Plant Protection Act

The California Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) and the Natural Communities Conservation Planning Act provide guidance on the preservation of plant resources. Vascular plants which have no designated status or protection under state or federal endangered species legislation, but are listed as rare or endangered by the CNPS, are defined as follows:

Rank 1A:	Plants presumed extinct
Rank 1B:	Plants rare, threatened or endangered in California and elsewhere
Rank 2:	Plants rare, threatened, or endangered in California, but more numerous elsewhere
Rank 3:	Plants about which more information is needed – a review list
Rank 4:	Plants of limited distribution – a watch list

Plants with CNPS Ranks 1A, 1B, or 2 are generally considered to meet the criteria for endangered, threatened, or rare species as outlined by Section 15380 of the CEQA Guidelines. These plants also meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 (CESA) of the California Fish and Game Code. Plants with CNPS Ranks 3 or and 4 generally do not meet these criteria or definitions unless they meet one or more of the following: a) the project area is considered a type locality (i.e., the area from which the plant was originally described) for that species; b) populations are at the periphery of a species range; c) occurrences are in areas where taxon is especially uncommon or has sustained heavy losses; or d) populations exhibit unusual morphology or occur on unusual substrates.

California Environmental Quality Act

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals, and allows a public agency to undertake a review to determine if a significant effect on a species that has not yet been listed by either the USFWS or CDFW (i.e., species of concern) would occur. Whether a species is rare, threatened, or endangered can be legally significant because, under CEQA Guidelines Section 15065, an agency must find an impact to be significant if a project would "substantially reduce the number or restrict the range of an endangered, rare, or threatened

species." Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

3.3 Local

2030 Merced County General Plan

The 2030 Merced County General Plan, Natural Resources Element, includes policies designed to protect biological resources (Merced County 2013). Relevant policies are listed below.

Goal NR-1: Preserve and protect, through coordination with the public and private sections, the biological resources of the County.

Policy NR-1.1 Habitat Protection: Identify areas that have significant long-term habitat and wetland values including riparian corridors, wetlands, grasslands, rivers and waterways, oak woodlands, vernal pools, and wildlife movement and migration corridors, and provide information to landowners.

Policy NR-1.2 Protected Natural Lands (Regulation and Development Review (RDR)/ Planning Studies and Reports (PSR)): Identify and support methods to increase the acreage of protected natural lands and special habitats, including, but not limited to, wetlands, grasslands, vernal pools, and wildlife movement and migration corridors, potentially through the use of conservation easements.

Policy NR-1.5 Wetland and Riparian Habitat Buffer (PSR/RDR): Identify wetlands and riparian habitat areas and designate a buffer zone around each area sufficient to protect them from degradation, encroachment, or loss.

Policy NR-1.6 Terrestrial Wildlife Mobility (County Services and Operations (SO)): Encourage property owners within or adjacent to designated habitat connectivity corridors that have been mapped or otherwise identified by the CDFW or USFWS to manage their lands in accordance with such mapping programs. In the planning and development of public works projects that could physically interfere with wildlife mobility, the County shall consult with the CDFW and USFWS to determine the potential for such effects and implement any feasible mitigation measures.

Policy NR-1.8 Use of Native Plant Species for Landscaping (SO): Encourage the use of native plant species in landscaping, and, where the County has discretion, require the use of native plant species for landscaping.

Policy NR-1.20 Conservation Easements (SO/IGC/Joint Partnerships with the Private Sector (JP)): Encourage property owners to work with land trusts and State and federal agencies to pursue voluntary conservation easements.

Policy NR-1.21 Special-Status Species Surveys and Mitigation (RDR/SO/IGC): Incorporate the survey standards and mitigation requirements of State and federal resource management agencies for use in the County's review processes for both private and public projects.

Merced Vision 2030 General Plan

The City of Merced General Plan, Chapter 7 Open Space, Conservation, and Recreation, provides guidance for new development and focuses on the protection of natural areas which provide habitat and cover for wildlife and vegetation. The City provides specific protection for biological resources, as described in the following policies and implementing actions (City of Merced 2012).

OS-1.1 Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.

Implementing Actions:

1.1.a Identify, and recognize as significant wetlands and critical habitat areas which meet the appropriate legal definition under Federal and State law. Wetlands, as defined by statute, have special regulations which must be followed as opposed to other riparian or "water" areas of the community. This policy provides for the identification of those lands subject to special Federal and State rules and standards and those which are solely subject to local policies and standards. Development applications will be reviewed to determine if potential wetland habitats exist on-site, and wetland delineation may be required in accordance with current U.S. Army Corps of Engineers guidelines.

"Wetlands" containing sensitive plant and/or animal species should be protected according to law. Specific protection policies should include: a) protection of wetland watershed areas; b) establishment of minimum setback areas around "wetlands" in accordance with the recommendations of California Department of Fish and Game, U.S.

Fish and Wildlife Service, or a qualified wildlife biologist. c) Provision of compensation or wildlife mitigation banks if a site is not protected. The City, in cooperation with the County, may consider establishing a mitigation "banking" program in accordance with state and federal guidelines for vernal pools and other types of wetland habitats. Vernal pool preserves may be incorporated into other open space preserves (i.e. parks and trails) that would not be directly impacted by urban development.

1.1.b Urban development should occur away from identified sensitive species critical habitats areas unless specific provisions to ensure adequate protection and monitoring exist. When, as a result of specific site studies, it is determined that "potential" habitats actually contain sensitive or endangered species, development rules, policies and standards should be applied to assure that further degradation of these species does not occur. These policies should emphasize "avoidance" as a desirable mitigation alternative. In instances where open space areas are established to protect a sensitive wildlife species, those areas shall be subject to appropriate management principles as approved by the City upon recommendation of the California Department of Fish & Game or the U. S. Fish and Wildlife Service.

City of Merced Municipal Code

The City of Merced Street Tree Division requires property owners to water City trees (trees planted within 8-10 feet of City streets). If the project site is annexed to the City, removal or trimming of any City trees would require consultation with the City.

4. METHODS

Data regarding biological and jurisdictional resources potentially present in the survey area were obtained through a review of pertinent literature and field reconnaissance. Data for resources present within the annexation area were obtained primarily through literature review, although some field reconnaissance of the annexation area was possible using binoculars. The preliminary review and field methods are provided below.

4.1 Preliminary Review

Special-status biological resources present or potentially present on the project site were identified through an online literature search using the following sources: U.S. Fish and Wildlife Service (USFWS) Information, Planning and Conservation (IPaC) Trust Resource Report; California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); and the California Native Plant Society (CNPS) online Inventory of Rare and

Endangered Vascular Plants. The database searches for the CNDDB and CNPS included Merced and the surrounding eight USGS 7.5 minute quadrangles, and the IPaC search included the project site. California Rare Plant Rank (CRPR) 1 and 2 plant species were included in the CNPS search. Following review of these resources, Dudek determined the potential for each species to occur within or adjacent to the project site based on a review of vegetation communities and available land cover types, habitat types, soils, and elevation preferences, as well as the known geographic range of each species. Species were not expected to occur in instances where the project site was clearly outside the known geographic range of the species or if no suitable habitat for the species is present either on or adjacent to the site.

The initial literature search was conducted for the project in December 2016. An updated literature search of the above resources was conducted in September 2019 to account for any changes in species protection status or occurrence data. Results of the updated literature searches are incorporated into this BRA.

4.2 Field Assessment

Dudek wildlife biologist Lisa Achter conducted a field assessment of the 30-acre survey area on December 1, 2016. The field assessment involved walking transects throughout the survey area and around its periphery, and included mapping vegetation communities and land cover types onsite. The survey area was evaluated for the potential to support jurisdictional wetlands or other waters and special-status plant and wildlife species. The 40-acre annexation area was observed from the survey area and perimeter roadways and evaluated on the same basis, where possible.

A review of multiple aerial images taken between 2016 and 2019 suggests that the environmental setting has not changed since the initial field survey.

Vegetation Communities and Land Cover Types

The field survey was conducted on foot to visually cover the 30-acre survey area, as well as the visible portions of the 40-acre annexation area. An aerial photograph (Google Earth 2016) with an overlay of the 70-acre project site, and surrounding buffer was utilized to map vegetation communities and land cover types present, as well as record any special-status or sensitive biological resources while in the field.

Flora and Fauna

All plant species encountered during the field survey were identified and recorded in a field notebook. Common and scientific names for plant species with a CRPR follow the CNPS On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2019).

The survey area was visually scanned with and without binoculars to aid in the identification of wildlife. The annexation area was scanned with binoculars when possible. In addition, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. Wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded in a field notebook.

Jurisdictional Wetlands and Other Waters

Dudek performed a constraints-level wetland assessment on the 30-acre survey area, reviewed current and historical aerial photography for the 70-acre project area, and identified any potential jurisdictional features based on aerial signatures and field observations.

The analysis of potentially jurisdictional waters and wetlands was based on criteria provided by the following agencies:

- Waters of the U.S., including wetlands, under the jurisdiction of the U.S. Army Corps of Engineers (ACOE) pursuant to Section 404 of the federal Clean Water Act (CWA).
- Wetlands under the jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA and the Porter-Cologne Act.
- Wetlands under the jurisdiction of CDFW, pursuant to Section 1602 of the California Fish and Game Code.

Pursuant to the federal CWA, ACOE and RWQCB, jurisdictional areas include those supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the ACOE, but may also include isolated features that have evidence of surface water inundation pursuant to the state Porter-Cologne Act. These areas generally support at least one of the three ACOE wetlands indicators, but are considered isolated through the lack of surface water hydrology/connectivity downstream. The extent of CDFW-regulated areas typically include areas supporting a predominance of hydrophytic vegetation (i.e., 50% cover or greater) where associated with a stream channel that has a defined bed and bank.

5. RESULTS

The description of biological resources in this section pertains to habitats and species present within the 70-acre project site. The annexation area was evaluated based on limited observations made during the field survey, database searches, and a review of aerial photography.

5.1 Vegetation Communities and Land Cover Types

Agriculture and developed/rural residential are the two land cover types mapped in the 30-acre survey area. These land cover types are not considered sensitive by CDFW. There are no natural vegetation communities in the study area.

At the time of the field survey, most of the survey area was disked agricultural land, except for some ruderal vegetation along the margins of the project site (Figure 5, Site Photos). The survey area is routinely used for agricultural production (row crops). One residence and three other structures (that resembled a barn or shop and two sheds), along with several pieces of heavy equipment, tires, and other items occurs along the southern boundary of the survey area, adjacent to Yosemite Avenue.

Based on limited observations from the survey area and surrounding roadways, and a review of aerial photography, the 40-acre annexation area is composed of rural residences and agriculture, along with the Yosemite Church and a private school complex located in the southeastern corner of the annexation area.

5.2 Flora and Fauna

The survey area was essentially devoid of vegetation; however, ruderal species were observed along the margin of the site and include species such as telegraphweed (*Heterotheca grandiflora*), horseweed (*Erigeron* spp.), wild oat (*Avena* spp.), mustard (*Brassica* spp.), and yellow star thistle (*Centaurea solstitialis*). A row of mature olive (*Olea europaea*) trees exists along the eastern boundary of the survey area (within the annexation area). Several mature trees also exist in scattered patches near the residence in the central portion of the survey area, as well as near the residences in the annexation area and around Yosemite Church. Aerial imagery shows what appears to be another row of olive trees between the eastern boundary of the 30-acre survey area and Yosemite Church.

Four wildlife species, specifically birds, were observed on the survey area: American kestrel (*Falco sparverius*), mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), and California scrub-jay (*Aphelocoma californica*). Due to limited observations of the annexation

area, only one wildlife species was detected there during the field survey: white-crowned sparrow (*Zonotrichia leucophrys*).

5.3 Jurisdictional Wetlands and Other Waters

There are two potentially jurisdictional drainages in the 30-acre study area (Figure 4, Potentially Jurisdictional Features and Soils Map). These are primarily agricultural or roadside drainages and are discussed below.

Drainage 1. There is one drainage located along Yosemite Avenue on the southern boundary of the 70-acre project site that terminates underground at Gardner Avenue to the west and at Yosemite Church to the east. This drainage functions as a roadside and agricultural ditch, constructed in an upland to collect runoff from Yosemite Avenue and the adjacent agricultural land.

Drainage 2. There is one drainage located along the northern boundary of the 70-acre project site. The drainage enters the project site from the east and appears to terminate in the northwest portion of the project site. This drainage functions as an agricultural ditch, constructed in an upland to collect runoff from the adjacent agricultural land.

Based on a review of aerial imagery, there may be potential wetlands or other waters present in the annexation area. Specifically, there are aerial signatures indicating seasonally wet areas visible on the four residential parcels in the northwestern corner of the study area, as well as primarily in the northern portion of the annexation area, including on undeveloped areas between the 30-acre study area and the parcel that supports Stoneridge Christian School and Yosemite Church. In addition, there are three agricultural ditches northwest of the site. However, these features are excluded from the 70-acre project site.

5.4 Special-Status Species

Special-Status Wildlife

Based on the literature and database review previously described, twenty-seven (27) special-status wildlife species are known to occur within the USGS quadrangles included in the database search. Of these, thirteen (13) species were removed from consideration based on lack of suitable habitat or because the site is outside of the known geographic or elevation range for the species (Appendix A). Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondii*), burrowing owl

(*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), pallid bat (*Antrozous pallidus*), Townsend's big eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillii*), western mastiff bat (*Eumops perotis californicus*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*) have a low to moderate potential to occur in the vicinity of the project site. These species are discussed in further detail below.

Conservancy fairy shrimp. Conservancy fairy shrimp is federally listed as endangered with the potential to occur in seasonally wet areas in the northeastern and northwestern portions of the site (CDFW 2019a). This species is adapted to seasonally inundated features and primarily occurs in vernal pools and seasonal wetlands.

Vernal pool fairy shrimp. Vernal pool fairy shrimp is federally listed as threatened with the potential to occur in seasonally wet areas in the northeastern and northwestern portions of the site (CDFW 2019a). Vernal pool fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools and seasonal wetlands.

Vernal pool tadpole shrimp. Vernal pool tadpole shrimp is federally listed as endangered with the potential to occur in seasonally wet areas in the northeastern and northwestern portions of the site (CDFW 2019a). This species is associated with seasonal pools in unplowed grasslands. The vernal pool tadpole shrimp is found only in ephemeral freshwater habitats, including vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California.

California tiger salamander. The California tiger salamander is listed as threatened at both the federal and state level, and is a CDFW Watch List Species with a potential to occur in seasonally wet areas in the northeastern and northwestern portions of the site (CDFW 2019a). California tiger salamanders are found in riparian and wet meadow habitats, as well as in grasslands. Most of their life cycle is spent underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development.

Western spadefoot. The western spadefoot is a CDFW Species of Special Concern with the potential to occur in seasonally wet areas in the northeastern and northwestern portions of the site (CDFW 2019a). This species inhabits areas with slightly moist, friable soils in mostly treeless habitats, and requires rain pools for spawning with little to no vegetation.

Burrowing Owl. Burrowing owl is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). Burrowing owls utilize small mammal burrows

for nesting and cover year-round (CDFW 2019c). Although no California ground squirrels (*Otospermophilus beechyi*) or associated burrows were observed during the field survey, the project site contains potential nesting and foraging habitat for this species. The nearest documented occurrence is for burrowing owls and occupied burrows observed in grazed grassland, vernal pool habitat, approximately 2 miles north-northeast of the project site (CDFW 2019b).

Swainson's Hawk. Swainson's hawk is a state-listed threatened species with a moderate potential to occur on the 70-acre project site (CDFW 2019a). This species typically nests in isolated large trees located in open woodland, savanna, or riparian habitats, and foraging occurs in nearby grasslands and agricultural areas (CDFW 2019c). Within the project site, large trees provide potential nesting habitat and open agricultural areas provide potential foraging habitat for Swainson's hawk. There are at least five documented occurrences of this species within 5 miles of the project site (CDFW 2019b). The site is used for annual row crop production, which can provide foraging habitat for Swainson's hawk, depending on the specific crop grown onsite.

Loggerhead Shrike. Loggerhead shrike is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). This species occurs in grasslands, open areas, orchards and areas with scattered trees, shrubs, fences, and other perching options. The highest densities are found in more complex habitat types, such as open-canopied valley foothill hardwood, valley foothill hardwood-conifer, and valley foothill riparian (CDFW 2019c). The project site provides poor quality nesting habitat as the site frequently disturbed by disking activities and residential dwellings, and lacks scattered perching options. There are no documented occurrences of this species with 25 miles of the project site (CDFW 2019b).

Pallid Bat. Pallid Bat is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). This species primarily roosts in caves, mines, and crevices, but may also utilize hollow trees or buildings for roosting. Foraging generally occurs in open habitats. Pallid bat are extremely sensitive to their roosting sites (CDFW 2019c). Although the project site provides potential foraging and roosting habitat, the level of existing human disturbance onsite likely precludes this species from utilizing the site. The nearest documented occurrence is for bats detected near the Merced River in 1999, approximately 9.6 miles north-northwest of the site (CDFW 2019b).

Townsend's Big Eared Bat. Townsend's big-eared bat is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). This species primarily roosts in limestone caves and lava tubes, man-made structures, and tunnels located in mesic habitat types. Foraging generally occurs along habitat edges. Townsend's big-eared bat are

extremely sensitive to their roosting sites (CDFW 2019c). Although the project site provides potential foraging and roosting habitat, the level of existing human disturbance onsite likely precludes this species from utilizing the site. The nearest documented occurrence is for one bat observed near Merced Falls Diversion Dam, approximately 14.4 miles northeast of the site (CDFW 2019b).

Western Red Bat. Western red bat is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). This species primarily roosts in rock crevices and shallow caves on cliff sides, but may occasionally roosts in buildings. Their preferred habitat contains abundant roost sites in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, and urban (CDFW 2019c). Although the project site provides potential foraging and roosting habitat, roosting opportunities within the project site are few and limited to occupied residential dwellings. The nearest documented occurrence, based on a 1991 collection, is mapped as in the vicinity of Merced, approximately 1.3 miles southwest of the site (CDFW 2019b).

Western Mastiff Bat. Western mastiff bat is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). This species primarily roosts in trees within riparian habitats of the Central Valley and lower reaches of Sierra Nevada streams (CDFW 2019c). Although the project site provides potential foraging and roosting habitat, roosting opportunities within the project site are few and limited to non-riparian areas. The nearest documented occurrence is for bats detected along the Merced River, approximately 9.5 miles north-northwest of the site (CDFW 2019b).

American Badger. American badger is a CDFW Species of Special Concern with a low potential to occur on the 70-acre project site (CDFW 2019a). This species utilizes dry, open, treeless areas, such as grasslands, coastal scrub, agriculture, and pastures, especially with friable soils (CDFW 2019c). The project site provides marginal habitat due to the level of existing disturbance, including regular disking. No potential dens were observed onsite during the field survey. The nearest documented occurrence is 6 to 11 badgers detected at or near an active den site in 2016, 2017, and 2018, approximately 10.5 miles south-southeast of the site (CDFW 2019b).

San Joaquin Kit Fox. San Joaquin kit fox is a federal and state listed species with a low potential to occur on the 70-acre project site (CDFW 2019a). This species typically occurs in grassland and agricultural areas (CDFW 2019c). The project site provides marginal habitat due to the lack of open, native habitat and movement corridors onsite. No potential dens were

observed onsite during the field survey. The nearest documented occurrence is for one adult kit fox observed approximately 3.7 miles east-northeast of the site (CDFW 2019b).

Special-Status Plants

Based on the literature and database review previously described, twenty-five (25) special-status plant species are known to occur within the USGS quadrangles included in the database search. Of these, thirteen (13) species were removed from consideration due to lack of suitable habitat (Appendix B).

Of the twenty five (25) special-status plant species, thirteen (13) species do not have the potential to occur on the site due to a lack of preferred soil types, such as alkaline, rocky, and serpentine soils not present on the project site lack of specific habitat types, such as marshes and swamps, cismontane woodland, valley and foothill grassland, and/or chenopod scrub, and/or the project site is located outside of the species' known geographic range.

Aerial imagery of the site indicates there is the potential for wetlands and vernal pools in the northeastern portion of the site, which may provide habitat for twelve (12) of the twenty-five (25) special-status plant species known to occur within the USGS quadrangles included in the database search. Vernal pool smallscale (*Atriplex persistens)*, succulent owl's clover (*Castilleja campestris* var. *succulenta)*, dwarf downingia (*Downingia pusilla),* Boggs Lake hedge-hyssop (*Gratiola heterosepala),* pincushion navarretia (*Navarretia myersii* ssp. *myersii),* shining navarretia (*Navarretia nigelliformis* ssp. *radians),* Colusa grass (*Neostapfia colusana),* San Joaquin Valley Orcutt grass (*Orcuttia inaequalis),* hairy Orcutt grass (*Orcuttia pilosa),* California alkali grass (*Puccinellia simplex),* Sanford's arrowhead (*Sagittaria sanfordii),* and Greene's tuctoria (*Tuctoria greenei)* (Appendix B).

No special-status plant species were identified in the 30-acre study area during the field survey; however the survey did not involve a botanical inventory and was conducted outside of the blooming period for many common and special-status plants. As stated previously, the project site supports a dominance or non-native and/or ruderal species common to disturbed sites. In addition, the 30-acre study area is disked annually and used for row crops.

The 40-acre annexation area was not covered in detail during the 2016 field survey. Therefore, determinations for special-status plant potential to occur on the 40-acre site are preliminary and subject to change. Subsequent field surveys could indicate presence of land cover types and natural vegetation communities that support special-status plants. As discussed above, based on the observance of aerial signatures of potential seasonal wetlands and vernal pools within the

annexation area, this Biological Resources Assessment identifies the special-status plants commonly found in wetlands or other mesic habitats as having a potential to occur within that portion of the project site.

5.5 Sensitive Natural Communities

There are no natural vegetation communities considered sensitive by CDFW in the project site.

5.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for wildlife migration. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal.

Because the 70-acre project site is a non-linear feature and bound by existing roads and development, it has little value as a potential wildlife corridor or habitat linkage. However, common urban wildlife species such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), and Virginia opossum (*Didelphis virginiana*) are likely move through the project site on a regular basis in search of food and cover habitat.

6. POTENTIAL BIOLOGICAL CONSTRAINTS

This section addresses potential impacts to sensitive biological resources that would result from construction of the University Village Merced student housing and retail component on the 30-acre survey area. For the purposes of this analysis, it is assumed that the entirety of the 30-acre survey area will be impacted by the project. When possible, potential impacts associated with future development of the 40-acre annexation area are discussed; however, any development of that area would be subject to further surveys and investigation and any conclusions regarding impacts to that area are preliminary.

6.1 Trees and Other Vegetation

The project would impact all land cover types present in the 30-acre survey area. No sensitive vegetation communities were observed during the field survey. If the Merced Local Agency Formation Commission (LAFCO) approves the City's request to annex the project site, street trees would be under the jurisdiction of the city. The City of Merced Street Tree Division requires maintenance of City trees (trees planted within 8-10 feet of City streets). If the project site is annexed to the City, removal of any City trees would require consultation with the City.

6.2 Jurisdictional Wetlands and Other Waters

A jurisdictional delineation of the project site has not performed to date. Based on the 2016 field survey, there are two drainages in the 30-acre survey area. These drainages function primarily as agricultural ditches and may be considered jurisdictional waters of the State, under the joint regulation of the RWQCB and CDFW.

Agricultural ditches are not considered jurisdictional waters of the U.S. [33 CFR 328.3(b)(3)]. These features are human-made structures excavated in uplands and are primarily used for irrigation purposes. The hydrology of these ditches is solely reliant on artificial inputs and therefore, would revert to dry land if artificial inputs ceased. In accordance with *Regulatory Guidance Letter No. 07-02 - Exemptions for Construction or Maintenance of Irrigation Ditches and Maintenance of Drainage Ditches under Section 404 of Clean Water Act*, even if the ditches were determined to be waters of the U.S., they would be exempt from regulation under Section 404 of the CWA.

Based on a review of aerial imagery, potentially jurisdictional wetlands and other waters may exist in the 40-acre annexation area; however the annexation area could not be accessed during the 2016 field survey. If development within the annexation area is proposed, Dudek recommends that a qualified biologist or wetland scientist perform a formal jurisdictional delineation of the site. The delineation would be verified by the appropriate regulatory agencies before preparing final development plans.

Impacts to jurisdictional features would require authorization from the resource agencies listed above in the form of wetland permits (e.g., CWA 404 Nationwide Permit, CWA 401 Water Quality Certification, and CDFW Section 1602 Streambed Alteration Agreement). Authorization typically requires a combination of impact avoidance and minimization and compensatory mitigation. Compensatory mitigation may be necessary for no net loss of wetland functionality. Examples of potential compensatory mitigation may include the purchase of mitigation credits from an agency-approved mitigation bank, or alternatively, payment into an in-lieu fee could be arranged with the relevant resource agencies.

6.3 Special-Status Species

Nesting Birds (including Loggerhead Shrike). The project site could support nesting birds, including raptors and ground nesting birds, protected by California Fish and Game Code and the federal Migratory Bird Treaty Act. No active nests or evidence of breeding was observed during the field survey; however, the survey was conducted outside of the generally-recognized

breeding season and did not focus on this resource. Project construction has a potential to impact nesting birds, especially if conducted during the breeding season. Dudek recommends the following mitigation measure, or similar, to avoid and/or minimize project-related impacts to nesting birds:

- Within 2 weeks prior to the initiation of any construction during the nesting season (February 1–September 30), a qualified biologist shall conducted a nesting bird survey to determine if any native birds are nesting on or near the site (including a 500-foot buffer for raptors). If any active nests are observed during surveys, a suitable avoidance buffer from the nests will be determined and flagged by the qualified biologist based on species, location, and planned construction activity. Consultation with CDFW may be required to determine appropriate buffer distances. These nests would be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. Dudek also recommends removing potential nesting habitat (i.e., trees and shrubs) outside of the nesting season.

Burrowing Owl. To avoid and/or minimize potential impacts to burrowing owl, Dudek recommends conducting a habitat assessment of the project site for this species prior to project construction. Ideally, the assessment should be conducted prior to the breeding season to allow time for protocol surveys and/or passive relocation, should any suitable burrows and/or burrows with owl sign be detected during the survey. Protocol surveys (if needed) should be conducted in accordance with the CDFW 2012 *Staff Report on Burrowing Owl Mitigation*, and passive relocation (if needed) should be conducted in coordination with CDFW. A habitat assessment and subsequent surveys are only necessary if project construction would occur during the burrowing owl breeding season (February 1 through August 31).

Swainson's Hawk. To avoid and/or minimize potential impacts to Swainson's hawk, Dudek recommends that a qualified biologist conduct a preconstruction survey for Swainson's hawk within 2 weeks prior to project construction. Should any active Swainson's hawk nests be detected in the survey area (project site plus a 500-foot buffer), full-time nest monitoring, in coordination with CDFW, may be necessary. The preconstruction survey is only necessary if project construction would occur during the Swainson's hawk breeding season (March 1 through August 31).

Native Bats (including Pallid Bat, Townsend's Big-Eared Bat, Western Mastiff Bat, and Western Red Bat). To avoid and/or minimize potential impacts to native and special-status bat species, Dudek recommends that a qualified biologist conduct a preconstruction within 2 weeks prior to construction to assess whether bats are roosting onsite. If bats (individuals or colonies)

are detected, CDFW shall be notified immediately. If a bat roosting or maternity colony cannot be completely avoided, the permittee and qualified biologist shall prepare a bat mitigation and monitoring plan for CDFW review and approval.

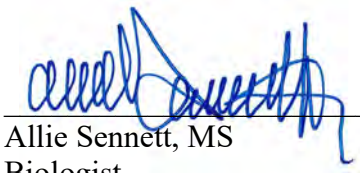
American Badger and San Joaquin Kit Fox. The project site provides marginal habitat for American badger and San Joaquin kit fox due to existing development and disturbances, such as frequent disking, in the area. No potential burrow sites were observed during the field survey. Based on a review of aerial imagery, the 40-acre annexation area provides marginal habitat for American badger and San Joaquin kit fox for similar reasons as the 30-acre study area. Therefore, these species have a low potential to occur onsite and are not expected to be impacted by the project. Dudek does not recommend mitigation measures for these species.

Special-Status Plants. No special-status plants were observed during the field survey; however, the field survey was conducted in December, which is outside of the blooming period for most special-status plants. As stated previously, the 30-acre study area supports a dominance of non-native and/or ruderal species common to disturbed sites. In addition, the study area is lacks natural vegetation communities, such as woodland, riparian, grassland, and vernal pools, or appropriate soils required by many special-status plant species.

The 40-acre annexation area was not surveyed for special-status plants. Therefore, Dudek recommends that a biologist conduct a field survey of the 40-acre annexation area to determine the potential for special-status plant and wildlife species to occur within the annexation area if development within the annexation area is proposed in the future.

If you have any questions or concerns regarding the content of this report, please contact me at 760.936.7969 or asennett@dudek.com.

Sincerely,



Allie Sennett, MS
Biologist

Att.: Figures 1-5
Appendix A, Special-Status Wildlife Species Potential to Occur
Appendix B, Special-Status Plant Species Potential to Occur

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APPENDIX A

Special-Status Wildlife Species Potential to Occur

Appendix A. Special-Status Wildlife Species Potential to Occur
Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project

Latin Name	Common Name	Status (Federal/State) [1]	Habitat [2]	Potential to Occur
Invertebrates				
Branchinecta conservatio	Conservancy fairy shrimp	FE/None	The conservancy fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	**Potential to occur.** Aerial photos indicate the potential for vernal pools and seasonal wetlands in northern portions of the annexation area, which may provide habitat for this species.
Branchinecta lynchi	vernal pool fairy shrimp	FT/None	Vernal pool fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	**Potential to occur.** Aerial photos indicated the potential for vernal pools and seasonal wetlands in the northern portions of the annexation area, which may provide habitat for this species.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT/None	The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus nigra* ssp. *cerulea*), which occurs in riparian and other woodland communities in California's Central Valley and the associated foothills. Female beetles lay their eggs in crevices on the stems or on the leaves of living elderberry plants. When the eggs hatch, larvae bore into the stems. The larval stages last for one to two years. The fifth instar larvae create emergence holes in the stems and then plug the holes and remain in the stems through pupation. Adults emerge through the emergence holes from late March through June. The short-lived adult beetles forage on leaves and flowers of elderberry shrubs.	**Not expected to occur.** No elderberry shrubs present.

Lepidurus packardi	vernal pool tadpole shrimp	FE/None	Vernal pool tadpole shrimp is associated with low-alkalinity seasonal pools in unplowed grasslands. The vernal pool tadpole shrimp is found only in ephemeral freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California. Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone.	**Potential to occur.** Aerial photos indicated the potential for vernal pools and seasonal wetlands in northern portions of the annexation area, which may provide habitat for this species.
		Fishes		
Hypomesus transpacificus	Delta smelt	FT/SE	Euryhaline species (tolerant of a wide salinity range) that spend a majority of their one year life span along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse widely into river channels and tidally influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally influenced backwater sloughs and channel edgewaters.	**Not expected to occur.** The site is outside of the species' known geographic range and there is no habitat present.
Mylopharodon conocephalus	hardhead	None/SSC	Occur in low- to mid-elevation streams in the main Sacramento-San Joaquin River drainage, and in the Russian River. Typically found in undisturbed areas of larger low- to mid-elevation streams, although they are also found in the mainstem Sacramento River at low elevations and in its tributaries to about 4,920 ft. They prefer clear, deep (>32 in) pools and runs with sand-gravel-boulder substrates and slow velocities. They tend to be absent from streams where introduced species, especially centrarchids (sunfish), predominate; and from streams that have been severely altered by human activity.	**Not expected to occur.** No suitable habitat present.

Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	FT/None	Spawn downstream of dams on every major tributary within the Sacramento and San Joaquin River systems. Regardless of life history strategy, for the first year or two of life rainbow trout and steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, there is ample cover from riparian vegetation or undercut banks, and invertebrate life is diverse and abundant.	**Not expected to occur.** The site is outside of the species' known geographic range and there is no habitat present.
		Amphibians		
Ambystoma californiense	California tiger salamander	FT/ST, WL	Found in riparian and wet meadow habitats, but is more common in grasslands. Most of their life cycle is spent underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Breeding takes place following the first heavy winter rains. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development. They appear to be absent in waters containing predatory game fish.	**Potential to occur.** Aerial photos indicate the potential for vernal pools and seasonal wetlands in northern portions of the annexation area, which may provide habitat for this species.
Rana draytonii	California red-legged frog	FT/SSC	Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds. Creeks and ponds with dense growths of woody riparian vegetation, especially willows (*Salix* spp.) are preferred, although the absence of vegetation at an aquatic site does not rule out the possibility of occupancy. Adult frogs prefer dense, shrubby or emergent riparian vegetation near deep [≥2 to 3 feet (0.6 to 0.9 m)], still or slow moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail (Typha sp.) occur adjacent to open water.	**Not expected to occur.** No suitable habitat present.
Spea hammondii	western spadefoot	None/SSC	Inhabits areas with slightly moist, friable soils in mostly treeless habitats. Usually absent from narrow canyons and highly mesic habitats. Requires rain pools for spawning with little to no vegetation.	**Potential to occur.** Aerial photos of the site indicate the potential for vernal pools or seasonal wetlands in northern portions of the annexation area, which could provide habitat for this species.

Reptiles				
Actinemys marmorata	northwestern pond turtle	None/SSC	Found in rivers, lakes, streams, ponds, wetlands, vernal pools, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters. Western pond turtles prefer areas that provide cover from predators, such as vegetation and algae, as well as basking sites for thermoregulation. Adults tend to favor deeper, slow moving water, whereas hatchlings search for slow and shallow water that is slightly warmer. Terrestrial habitats are used for wintering and consist usually of burrows in leaves and soil. Western pond turtles also lay their eggs in terrestrial habitats. They are rarely found at altitudes above 4,900 feet.	**Not expected to occur.** The project site is highly disturbed and lacks suitable aquatic habitat.
Gambelia sila	blunt-nosed leopard lizard	FE/FP, SE	Occur in semi-arid grasslands, alkali flats and washes in the San Joaquin Valley and surrounding valleys and foothills. It is diurnal species that uses mammal dens and burrows for shelter and cover. Breeds from May to June.	**Not expected to occur.** Outside of the species' known geographic range and there is no habitat present.
Thamnophis gigas	giant garter snake	FT/ST	Found in isolated populations restricted to the Central Valley. Occur in freshwater marsh and wetlands, irrigation ditches, low gradient streams and rice fields containing emergent vegetation. Adjacent upland habitat is necessary for cover and aestivation.	**Not expected to occur.** No habitat present. The irrigation ditches onsite lack upland refugia.
Birds				
Agelaius tricolor	tricolored blackbird	BCC/SSC, ST	A colonial species found almost exclusively in California. It utilizes wetlands, marshes and agricultural grain fields for foraging and nesting.	**Not expected to occur.** No nesting habitat present, and the row crops grown on the site would provide minimal insect prey.
Asio flammeus	short-eared owl	None/SSC	Occurs in open terrain such as prairies and marshes. Nests on the ground and eats small mammals.	**Not expected to occur.** No nesting habitat present.
Athene cunicularia	burrowing owl	BCC/SSC	The burrowing owl utilizes abandoned ground squirrel burrows in open habitats and grasslands, also disturbed areas. Diet consists of insects, small mammals, reptiles and amphibians. Commonly uses burrows on levees or mounds where there are unobstructed views of possible predators such as raptors or foxes.	**Low potential to occur.** Potential nesting and foraging habitat is present; however, no ground squirrels or associated burrows suitable for nesting or overwintering were observed during the field survey.

Buteo swainsoni	Swainson's hawk	BCC/ST	Spends the breeding season in the Central Valley of California and is commonly found in agricultural areas or open grasslands containing solitary trees for nesting. Diet consists of small mammals and reptiles.	**Moderate potential to occur.** Potential nesting and foraging is present and there are five documented occurrences of this species within 5 miles of the project site (CDFW 2019).
Charadrius montanus	mountain plover	BCC/SSC	This species is a winter resident in the Central Valley from September through March. Found in Sutter and Yuba cos. southward into Mexico at elevations below 3,200 feet. Also found in foothill valleys west of the San Joaquin Valley, the Imperial Valley, and plowed fields of Los Angeles and western San Bernardino cos. Foraging occurs in short and open grasslands, plowed fields with little vegetation, and open sagebrush areas.	**Not expected to occur.** No nesting habitat present. This species is not known to nest in California (CDFW 2019).
Circus hudsonius	northern harrier	None/SSC	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	**Not expected to occur.** The site is outside of the species' known geographic range and there is no nesting habitat present.
Haliaeetus leucocephalus	bald eagle	FDL, BCC/FP, SE	Lives near large bodies of open water such as lakes, marshes, estuaries, seacoasts and rivers, where fish are abundant. Usually nests within one mile of water in tall trees with open branchwork bordering lakes or large rivers. In Central California, bald eagles prefer foothill pines for nesting.	**Not expected to occur.** No nesting habitat present.
Lanius ludovicianus	loggerhead shrike	BCC/SSC	A year-round resident in most areas of California that contain grasslands, open areas, orchards and areas with scattered trees, shrubs, fences, and other perching options. Highest densities are found in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Feeds on small vertebrates and invertebrates, impales prey on thorns or barbed wire.	**Low potential to occur.** The project site provides poor quality nesting habitat as the site frequently disturbed by disking activities and residential dwellings, and lacks scattered perching options.

Mammals				
Antrozous pallidus	pallid bat	None/SSC	Occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. Roosts in caves, mines, crevices and occasionally hollow trees or buildings. Prefers open habitats for foraging. Highly sensitive to disturbance.	**Low potential to occur.** Potential foraging and roosting habitat is present; however, frequent human disturbance onsite likely precludes this species from utilizing the site.
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Occupies mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels. Highly sensitive to disturbance.	**Low potential to occur.** Potential foraging and roosting habitat is present; however, frequent human disturbance onsite likely precludes this species from utilizing the site.
Eumops perotis californicus	western mastiff bat	None/SSC	Occurs in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, chaparral, desert scrub, and urban. Suitable habitat consists of extensive open areas with abundant roost locations. Primarily roosts in rock crevices and shallow caves on cliff sides, but occasionally roosts in buildings. When roosting in rock crevices, needs vertical faces to drop off to take flight.	**Low potential to occur.** Potential foraging and roosting habitat is present; however, roosting opportunities within the project site are few and limited to occupied residential dwellings.
Lasiurus blossevillii	western red bat	None/SSC	In California, habitat includes forests and woodlands from sea level up through mixed conifer forests. Strongly associated with riparian habitats in the Central Valley and lower reaches of Sierra Nevada streams. Roosts primarily in trees. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Not found in desert areas.	**Low potential to occur.** Potential roosting and foraging habitat is present, but roosting opportunities are limited to non-riparian trees. There are no riparian areas onsite.
Taxidea taxus	American badger	None/SSC	Utilizes dry, open, treeless areas, such as grasslands, coastal scrub, agriculture, and pastures, especially with friable soils. Preferred prey items include rodents and small mammals.	**Low potential to occur.** The project site provides marginal habitat due to the level of existing disturbance, including regular disking. No potential dens were observed during the field survey.

Vulpes macrotis mutica	San Joaquin kit fox	FE/ST	Occurs in grasslands and agricultural areas along the edges of the San Joaquin Valley. Utilizes dens created by other mammals, as well as larger pipes and culverts for cover. It is primarily a nocturnal species and feeds on small mammals, birds and reptiles.	**Low potential to occur.** Although potential habitat exists onsite, development in the surrounding area likely precludes this species from utilizing the site. No potential dens were observed during the field survey. The project site is not located in critical habitat for this species (USFWS 2019).

[1] **Status Abbreviations**
FE: Federally Endangered
FT: Federally Threatened
FDL: Federally Delisted
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened

[2] **Sources:** CDFW 2019c; Google Earth 2021

APPENDIX B

Special-Status Plant Species Potential to Occur

Appendix B. Special-Status Plant Species Potential to Occur
Yosemite Avenue – Gardner Avenue to Hatch Road Annexation Project

Latin Name	Common Name	Status (Federal/State/CRPR) [1]	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet) [2]	Potential to Occur
Plants				
Atriplex cordulata var. *cordulata*	heartscale	None/None/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy); saline or alkaline/annual herb/Apr–Oct/0–1835	**Not expected to occur.** No saline or alkaline soils present.
Atriplex depressa	brittlescale	None/None/1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools; alkaline, clay/annual herb/Apr–Oct/0–1050	**Not expected to occur.** No alkaline soils present.
Atriplex minuscula	lesser saltscale	None/None/1B.1	Chenopod scrub, Playas, Valley and foothill grassland; alkaline, sandy/annual herb/May–Oct/45–655	**Not expected to occur.** No habitat present.
Atriplex persistens	vernal pool smallscale	None/None/1B.2	Vernal pools (alkaline)/annual herb/June,Aug,Sep,Oct/30–375	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Atriplex subtilis	subtle orache	None/None/1B.2	Valley and foothill grassland; Alkaline/annual herb/June,Aug,Sep(Oct)/130–330	**Not expected to occur.** No alkaline soils present.
Brasenia schreberi	watershield	None/None/2B.3	Marshes and swamps (freshwater)/perennial rhizomatous herb (aquatic)/June–Sep/95–7220	**Not expected to occur.** No freshwater marshes or swamps present.
Calycadenia hooveri	Hoover's calycadenia	None/None/1B.3	Cismontane woodland, Valley and foothill grassland; rocky/annual herb/July–Sep/210–985	**Not expected to occur.** No rocky soils present.
Castilleja campestris var. *succulenta*	succulent owl's-clover	FT/SE/1B.2	Vernal pools (often acidic)/annual herb (hemiparasitic)/(Mar)Apr–May/160–2460	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Clarkia rostrata	beaked clarkia	None/None/1B.3	Cismontane woodland, Valley and foothill grassland/annual herb/Apr–May/195–1640	**Not expected to occur.** No habitat present.
Delphinium recurvatum	recurved larkspur	None/None/1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland; alkaline/perennial herb/Mar–June/5–2590	**Not expected to occur.** No alkaline soils present.

Downingia pusilla	dwarf downingia	None/None/2B.2	Valley and foothill grassland (mesic), Vernal pools/annual herb/Mar–May/0–1460	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Eryngium racemosum	Delta button-celery	None/SE/1B.1	Riparian scrub (vernally mesic clay depressions)/annual / perennial herb/June–Oct/5–100	**Not expected to occur.** The site is outside of the species' known elevation range.
Eryngium spinosepalum	spiny-sepaled button-celery	None/None/1B.2	Valley and foothill grassland, Vernal pools/annual / perennial herb/Apr–June/260–3200	**Not expected to occur.** The site is outside of the species' known elevation range..
Gratiola heterosepala	Boggs Lake hedge-hyssop	None/SE/1B.2	Marshes and swamps (lake margins), Vernal pools; clay/annual herb/Apr–Aug/30–7790	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Lagophylla dichotoma	forked hare-leaf	None/None/1B.1	Cismontane woodland, Valley and foothill grassland; Sometimes clay/annual herb/Apr–May/145–1100	**Not expected to occur.** No habitat present.
Navarretia myersii ssp. *myersii*	pincushion navarretia	None/None/1B.1	Vernal pools; often acidic/annual herb/Apr–May/65–1085	**Potential to occur.** Aerial imagery indicates the potential for vernal pools present in northern portions of the annexation area, which may provide habitat for this species.
Navarretia nigelliformis ssp. *radians*	shining navarretia	None/None/1B.2	Cismontane woodland, Valley and foothill grassland, Vernal pools; Sometimes clay/annual herb/(Mar)Apr–July/210–3280	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Neostapfia colusana	Colusa grass	FT/SE/1B.1	Vernal pools (adobe, large)/annual herb/May–Aug/15–655	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.

Orcuttia inaequalis	San Joaquin Valley Orcutt grass	FT/SE/1B.1	Vernal pools/annual herb/Apr–Sep/30–2475	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Orcuttia pilosa	hairy Orcutt grass	FE/SE/1B.1	Vernal pools/annual herb/May–Sep/150–655	**Potential to occur.** Aerial imagery indicates the potential for vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE/SE/1B.1	Cismontane woodland, Valley and foothill grassland; clay, often acidic/annual herb/Mar–Apr/45–490	**Not expected to occur.** No habitat present.
Puccinellia simplex	California alkali grass	None/None/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; Alkaline, vernally mesic; sinks, flats, and lake margins/annual herb/Mar–May/5–3050	**Potential to occur.** Aerial imagery indicates the potential for vernal pools and seasonal wetlands in northern portions of the annexation area, which may provide habitat for this species.
Sagittaria sanfordii	Sanford's arrowhead	None/None/1B.2	Marshes and swamps (assorted shallow freshwater)/perennial rhizomatous herb (emergent)/May–Oct(Nov)/0–2135	**Potential to occur.** Aerial imagery indicates the potential for seasonal wetlands and vernal pools in northern portions of the annexation area, which may provide habitat for this species.
Sidalcea keckii	Keck's checkerbloom	FE/None/1B.1	Cismontane woodland, Valley and foothill grassland; serpentinite, clay/annual herb/Apr–May(June)/245–2135	**Not expected to occur.** The site is outside of the species' known elevation range and lacks habitat.
Tuctoria greenei	Greene's tuctoria	FE/SR/1B.1	Vernal pools/annual herb/May–July(Sep)/95–3510	**Potential to occur.** Aerial imagery indicates the potential for potential wetlands and vernal pools in northern portions of the annexation area, which may provide habitat for this species..

[1] **Status Abbreviations**
FE: Federally Endangered
FT: Federally Threatened
SE: State Endangered
ST: State Threatened
SR: State Rare
CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

[2] **Sources:** CNPS 2019.
Google Earth 2021.

Appendix F

Cultural Resources Inventory Report

Dudek, August 2020

1102 R STREET
SACRAMENTO, CALIFORNIA 95811
T 916.443.8335 F 916.443.5113

August 26, 2020 10049

Julie Nelson
City of Merced
678 West 18th Street
Merced, California 95340

Subject: Cultural Resources Letter Report for the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project, City of Merced, California

Dear Ms. Nelson:

This letter report documents the cultural resources study conducted by Dudek for the proposed Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project (proposed project). The project proposes to annex 70 acres from Merced County to the City of Merced and to construct and operate the ”The Crossings”, a mixed-use development component on an approximately 28.6-acre portion of the project site. No development is proposed on the remaining approximately 40.2 acres (Remainder Area). The City of Merced is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). The cultural resources study included a Central California Information Center (CCIC) records search, Native American Heritage Commission (NAHC) Sacred Lands File search, tribal outreach, an intensive pedestrian survey, and recordation and evaluation of the property located at 1897 East Yosemite Avenue. The cultural resources study was conducted by Dudek in accordance with the standards and guidelines defined by the California Office of Historic Preservation (OHP), CEQA, and the *Merced Vision 2030 General Plan* (City of Merced 2012).

PROJECT LOCATION AND DESCRIPTION

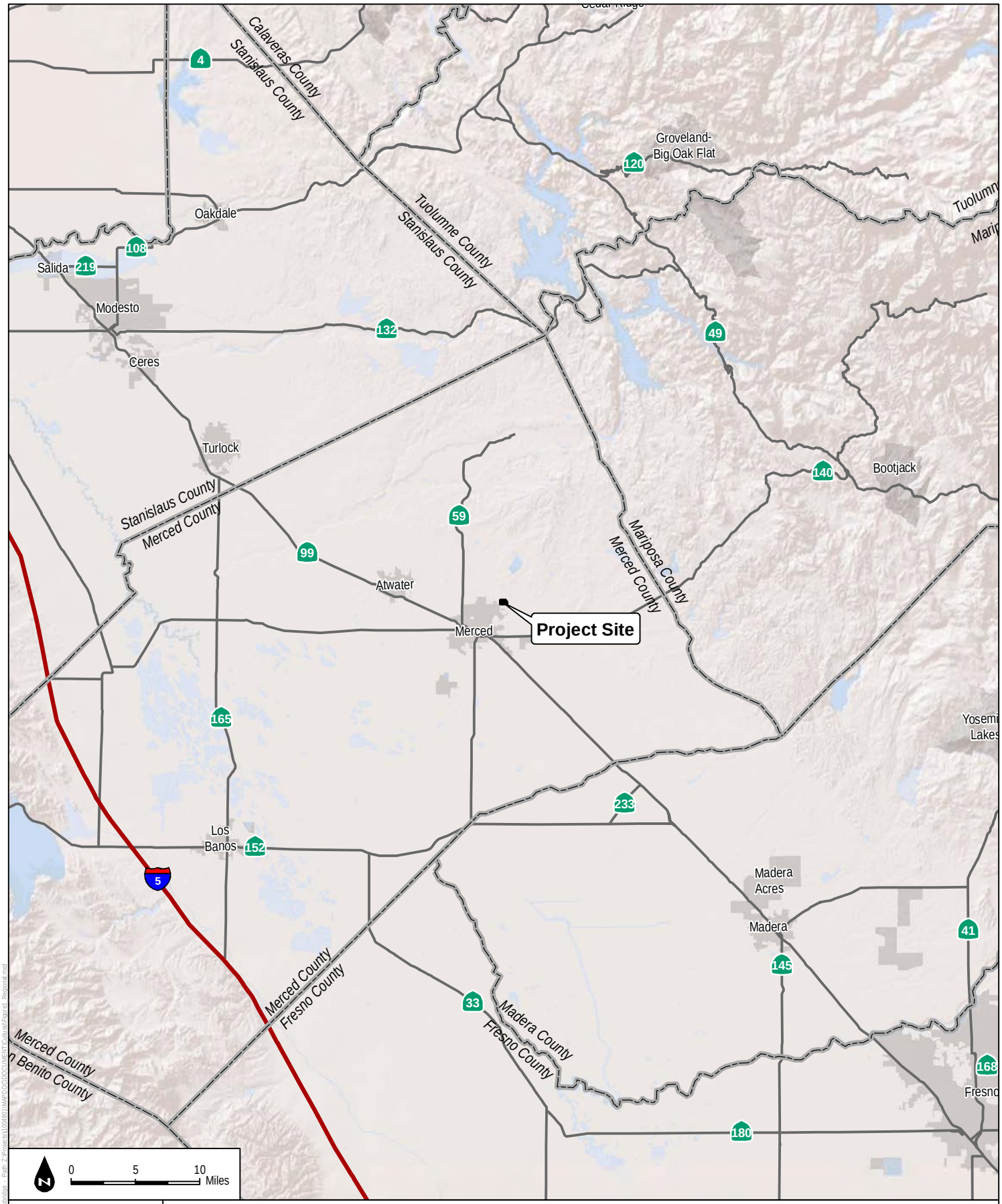
This project area is located in Section 9 of Township 7 South, Range 14 East, of the Merced, California 7.5’ USGS Quadrangle map. The approximately 70-acre project site is located in unincorporated Merced County contiguous to the City of Merced between North Gardner Avenue and Hatch Road along East Yosemite Avenue (Figures 1 and 2). The project area is bounded by East Yosemite Avenue to the south, North Gardner Avenue to the west, Hatch Road to the east, and an extension to the Yosemite Lateral irrigation canal to the north. The project area includes the following Assessor Parcel Numbers (APNs) 060-570-009, 060-570-010, 060-570-011, 060-570-012, 060-570-013, 060-570-014, 060-570-056, 060-570-058, 060-570-059, 060-570-097, and 060-570-098.

This cultural resources study evaluates impacts to cultural resources associated with implementation of the 28.6-acre mixed-use development ("The Crossings") of the proposed project on a project level, consistent with Section 15161 of the CEQA Guidelines. The remaining 40.2 acres of the proposed project are evaluated on a program level, consistent with Section 15168 of the CEQA Guidelines.

The Crossings is a proposed mixed-use development located on a 28.6-acre site that fronts Yosemite Avenue and Gardner Avenue. The project consists of a 540-unit apartment village that includes 20 three-story residential buildings, a 13,700 square foot clubhouse, and associated outdoor recreation space. The residential buildings would have 27 units per building. Of the 540 units, 300 units would be one bedroom, one bathroom and 240 units would be two bedrooms, two bathrooms. The project also includes five (5) mixed-use buildings consisting of 66,000 square feet of retail space on the ground level and 45,000 square feet of residential space on the second level, totaling 30 additional units (12 apartments and 18 extended stay units).

Vehicle access to the residential portion would be provided by a driveway off of E. Yosemite Avenue that would provide both ingress and egress to the site. Access to the retail portion would be provided by a driveway off of E. Yosemite Avenue and two driveways off of N. Gardner Avenue. Internal driveways would connect the retail and residential portions of the project site.

Water supply, wastewater conveyance and treatment, and storm drainage for the project would be provided by the City of Merced. The project would tie into the existing water, sewer, and storm drain lines located in E. Yosemite Avenue and N. Gardner Avenue. In addition, the earthen irrigation canal on the north side of the project, an extension of the Yosemite Lateral irrigation canal from Lake Yosemite, will be piped and converted into an enclosed water line.



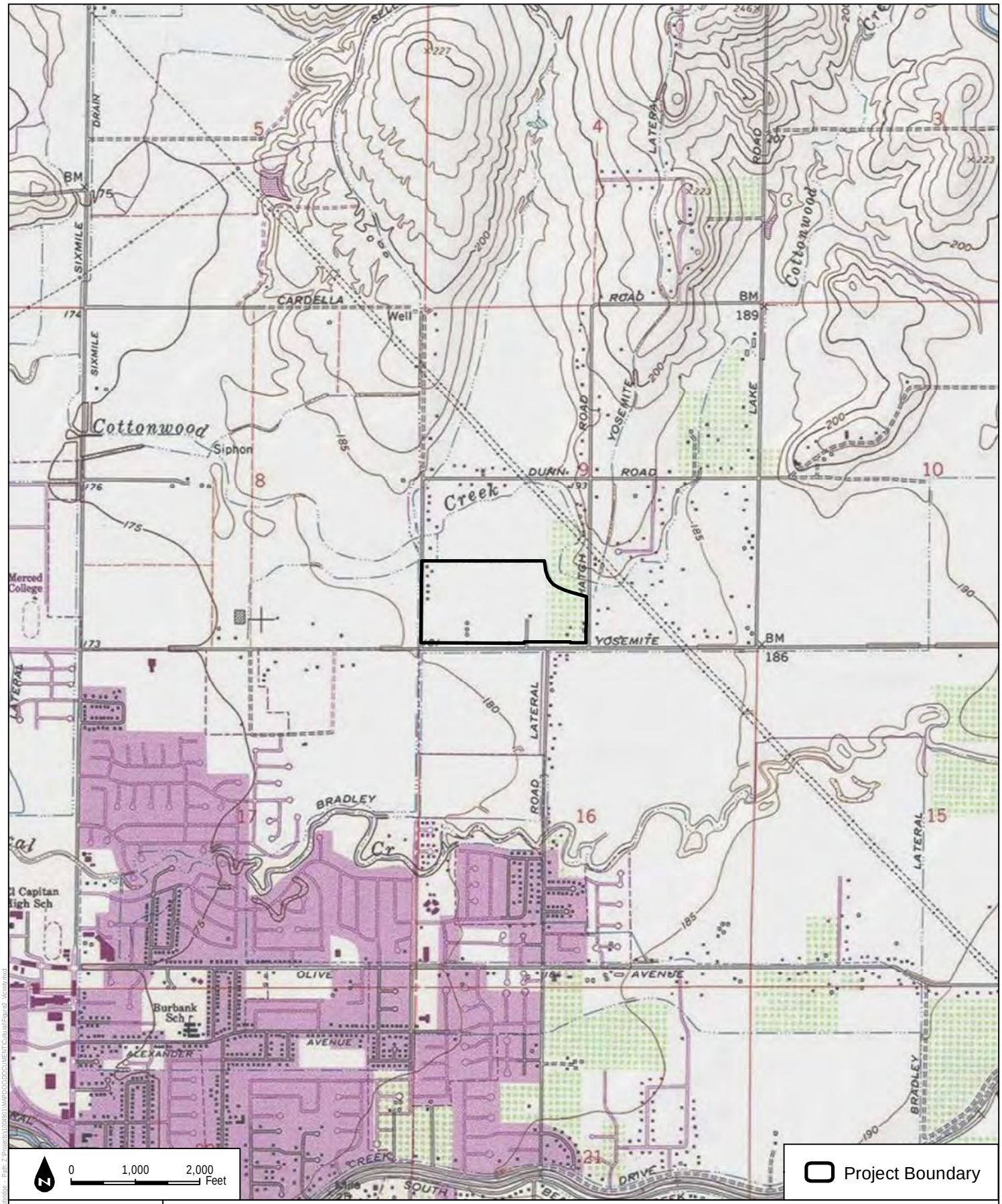
DUDEK

SOURCE: ESRI Basemaps (Accessed 2016); County of Merced (2014)

FIGURE 1

Regional Map

Merced Student Housing Project



DUDEK

SOURCE: USGS 7.5-Minute Series Merced Quadrangle
Township 7S, Range 14E, Section 9

FIGURE 2
Vicinity Map

Merced Student Housing Project

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REGULATORY FRAMEWORK

National Register of Historic Places

While there is no federal nexus for this project, the National Register of Historic Places (NRHP) criteria was applied to the evaluation of historical resources within The Crossings component.

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service (NPS), under the U.S. Department of the Interior, the NRHP was authorized under the NHPA, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by NPS.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance, How to Apply the National Register Criteria, as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). NRHP guidance further asserts that properties be completed at least 50 years ago to be considered

for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

State Regulations

The California Register of Historical Resources (Public Resources Code Section 5020 et seq.)

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." (PRC Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." (PRC section 5024.1(a).) The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see Cal. Code Regs., tit. 14, Section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP and properties listed or formally designated as eligible for listing in the NRHP are automatically listed

in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource;" it also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource." (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA. (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption. (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the

resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q). In turn, the significance of an historical resource is materially impaired when a project:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (CEQA Guidelines Section 15064.5(b)(2)).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b], and [c]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC Sections 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

Native American Historic Cultural Sites (PRC Section 5097 et seq.)

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Heritage Commission to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Merced Vision 2030 General Plan

The City of Merced has specific cultural regulations outlined in the *Merced Vision 2030 General Plan* (City of Merced 2012). This plan was adopted to serve as a guide for growth and planning within the city. It addresses the City's goals regarding their cultural resource preservation and states three policies designed to achieve these goals. The plan is a living document and is amended at times. The policies reproduced below are current at the time of this cultural resource inventory (City of Merced 2012).

Goals

(1) A Diverse and Rich Historic and Cultural Resource Environment

(2) A Long-Term Community Historic Preservation/Improvement Program

Polices

SD-2.1 Identify and Preserve the City's Archaeological Resources

It is thought that the San Joaquin Valley was inhabited in the late Pleistocene and early Holocene period, dating from perhaps as early as 12,000 years before the present (B.P.). Prior to Euro-American arrival, the San Joaquin Valley was occupied by Yokuts Indian populations. The Yokuts settlement system was characterized by principal villages on terraced areas adjacent to watercourses. Knowledge of these early inhabitants is limited. It is likely that the streams traversing the Merced Planning Area served as settlements for Yokuts and it is a State policy to preserve and protect the archaeological resources of the region.

Implementing Actions:

2.1.a Utilize the inventory of known archeological sites maintained by the Central California Information Center for the review of development proposals. The Archaeological Inventory shall be used to identify areas within the Merced Planning Area subject to preservation practices. For large scale development projects proposed in close proximity to a natural water course, or in an area which exhibits potential for containing cultural resource material, preliminary cultural resource inventories should be conducted by a qualified archaeologist. Information from these site investigations shall be provided to the Central California Information Center for recordation.

2.1.b Utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation. Cultural resource discoveries are subject to the rules and regulations in State

law. The City should work closely with the building trades industry to facilitate compliance with these laws and to assist where necessary in minimizing the adverse impacts of the implementation of these laws on the City's construction industry.

2.1.c If appropriate, consider reconstruction of archaeological sites in City parks, on school grounds, in open space areas, or other suitable locations where they can serve an educational purpose. In order to increase the public's awareness to the cultural heritage of Merced, the City should support the efforts of Native American groups and individuals to develop cultural displays and exhibits in local public places.

SD-2.2 Identify and Preserve the City's Historic and Cultural Resources

The City of Merced contains many fine examples of its early development. Historic buildings, tree plantings, and other improvements serve to give the City a special character which is unique in the San Joaquin Valley. The City of Merced is dedicated to preserving, protecting and enhancing its historic and cultural resources.

Implementing Actions:

2.2.a Expand City cultural and historic information resources. Establish and maintain an inventory of cultural, historic, and architecturally significant resources within the City and the planning area by expanding and improving the existing inventory of the downtown area. Consider a program or support other programs which designate historic landmarks and architecturally significant structures in the City.

2.2.b Support community groups and individuals working to preserve, protect and enhance the City's Historic and Cultural Resources. In accordance with the City's Historic Preservation Ordinance (MMC 17.54) which outline procedures and criteria for historic designation, continue to support Historic Preservation Commission activities. Support, as feasible, both private and public efforts to preserve and rehabilitate historic structures in the City, including the need to protect a site from intrusion of surrounding land uses which are uncomplimentary or incompatible.

2.2.c Review and revise as necessary, the City's development/construction regulations to facilitate the preservation of historic structures. Investigate and consider the possibility of using historic overlay zones in conjunction with the Historic Preservation Ordinance to control the use or modification of significant historic areas in the community, recognizing the limitations of Government Code Section 37361 as it applies to church facilities.

2.2.d Support, as feasible, efforts to promote the preservation of historically or architecturally significant structures in the City. Support the preservation of the downtown's historically and architecturally significant structures. Encourage the design of new developments to be consistent with the design, character, and building bulk of the existing downtown. Encourage and support efforts to preserve historic structures in the Courthouse Square area, Downtown, Central Merced, and throughout the City. The restoration of the Merced Theater is one such current project.

2.2.e Support efforts to designate historic districts within the City. The City should, as appropriate, be supportive of private efforts to establish historic districts with appropriate recognition and designation as National Registry Districts or by means of some other historic district recognition.

SD-2.3 Develop and Promote Financial Incentive Programs for Historic Preservation Efforts

Historic and cultural resources can be a financial liability to private citizens. In many instances, it is more economical to demolish and build new structures than to rehabilitate historic structures. The economics of maintaining and improving historic properties have resulted in many building and structures being lost or allowed to deteriorate to such a degree that preservation is impractical. The City will assist in the identification of financial resources that can be used by individuals and groups in the City to preserve, enhance and protect the historic and cultural resources of the City.

Implementing Actions:

2.3.a Work to identify financial resources which can be used for historic preservation efforts in Merced. Utilize, where possible, Redevelopment funds to help finance restoration of historic buildings and structures in Merced. Identify other sources of historic preservation funds, such as Community Development Block Grants, Office of Historic Preservation Grant Funds, tax incentives, etc., to be used to finance historic renovation/restoration projects.

2.3.b Provide access to information on financial resources available to property owners to assist in historic preservation/restoration efforts. Refer interested property owners to the State Office of Historic Preservation, for information regarding tax advantages of National Registry of historic properties, special building code standards applicable to historic buildings and structures, and loan and grant programs available to finance historic preservation/renovation.

BACKGROUND RESEARCH

Records Search Results

A records search was completed for the current project area and a half-mile radius by staff at the CCIC at California State University Stanislaus on December 7, 2016 (Appendix A). This search included a review of their collection of mapped prehistoric, historical, and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, historical maps, and local inventories. Additional consulted sources included the NRHP, California Inventory of Historical Resources/CRHR and listed OHP Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks.

Previously Conducted Studies

CCIC records indicate that nine (9) previous cultural resources technical investigations have been conducted within one-half mile of the proposed project area (Table 1). Of these studies, one includes a portion of the project area (ME-04387). ME-04387 is an archaeological and built environment assessment for the University of Merced Development Project and associated local improvements. A portion of this study's project area includes road improvements to East Yosemite Avenue, adjacent to the project area to the south. While the study discovered several previously unknown cultural resources, none were within one-half mile of the project area.

Table 1
Previous Technical Studies

Report Number	Date	Title	Author
Within the project area			
ME-04387	2001	University of California, Merced, Cultural Resources (Archaeological and Historic Built Environment Resources), Technical Report.	URS Corporation
Within the one-half-mile search area			
ME-00584	1991	Cultural Resources Survey for a Residential Subdivision Dunn Road and Cottonwood Avenue Merced County, California.	Bissonette, Linda
ME-00646	1990	Cultural Resource Investigation of the Proposed Black Rascal Estates 43.7 Acres in Merced County, California.	Napton, L. K.
ME-04384	2001	Archaeological Survey Report, Merced Campus Parkway (Draft Technical Report, Federal Aid Project #RPHP21L-0484[001]).	URS Corporation
ME-04385	2001	Archaeological Survey Report--Addendum 1, Merced Campus Parkway (Draft Technical Report, Federal Aid Project #RPHP21L-0484[001]).	URS Corporation
ME-04698	2002	Archaeological Survey Report--Addendum 2, Merced Campus Parkway (Draft Technical Report; Federal Aid Project #RPHP21L-0484[001]).	URS Corporation

Report Number	Date	Title	Author
ME-05956	2005	Cultural Resources Fieldwork Results for Cottonwood Creek Bicycle Path Corridor, Merced County, California.	Bowden, E.
ME-06949	2002	Historic Property Survey Report, Addendum 1. Merced Campus Parkway, Federal Aid Project #RPHP21L-0484(001).	Dexter, S.
ME-06979	2002	Historic Architectural Survey Report University Community Plan Project Merced County, California.	Herbert, R. F.

Previously Identified Cultural Resources

CCIC records indicate that no archaeological or built environment resources have been previously identified within the proposed project area, or within one-half mile of the project area.

Archival and Building Development Research

Dudek consulted historic maps and aerial photographs to understand development of The Crossings component and surrounding properties. Historic aerial photographs were available for 1946, 1958, 1999, 2005, 2009, 2010, and 2012 (NETR 2017). The Merced County Assessor's online system was accessed on January 31, 2017, and provided a property record with basic information about the property at 1897 East Yosemite Avenue. Additional primary and secondary source documentation including previous cultural resource studies in the area, irrigation reports, historic newspapers and the a book titled *A History of Merced County* by John Outcalt were used as part of an extensive research effort for possible connections to significant people and events associated with the property.

NAHC and Tribal Correspondence

Dudek requested a NAHC search of their Sacred Lands File (SLF) on December 7, 2016 for the proposed project area. The NAHC results, received December 12, 2016, failed to indicate the presence of Native American cultural resources within the project area or within one-half mile or the project area. Dudek sent information outreach letters to all NAHC-listed Native American tribal representatives on February 6, 2017 (Appendix B). No responses to these outreach efforts have been received to date. Any subsequent tribal outreach responses will be forwarded to the lead agency.

CULTURAL CONTEXT

Prehistoric Context

Paleoindian Period (ca. 12,000 to 9000 BP)

There is evidence of human habitation in the region dating to approximately 12,000 years before present (BP). While few sites of Paleoindian age have been identified in this area, occupation is documented to date to at least 11,000 years ago (Fenenga 1993; Fredrickson and Grossman 1977; Hale, Giacinto, and Hanten 2016; Riddell and Olsen 1969; Siefkin 1999; Wallace 1991; Wallace and Riddell 1988). Most of the evidence for a Paleoindian presence in the valley has been limited to surface finds of fluted projectile points (see below), that are typically regarded by archaeologists to be associated with populations occupying this area during the late Pleistocene and early Holocene.

As noted above, the evidence for a Paleoindian occupation in the San Joaquin Valley has been in the form of numerous fluted, concave base (Clovis or "Clovis-like") projectile points, along with other artifacts presumed to be Paleoindian in age (e.g., "humpies" and crescents; see Fredrickson and Grossman 1977; Sampson 1991). Such artifacts have been collected from surface contexts in several locations, most notably from the southern shoreline of Tulare Lake southeast of Mendota. Unfortunately, many of these discoveries have been made by amateur collectors, many of whom were collecting illegally, so limited provenance is available for these artifacts. This has resulted in an enormous and irretrievable loss of data for understanding the Paleoindian Period in this region.

Early Period (ca. 9000 to 6000 BP)

Evidence for the Early Period in the San Joaquin Valley is limited. During this period, however, it is believed that human subsistence was based largely on the hunting of large game and fishing (Sutton 1997:12). Grinding implements, such as mortars, pestles, millingstones, and handstones, appear infrequently during this time in the archaeological record. Other types of artifacts in these assemblages include hand-molded baked clay net weights, Olivella and Haliotis shell beads and ornaments, charmstones, and stemmed projectile points. Bone artifacts are uncommon. Burials are typically fully extended, oriented to the west, and generally have associated artifacts (e.g., quartz crystals). Cremations are rare (Moratto 1984:181–182; Sutton 1997:12).

Two sites that are important for a better understanding of the Early Period on the western slopes of the Sierra Nevada are Skyrocket (CAL-629/930; Bieling et al. 1996; La Jeunesse and Pryor 1998) and Clarks Flat (CAL-342; Milliken et al. 1997; Peak and Crew 1990). The Skyrocket site contained eight components spanning the time between 9400 and 7000 BP, as evidenced by the radiocarbon dates and artifact assemblage (e.g., fluted, stemmed, and Pinto points). La Jeunesse et

al. (2004) viewed the Skyrocket site as transitional from Paleoindian to Archaic times, and interestingly, contained some of the earliest evidence of mortar and pestle use in California. The Clarks Flat site produced the earliest radiocarbon date of the two sites at 9,570 ± 150 radiocarbon years before present (RCYBP; Milliken et al. 1997:22) and also contained stemmed points. Despite the evidence from these two sites, however, Delacorte (2001:14) observed that "both the structure and age of early Holocene occupation in the Sierra Nevada and adjacent portions of California have yet to be well defined."

Middle Period (ca. 6000 to 3000 BP)

After approximately 6,000 years BP the climate became generally warmer. This time period is characterized by a more generalized subsistence pattern (Moratto 1984:183; Sutton 1997:12). While hunting, fowling, and fishing continue to be the focus of subsistence activities, an increased emphasis on seed processing (particularly acorns) is evident. Artifacts include Olivella and Haliotis beads and other ornaments, distinctive spindle-shaped charmstones, cobble mortars, chisel-ended pestles, and large projectile points (inferring use of the atlatl) (Moratto 1984:183; Sutton 1997:12). Bone tools, such as awls, fish spear tips, saws, and flakers may be evidence of generalized subsistence, but preservation bias (i.e., the lack of these perishable tools in earlier components) may have affected the archaeological record. Burials are tightly flexed and have few associated artifacts. At the same time, there is a slight increase in the number of cremations. Evidence of violent death appears in the burial assemblage, as indicated by disarticulated skeletons with embedded weapon points (Moratto 1984:183).

Wedel's (1941) excavations at Buena Vista Lake demonstrate that many of the artifacts are comparable to those found in the Delta and Santa Barbara Channel regions (Siefkin 1999:56; Wedel 1941:147–151), suggesting widespreadprehistoric interactions. A human finger bone from KIN-80, on the southwestern shore of Tulare Lake, was radiocarbon dated to 4,360 ± 70 RCYBP, representing one of the only radiocarbon dates on human bone in the Tulare Lake Basin and providing additional direct evidence for occupation in the San Joaquin Valley during the Early Period (Gardner et al. 2005).

Late Period (ca. 3000 to 150 BP)

The Late Period has been postulated to represent the occupation of the ethnographic Yokuts (e.g., Kroeber 1925; Gayton 1948; Latta 1977; Spier 1978a, 1978b; Wallace 1978), although this presumption is based on assemblage composition and must be conditioned by the recognition that artifacts cannot be equated with culture. This is especially true since it is increasingly understood that the high diversity of identified tribes in California may have been a relatively late phenomenon associated with the development of an individualized currency economy (Bettinger 2015).

During the Late Period in general, subsistence began to focus on the processing of acorns and other costly to process plant foods, with a proportionate decrease in the contribution of hunting, fowling, and fishing (Moratto 1984:183; Sutton 1997:12). Typical artifacts of this period include Olivella beads, Haliotis ornaments, stone beads and cylinders, clamshell disk beads, tubular smoking pipes of schist and steatite, arrow shaft straighteners, flat-bottomed mortars, cylindrical pestles, and small side-notched projectile points for use with the bow and arrow.

Ethnohistoric (post-AD 1750)

Northern Valley Yokut

The region surrounding the project area would have been within Northern Valley Yokut tribal territory during the ethnohistoric period (Wallace 1978). This group inhabited the lower San Joaquin River watershed and its tributaries extending from Calaveras River in the north to approximately the large bend of the San Joaquin River eastward near Mendota. The lower San Joaquin River meanders through the territory making bends, sloughs, and marshes full of tule reeds as it meanders. Farther from the rivers and marshes, the valley floor would have been dry and sparely vegetated (Wallace 1978, Kroeber 1925).

Northern Valley Yokut habitation areas were most commonly situated in close proximity to rivers and tributaries, more often on the east side of the river (Kroeber 1925). Yokut populations and habitation areas were generally concentrated near the San Joaquin River, and in the foothills to the east. This focus on waterways can also be seen in their dietary resources, which included various fish, waterfowl, antelope, elk, acorns, tule roots, and various seeds. In particular, salmon was an abundant food during the fall spawning and in springtime. A focus on fishing is also seen in the material culture consisting of net sinkers and harpoons, likely used from rafts constructed from tule reed bundles (Wallace 1978).

Traditional larger habitation areas were often situated upon mounds, on or near riverbanks. Northern Valley Yokut dwellings were constructed of tule reed woven mats places over a pole frame oval or round structure. These structures were generally from 25-40 feet in diameter, and typically housed a single family (Wallace 1978). This is in contrast to the larger multi-family dwellings erected sometimes by the Southern Yokuts. In addition to dwellings, earth covered ceremonial sweat lodges were constructed. While there were permanent, or semi-permanent, habitation areas in association with riverine resources, peripheral camps used when gathering, hunting, and processing resources such as acorns and seeds were common (Gayton 1948; Kroeber 1925).

The Northern Valley Yokuts saw sharp and devastating decline from disease and relocation to coastal missions nearly immediately after Spanish contact (Osbourne 1992). This served to

further increase with the large influx of cattle ranching, agriculture, and Anglos Americans after the gold rush (Osbourne 1992, Cook 1976).

The Historic Period

Spanish Period (1769–1822)

Spanish missionization of Alta California was initiated in San Diego (1769). A total of 21 missions were constructed by the Dominican and Franciscan orders between 1769 and 1823. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County; Grunsky 1989). The first Spanish arrived in the San Joaquin Valley in 1772, led by don Pedro Fages (Johnson, Dawson, and Haslam 1993). Over the next few decades several other Spanish expeditions would make it to the Merced area of the Valley. During the first decade of the 19th Century, a trail was established from the Los Angeles Basin to San Francisco.

Mexican Period (1822–1848)

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to Native American populations. Following the establishment of the Mexican republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger Land Grants to affluent Mexican citizens and rancheros. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to Native Americans, and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony. A Mexican land grant, Rancho Sanjon de Santa Rita, was issued in the vicinity to Francisco Maria Soberanes in 1841 (Ogden 1862). This grant included more than 48,000 acres within present day Merced and Fresno Counties. The grant was generally west of west of the San Joaquin River, including what is now Santa Rita Park and Dos Palos.

American Period (Post 1848)

California was officially ceded to the United States in 1848, which led to the continued appropriation of Native American territory by ranchers, prospectors, and an increasing number of settlers. The United States Government did little to dissuade these trespasses. By the mid-19th Century, Euro-Americans miners, failed in the lodes to the east, began to move into the area to try their luck at agriculture and to work as farm hands (Rolle 1998). From 1850, with the passage of California's Indian Act, until legislative reforms in the late 1880s, state laws provided

little actual protections to Native American population throughout California who often worked on these local ranches and farms.

As the area proved excellent for agriculture, populations continued to rise in Merced. By 1870, a post office was established. The success of farming in the region necessitated the need for more farm hands, steadily increasing the population of Merced The town was incorporated as the City of Merced in 1889 (Rolle 1998). Merced's position along a Southern Pacific Railroad line ballooned its population in the late 19th and earlier 20th centuries. The 1930s saw the appearance of large scale "agribusinesses" with the development of new water sources in the region and Merced's importance grew as an agricultural market city (Rolle 1998). During World War II, the Merced County fairgrounds became a temporary detainment center for Japanese Americans removed from their homes through President Roosevelt's Executive Order 9066 (Johnson, Dawson, and Haslam 1993). Post-War Merced saw steady, though not drastic population increase. The City of Merced is currently the county seat of Merced County.

CULTURAL RESOURCES SURVEY

Archaeological Resources

Dudek archaeologist William Burns, RPA, inspected all portions of The Crossings component of the project area on December 9, 2016, using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory. The Crossings portion of the project area includes approximately 25.6 acres in tilled agricultural land and approximately 3 acres developed with a residence a barn and various smaller sheds. The entire area was subject to an intensive pedestrian survey utilizing parallel transects spaced 15 meters apart. Mr. Burns examined the ground surface for surface artifacts, undisturbed areas, or archaeological deposits. Subsurface exposures and rodent burrows were opportunistically inspected for indications of soils with the potential to contain archaeological deposits. Ground visibility was excellent throughout the most of the area (approximately 85%). However, areas surrounding the residence lacked ground visibility as a result of parked agricultural machinery and paved areas (approximately 10%). The entirety of The Crossings portion of the project area has been subject to substantial disturbances related to agricultural and residential use. All portions of The Crossings component were found to be heavily disturbed as a result of past and present agricultural activities, construction of the residence and associated structures, and paved areas around the residence. No archaeological resources were identified within The Crossings component of the project during the field survey.

Built Environment Resources

Dudek archaeologist William Burns is cross-trained in conducting historic built environment field surveys. The survey entailed walking all portions of the 3 acre area that is developed and documenting each building with notes and photographs, specifically noting character-defining features, spatial relationships, and observed alterations. The survey was positive for one residential property and one irrigation ditch within that required recordation and evaluation for historical significance. The residence/farm located at 1897 East Yosemite Avenue on APN 060-570-010. The irrigation canal, which is an extension of the Yosemite Lateral, borders the project area on the north. Both were recorded on the appropriate set of DPR forms (Appendix C). Significance evaluations for the two resources are presented in the following section.

YOSEMITE LATERAL EXTENSION EVALUATION

An extension of the Yosemite Lateral irrigation canal (P-24-001891) enters the northeast corner of the project area and then borders the entire north boundary of the site. The irrigation canal is an open air, earthen ditch approximately 16 feet wide and 5.8 feet deep. Project designs currently plan on piping this irrigation ditch.

The Yosemite Lateral flows to the Project area from approximately 3 miles north at Yosemite Lake, a manmade reservoir. Yosemite Lake and Yosemite Lateral are both part of the Merced Irrigation District (MID; P-24-001909). The Yosemite Lateral itself begins at the Fairfield Channel, approximately 2.5 miles to the north by Yosemite Lake, and flows south until draining into Cottonwood Creek. The section at the northern boundary of the project area is a small conduit for the Yosemite Lateral. Below is a brief history from the DPR form.

> The Yosemite Lateral, probably built in 1888, is one of the oldest canals in this part of the country. The Crocker Huffman Land and Water Company built the lateral for the purposes of delivering water to the Yosemite Colony. As built, the lateral drew water through headgates at Lake Yosemite. Probably at the time of construction of the Fairfield canal, ca. 1903, the Yosemite Lateral was realigned to draw from the Fairfield. The Fairfield Canal, it appears, took over headgates formerly used by the Yosemite Lateral.

This extension of the lateral flows west from the main section of the Yosemite Lateral across the northern boundary of the project area. It is earthen and covered in grass, trapezoidal in shape and has a flat bottom that is earth/grass/river rock with low flat berms on each side of it. Seven particular features of the irrigation ditch are present within the project area, including a concrete dam, two concrete culverts with valve, two wood and concrete dams, and two small outlets with valves. Following are more detailed descriptions of these features.

Feature 1, located 650 feet east of N Gardner Avenue is a concrete dam. There are notches for a sluice gate but none of the boards remain. A few cracks are present in the concrete on the north side. At the eastern side of the feature is a valve to irrigate the fields to the south. The canal is 16 feet wide and 51 inches deep at this feature. Feature 2, located 1300 feet east of N Gardner Avenue is a concrete culvert leading to a ditch with a valve in a concrete box. The sluice gate is not present. The irrigation ditch is 16 feet wide and 70 inches deep at this feature. Feature 3, located 1900 feet east of N Gardner Avenue where the ditch turns south, is a concrete and wooden dam with the sluice gate still present. The concrete walls align with the canal. The dam allows a 4 foot wide opening with 2 inch by 4 inch boards present. The irrigation ditch is 18 feet wide and 64 inches deep at this feature. Feature 4, located 100 feet south of Feature 3, is an outlet on the south side of the ditch with a valve. Feature 5, located 270 feet south of Feature 3 where the ditch begins to turn east again, is an outlet on the south side of the ditch similar to Feature 4 but the valve is missing. Feature 6, located 90 feet west of Hatch Road, is a concrete dam with no sluice gate still present. The dam allows a 4 foot wide opening. The irrigation ditch is 16 feet wide and 40 inches deep at this feature. Feature 7, located 10 feet west of Hatch Road, is a concrete lined culvert. The irrigation ditch is 16 feet wide and 70 in deep at this feature.

The DPR form, written by JRP Historical Consulting Services in 2000, recommends P-24-001891 ineligible for listing in the NRHP/CRHR due to its very low degree of integrity. Dudek agrees with this recommendation for the extension to the Yosemite Lateral bordering the Project area on the north.

PROPERTY SIGNIFICANCE EVALUATION

The property significance evaluation was prepared by Dudek architectural historian Sarah Corder, MFA, who meets the Secretary of the Interior's Professional Qualification Standards for architectural history. The evaluation considers both NRHP and CRHR significance criteria and integrity requirements.

Property Description

Main House



Overview of the Main House, View to Northeast

The subject property is a vernacular, 1.5-story, single-family residence. The building sits on a concrete slab foundation and features a hipped roof sheathed in wood shingles. Exterior walls are clad in horizontal wood siding. The main entrance to the house is located on the south elevation. The entry door is located beneath a metal awning and is accessed via a poured concrete walkway and four wood steps. The façade of the house is asymmetrical with a central entry metal screen door, paired one-over-one windows on the west section of the façade; a bay window projection with three windows on the east section of the façade; and a projecting dormer on the half story. All windows on this elevation are one-over-one, wood-framed single-hung and the eastern projection features metal awnings above all windows. The west elevation is asymmetrical and features a half story projecting dormer and an irregular first story fenestration with a variety of window sizes from south to north. Two windows on this elevation have metal awnings. All windows on the west elevation are one-over-one, single hung wood-frame.

The rear (north) elevation of the house features a centered entry door with a shed style wooden porch with wooden supports, irregular fenestration on the first story and a projecting dormer on half story. All windows on the rear of the house are the same one-over-one, single hung wood windows seen on all other elevations in varying sizes and arrangements. The east elevation is asymmetrical featuring an irregular fenestration on the first story with a three bay window projection offset to the south and a projecting dormer on the half story.

Various heating and cooling elements are visible from the east elevation including an interior brick chimney, two metal stovepipes and what appears to be a metal cooling unit on the roof and on the ground near the bay window projection. There is a chain link fence that runs along the front of the main residence and the west side of the main residence. The enclosure features a poured concrete sidewalk, a mature tree and sparse grass.

Merced County property records indicate that the residence was built in 1920. The assessor's office documentation states that the building currently has 990 livable square feet, 1 bathroom, 2 bedrooms and a total of 5 rooms. Two of the building's elevations (north and south) contain entrances and the rear entrance features a wooden porch. The subject property also has multiple structures to the north of the main residence that are accessed by driveways on the east and west sides of the residence. The single-family residence and seven agricultural structures are located on approximately 27-acres of agricultural land. The property has a large collection of automobile parts and heavy equipment, as well as farming equipment and machinery, which supports the current resident's heavy hauling business, Reniero's Heavy Haul.

Outbuilding 1



Outbuilding 1 South Elevation

A small one-story wood frame structure is located north of the main residence. The structure is rectangular in-plan and features unpainted horizontal wooden siding, and a front gabled roof sheathed in composition shingles. The entry door is offset to the east and accessed by a small poured concrete stoop under a small front gabled wooden projection. There is also a small vent directly under the front gable of the structure.

Outbuilding 2



Outbuilding 2 West Elevation

Another one-story structure is located north of the main residence. The structure is rectangular in-plan with board-and-batten siding. Only the west elevation is visible due to a roof collapse and heavy vegetation growth on and around the building. The west elevation has a small fixed window offset to the south. There also appears to be a large fixed window and entry door offset to the north, but the heavy equipment and collapsed roof made it difficult to clearly identify materials and details. This structure has poor integrity overall.

Outbuilding 3



Outbuilding 3 North Elevation

The large wooden barn is roughly rectangular in plan with a steeply sloped shed roof that is sheathed in wood shingles. The north elevation of the building is clad in board-and-batten siding and features a large sliding door to the west and a standard entry door to the east. On the west side of the elevation there is projecting wooden track for the sliding door that does not appear to be original to the barn. The east elevation shows the steep pitch of the shed roof, and is clad in board-and-batten siding and features two twelve paned wood windows. The south elevation is clad in horizontal wood siding and features a set of paired single paned wood windows on the second story. The west elevation is clad in board-and-batten siding to the north and in horizontal wood siding to the south. The west elevation features a large sliding door to the south and an open storage area under a large shed roof to the north.

Outbuilding 4



Outbuilding 4 South Elevation

A small one-story shed with a pyramidal roof sheathed in composition shingles and clad in horizontal wood siding. The structure features a single wooden entry door on the south elevation.

Outbuilding 5



Outbuilding 5 South Elevation

The one-story front gabled barn has a wood shingle roof and is clad with board and batten siding and features a central block with two doors that swing out, which is flanked by two slightly recessed wings with single door entry points under shed roofs sheathed in wood shingles. The east elevation features a now enclosed section with roughly hewn vertical wooden panels and exposed rafters. The north (rear) elevation is clad in board and batten and features a wooden entry door to the west.

Outbuilding 6



Outbuilding 6 North and East Elevations

The small one-story structure with a front gabled roof is located slightly northeast of Outbuilding 5 and is clad in board and batten. There is a central entry door on the north elevation. The roof is missing all original materials. All other elevations are not visible due to heavy equipment and various farming machinery and materials.

Outbuilding 7



Outbuilding 7 South Elevation

The small one-story structure with a front gable roof sheathed in standing seam metal is clad in horizontal siding and is located to the east of Outbuilding 5. The front (south) elevation features a slightly offset to the east wood paneled door that serves as the only entry point to the structure.

Property Development History

The history of the residence, dating back to its construction in 1920, is altogether lacking despite extensive archival and property record research. With regard to design, materials, and workmanship, a review of Merced County electronic and hard copy property records yielded no building permits for new construction or alteration. Observed alterations to the property include the addition of heating and cooling elements to the roof of the residence, the addition of window air conditioning units, metal awnings, and a replaced/new concrete walkway around the property.

Historic aerial photographs were reviewed to identify any other changes to the property over time. The 1946 historic aerial photograph shows a narrow strip of property with a single access point with Outbuildings 1, 2, 3 and 5 in their existing locations. The historic aerial photograph from 1958 shows a small shed constructed to the south east of Outbuilding 5, which is no longer present on the property. There is a substantial gap in the historic aerial photographs from 1958-1999 and by 1999 all of the current buildings appear on the aerial and the property has changed dramatically with the addition of a U shaped drive through the property giving two access points to the property from East Yosemite Avenue. The 1999 aerial photograph also shows extensive agricultural machinery/equipment around the property. The aerial photographs from 1958 to 1999 show a

significant increase in the footprint of the residential portion of the property and a significant change in access points for the property. No additional changes were observed to the property in any of the remaining aerial photographs from 2005, 2009, 2010, 2012 (NETR 1946, 1958. 1999, 2005, 2009, 2010, 2012).

While no original building plans were identified, the property appears to retain much of its original simplistic vernacular style/design and workmanship, and its exterior materials appear to be largely intact. The property's feeling and association as a rural farming residence also remain intact. It appears that little has changed on the property, but the surrounding area shows heavy suburban development and a clear departure from the early rural development patterns in the area.

Property Historic Context

Merced County Agricultural Development

Merced County was established in 1855 and named after the Merced Lake. Prior to 1855, Merced County was part of Mariposa County and was sparsely populated with the 1860 census reflecting a population of only 1,141. At the time of its founding Merced County was largely made up of farms and ranches. Large scale population growth started in Merced County in 1872, when the Southern Pacific Railroad established a stop in Merced and transformed the landscape and development pattern of the county. By 1900 the census showed a population of 9,215 (Outcalt 1925: 297).

Agricultural development in Merced County is also an important pattern of development and continues to be a key element in the economic development of Merced County today. In 1873 the Farmers Canal Company was formed based on the work of civil engineer William Collier. While the Farmers Canal Company was successful in creating an extension to Canal Creek, they were unsuccessful in moving the canal further and sold their company to Charles Crocker and C.H. Huffman in 1882, which became Crocker-Huffman Land and Water Company in 1888. It was noted in a USGS report from 1899 that the Crocker-Huffman canal was the most important and reliable system in the San Joaquin Valley. By 1919 the Merced Irrigation District was formed and projects like the Exchequer Dam were undertaken and irrigation was taken to the next level. The important developments in irrigation systems allowed Merced County to transition from dry farming of small grains and livestock ranching to irrigation based farming. This transition allowed the farmers to switch from small grain farming and cattle ranching to tree and row crops. By the early decades of the twentieth century, dairy farming also became popular in Merced County and by the 1920s livestock was the most profitable business in Merced County (Grunsky 1899: 34-36, Oucalt 1925: 302, 340).

Land subdivision was also a key factor in the development of Merced County. Beginning with the development of irrigation companies and the establishment of the railroad in Merced, large portions of the county were subdivided into colonies. Although most of the development was closely tied to water rights and water development, the land development pattern created by large landholding entities like the railroad and the Crocker-Huffman Land and Water Company continued to be part of the development pattern throughout the 20th century. The colony style subdivision of properties created large ranches, small farms, ranchette and eventually medium density suburban developments throughout the county. (Dunbar 2000, Oucalt 1925:336-337).

California Bungalow Style

The subject property is an example of a vernacular bungalow-style (with nods to the Prairie style) residence and small family farm constructed in 1920. Merced, like other counties in California, had a residential boom in the 1920s. To support the population of 24,579 (Oucalt 1925:297), builders in Merced turned to one of the most popular styles of the time, the Craftsman style bungalow.

The Craftsman architecture movement in the United States is one of the most prevalent and widespread movements that appealed to almost all social classes. One of the most notable architectural developments arising from the Craftsman movement is the Bungalow. The Arts and Crafts movement began in the mid-late part of the 19th century in England as a reactionary movement against the excessiveness and ostentatious designs of the Victorian era. One of the key contributors to bringing the Craftsman movement to the United States was Gustav Stickley. His work and efforts helped fuel the development of the Craftsman movement and spread it across the United States.

Upon its arrival in California, the Craftsman movement produced a truly unique California architectural form – the California Bungalow. Developed by the work of Greene and Greene in Pasadena, the California Bungalow became one of the most widespread architectural movements in California. The adaptation of the Greene and Greene bungalow model for the masses contributed to its appeal and application to meet the needs of the housing booms happening across California following World War I. Builders and contractors began to mass-produce bungalow designs in pattern books and made them more available to the public. Although the Greene and Greene bungalows represent the highest artistic and pure forms of the movement; it is in the modest, vernacular application in places like Merced County that the mass production of the key characteristics of the style can be seen.

NRHP/CRHR Designation Criteria

The subject property is one of many family farms in the area from approximately the same period of construction and no significant historical associations were identified. Due to a lack of significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criteria A/1.

Archival research also failed to indicate any associations with significant persons. For these reasons, the subject property does not appear eligible under NRHP/CRHR Criteria B/2.

The main house is an example of a vernacular bungalow-style (with nods to the Prairie style) residence and small family farm constructed in 1920. Merced, like other counties in California, had a residential boom in the 1920s. To support the population of 24,579 (Oucalt 1925:297), builders in Merced turned to one of the most popular styles of the time, the Craftsman style bungalow.

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Although the Greene and Greene bungalows represent the highest artistic and pure forms of the movement; it is in the modest, vernacular application in places like Merced County that the mass production of the key characteristics of the style can be seen. However, the main house lacks some of the most distinctive characteristics of vernacular bungalows in California, including a full or partial front porch with columns, multi-pane windows, and exposed rafters.

Further, the seven outbuildings on the property primarily consist of ubiquitous structures in extremely poor condition. The two barns (Outbuildings 3 and 5) represent poor examples of three-portal style and transverse-style barns, respectively. These buildings lack integrity and exhibit signs of alteration/replaced components, as evidenced by mixed material types (corrugated metal and wood). In general, the barns lack important character-defining features of their respective styles.

Archival building permit research failed to provide information regarding the original builder or architect, but it is not likely to be the work of a master. Finally, the property does not appear eligible as a contributing property to an historic district. For these reasons, the subject property does not appear eligible under NRHP/CRHR Criteria C/3 (McAlester 2013:566-578, Gottfried 2009: 26, 190-194, SurveyLA Context 14-15).

The property is unlikely to yield any information important in prehistory or history and therefore does not appear eligible under NRHP/CRHR Criteria D/4.

Integrity Assessment

The property's location has remained unchanged since its initial construction; always located on a large rural/agricultural property, functioning as a single-family residence and family farm. However, a review of aerial photographs shows extensive change to the land surrounding the farm. When the subject property was originally developed it was surrounded by other large and small farms and the area was quite rural, but an aerial photograph from 1999 shows the development of multiple residential subdivisions to the south, east and west of the property. The area around the property continues to develop as evidenced by aerial photographs from 2005 and 2009 obtained from the National Environmental Research, LLC. The most recent aerial photo from 2012 shows a clear shift from rural development to suburban development with only a few small farming parcels remaining to the north of the property (NETR 2005, 2009, 2010, 2012). Therefore, the integrity of setting has been eroded as a result of encroaching development. The main house appears to retain requisite integrity of design, materials, and workmanship, however, it lacks important character-defining features of the vernacular bungalow style in California. The associated outbuildings on the property exhibit poor integrity overall, primarily as a result of neglect and weathering. Changes to the property's setting overtime, in combination with the paving of the property and poor condition of the outbuildings, have greatly affected the integrity of feeling for the property as a rural agricultural property. Finally, no important associated were identified with the property.

Summary of Findings

The property at 1897 East Yosemite Avenue is not significant to local, regional or national patterns of development or significant people, and suffers from integrity issues. As a result, the property is recommended not eligible under all NRHP and CRHR designation criteria. Therefore, the property is not considered a historical resource for the purposes of CEQA.

SUMMARY AND MANAGEMENT RECOMMENDATIONS

Archaeological Resources

Observation of the present conditions within the proposed project indicates that all areas have been subject to a substantial degree of past disturbances related to agricultural and residential activities. No newly identified archaeological resources were recorded during the pedestrian survey of The Crossings area. Further, a CCIC records search did not identify the presence of cultural resources within the proposed project APE. An NAHC Sacred Lands File search and subsequent information outreach with NAHC-listed tribal representatives also failed to indicate the presence cultural resources. The project, as currently designed, appears to have a low potential for encountering intact cultural deposits during ground disturbing activities, and would have no impact to known cultural resources. Based on these negative findings and the observed conditions of The Crossings area, no additional cultural resources efforts, including archaeological monitoring, are recommended to be necessary beyond standard protection measures for unanticipated discoveries of cultural resources and human remains.

Unanticipated Discovery of Archaeological Resources

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be immediately notified of the discovery. No further excavation

or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent (MLD) from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

Built Environment Resources

As a result of the current study, two potential historical resources were identified within The Crossings portion of the project area. The extension to the Yosemite Lateral (P-24-001891) was previously recommended ineligible for the NRHP/CRHR by JRP Historical Consulting Services (P-24-001891 DPR form) and Dudek agrees with this recommendation. The subject property at 1897 East Yosemite Avenue was found not eligible under all NRHP and CRHR designation criteria due to a lack of significant historical associations and architectural merit. Therefore, the subject property is not considered an historical resource for the purposes of CEQA. No additional management recommendations have been identified for The Crossings component. However, it is recommended that a qualified architectural historian assess the Remainder Area for potential impacts to historical resources prior to any project-specific activities occurring.

If you have any questions about this report, please contact Senior Archaeologist Adam Giacinto at agiacinto@dudek.com; or Senior Architectural Historian Samantha Murray at smurray@dudek.com.

Respectfully Submitted,

William Burns, MSc, RPA
Archaeologist

Sarah Corder, MFA
Architectural Historian

cc: Adam Giacinto, Samantha Murray, Dudek

Att: Appendix A: CCIC Records Search Results
Appendix B: NAHC and Tribal Correspondence
Appendix C: DPR Forms

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NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION

Authors: William Burns, MSc, RPA; Sarah Corder, MFA; Adam Giacinto, MA, RPA; and Samantha Murray, MA

Firm: Dudek

Project Proponent: City of Merced

Report Date: August 2020

Report Title: Cultural Resources Letter Report for the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project, City of Merced, California

Type of Study: Archaeological Inventory, Intensive Pedestrian Survey

Acreage: 30 acres

Resources: P-24-001891

USGS Quads: Section 9, Township 7 South, Range 14 East, Merced Quadrangle USGS map

Keywords: Intensive Pedestrian Survey, Merced

APPENDIX A

CONFIDENTIAL

CCIC Records Search Results

APPENDIX B

NAHC and Tribal Correspondence

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8371

February 6, 2017

Mr. Joey Garfield, Tribal Archaeologist
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Subject: ***Information Request for the University Village Student Housing Project, City of Merced, California***

Dear Mr. Garfield,

Dudek is conducting a cultural resources survey for the proposed University Village Student Housing Project in the City of Merced, California. Construction of student housing, retail area, and other University buildings is planned by UC Merced. The area is comprised of partially developed agricultural land undeveloped land located north of E Yosemite Dr. and east of N Gardner Ave. This project falls in Township 7S; Range 14E; Section 9 of the Merced, CA USGS map (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search for the project area. No Native American cultural resources were identified within a one-half mile radius of the proposed project. I am writing to you in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project.

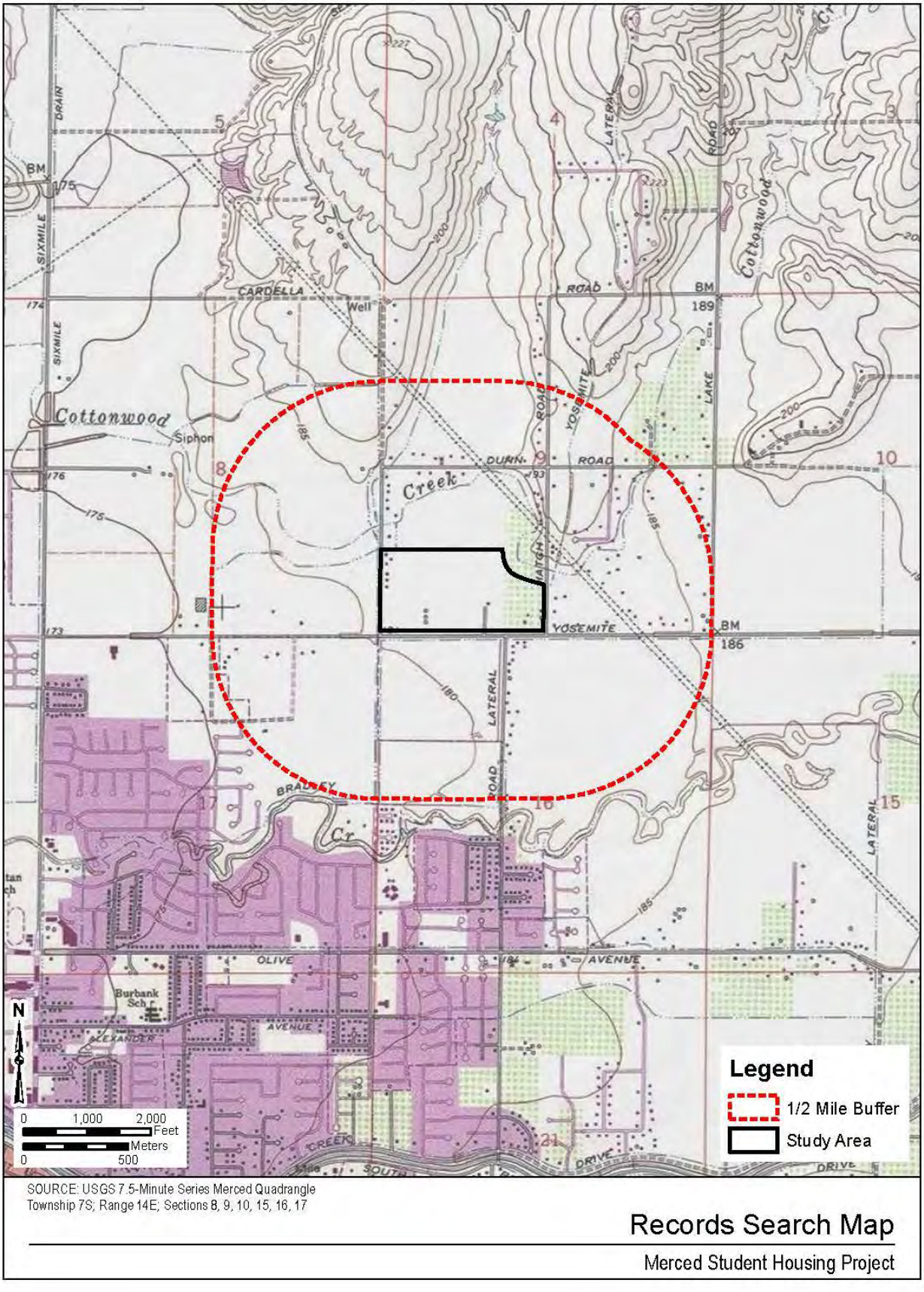
If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

William Burns, MSc, RPA
Archaeologist
Phone: (760) 334-1156
Email: wburns@dudek.com

Attachments:

Figures1: Records Search map



SOURCE: USGS 7.5-Minute Series Merced Quadrangle
Township 7S; Range 14E; Sections 8, 9, 10, 15, 16, 17

Records Search Map

Merced Student Housing Project

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8371

February 6, 2017

Ms. Lois Martin, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338

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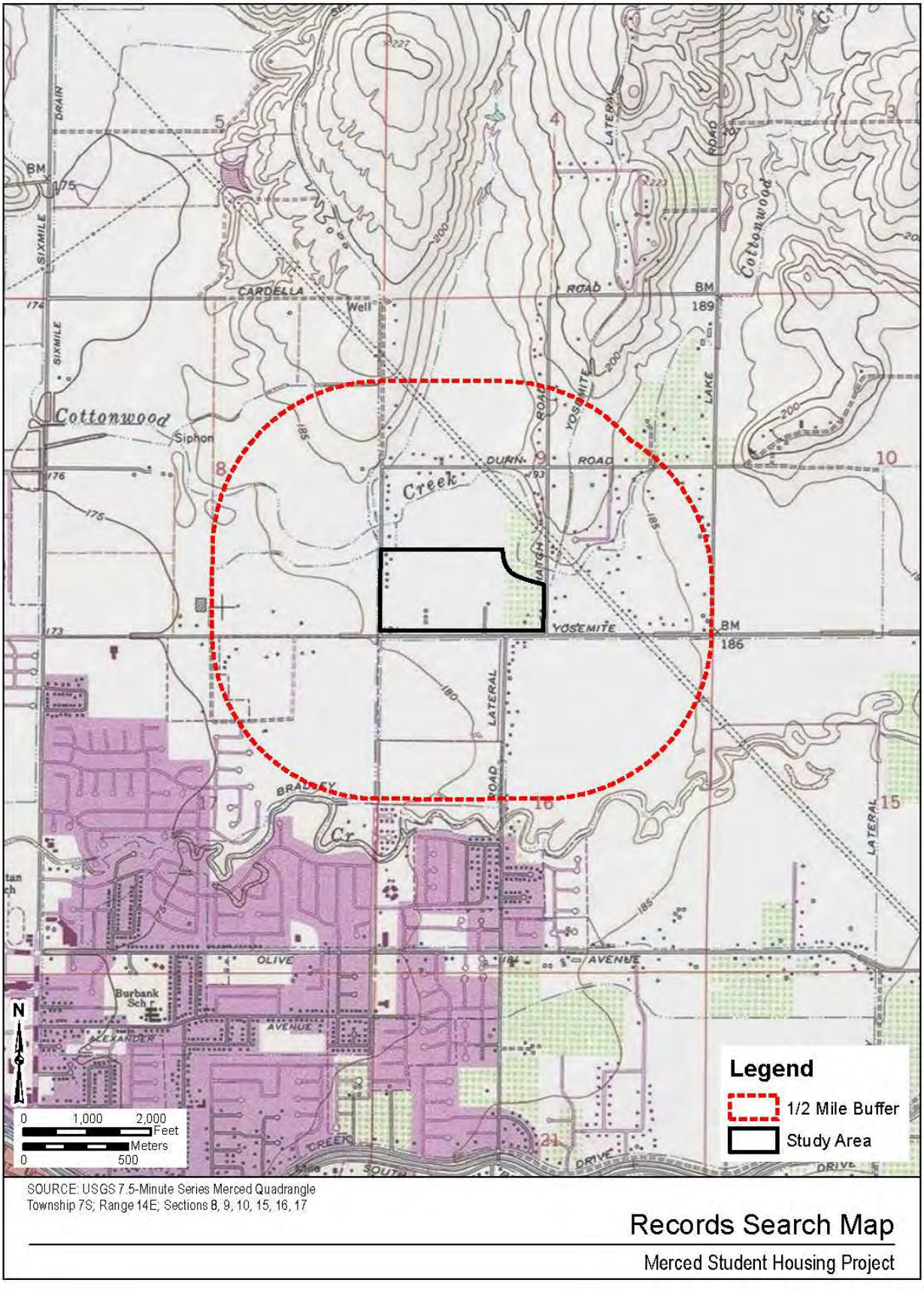
If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

William Burns, MSc, RPA
Archaeologist
Phone: (760) 334-1156
Email: wburns@dudek.com

Attachments:

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SOURCE: USGS 7.5-Minute Series Merced Quadrangle
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Records Search Map

Merced Student Housing Project

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8371

February 6, 2017

Ms. Katherine Erolinda Perez,
P.O. Box 717
Linden, CA 95235

Subject: ***Information Request for the University Village Student Housing Project, City of Merced, California***

Dear Ms. Perez,

Dudek is conducting a cultural resources survey for the proposed University Village Student Housing Project in the City of Merced, California. Construction of student housing, retail area, and other University buildings is planned by UC Merced. The area is comprised of partially developed agricultural land undeveloped land located north of E Yosemite Dr. and east of N Gardner Ave. This project falls in Township 7S; Range 14E; Section 9 of the Merced, CA USGS map (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search for the project area. No Native American cultural resources were identified within a one-half mile radius of the proposed project. I am writing to you in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project.

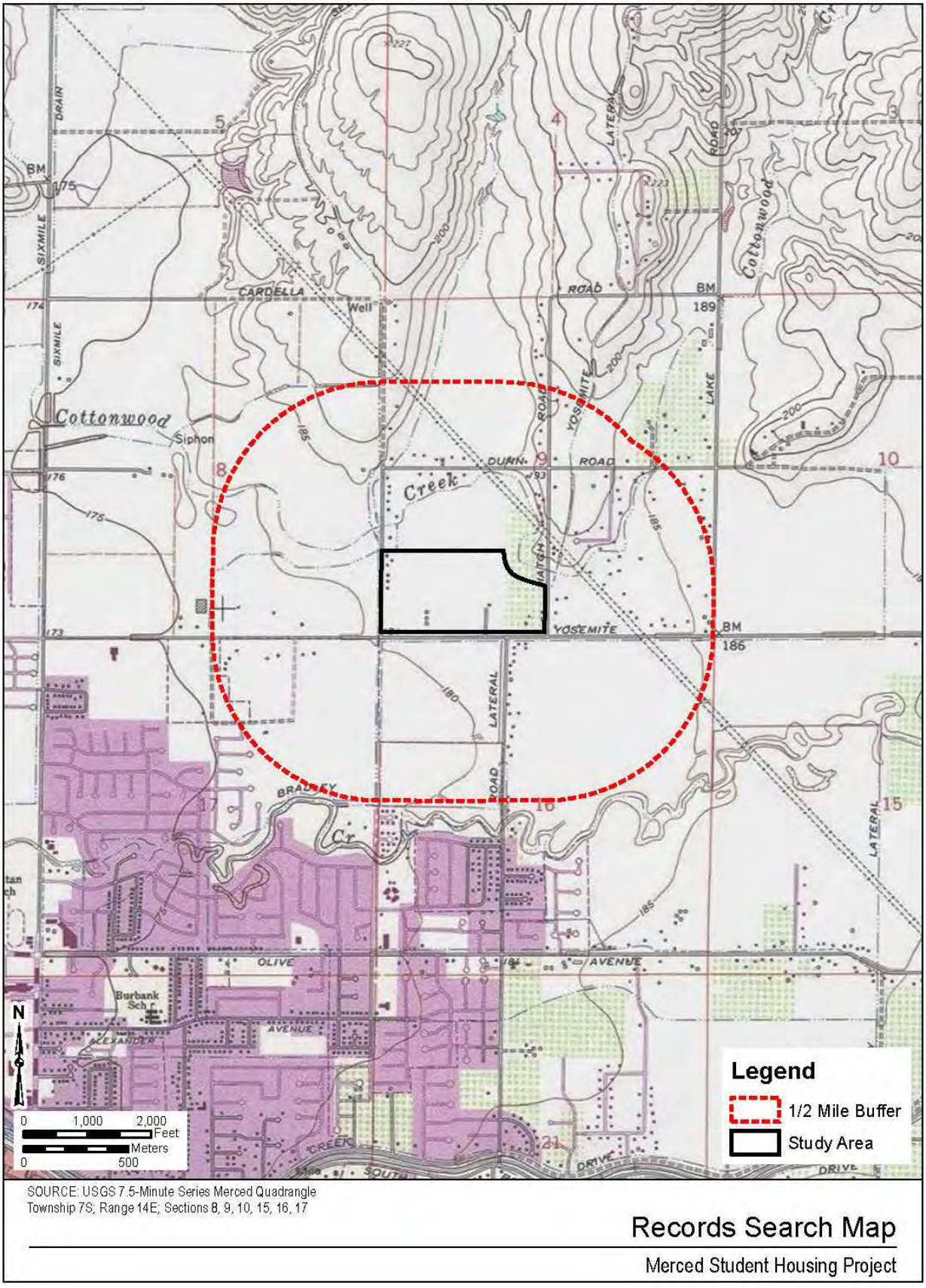
If you have any information or concerns pertaining to such information, please contact me by phone or email.

Respectfully,

William Burns, MSc, RPA
Archaeologist
Phone: (760) 334-1156
Email: wburns@dudek.com

Attachments:

Figures1: Records Search map



SOURCE: USGS 7.5-Minute Series Merced Quadrangle
Township 7S; Range 14E; Sections 8, 9, 10, 15, 16, 17

Records Search Map

Merced Student Housing Project

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AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8371

February 6, 2017

Mr. Neil Peyron, Chairperson
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Subject: ***Information Request for the University Village Student Housing Project, City of Merced, California***

Dear Mr. Peyron,

Dudek is conducting a cultural resources survey for the proposed University Village Student Housing Project in the City of Merced, California. Construction of student housing, retail area, and other University buildings is planned by UC Merced. The area is comprised of partially developed agricultural land undeveloped land located north of E Yosemite Dr. and east of N Gardner Ave. This project falls in Township 7S; Range 14E; Section 9 of the Merced, CA USGS map (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search for the project area. No Native American cultural resources were identified within a one-half mile radius of the proposed project. I am writing to you in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project.

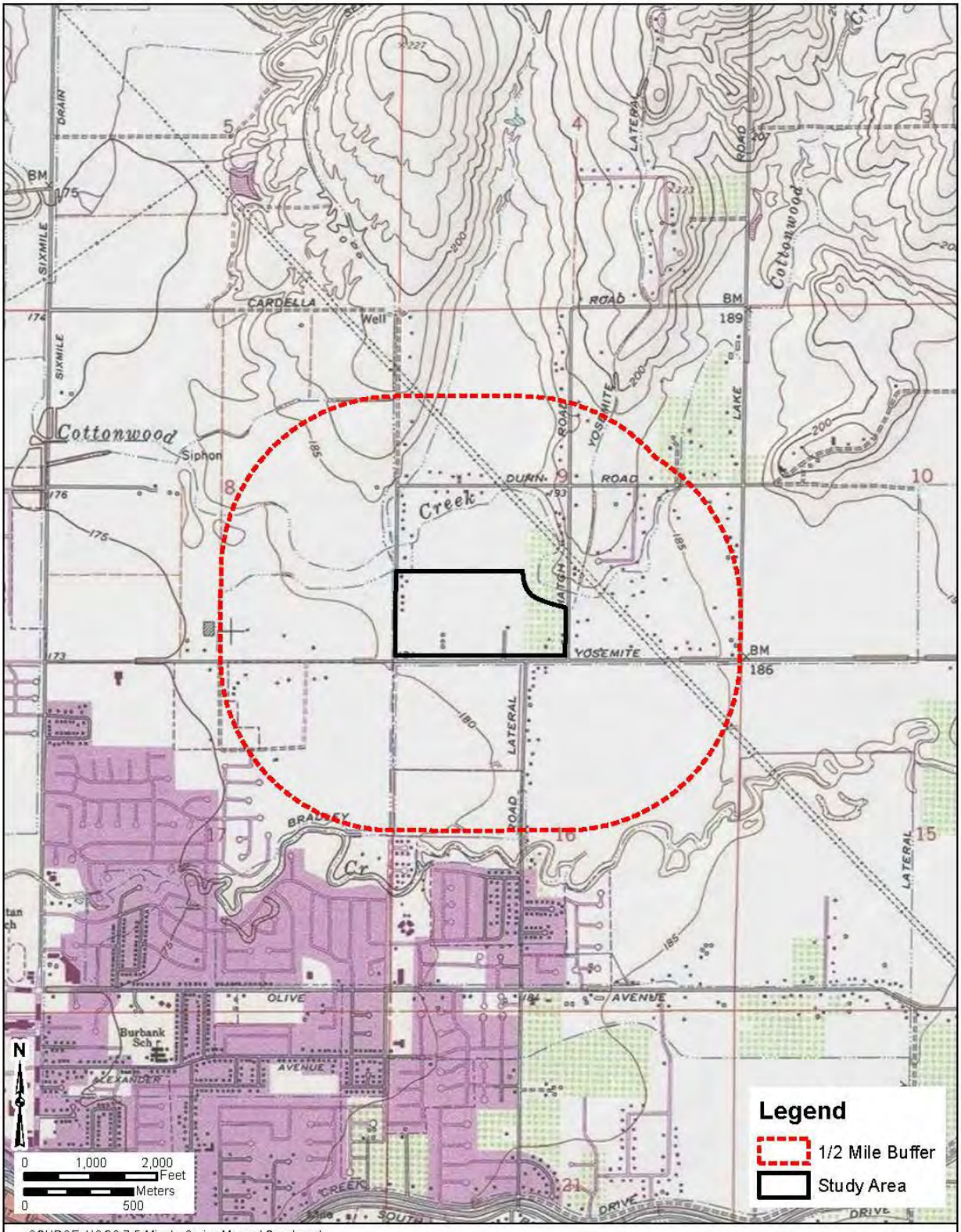
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Records Search Map

Merced Student Housing Project

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8371

February 6, 2017

Ms. Kerri Vera, Environmental Department
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Subject: ***Information Request for the University Village Student Housing Project, City of Merced, California***

Dear Ms. Vera,

Dudek is conducting a cultural resources survey for the proposed University Village Student Housing Project in the City of Merced, California. Construction of student housing, retail area, and other University buildings is planned by UC Merced. The area is comprised of partially developed agricultural land undeveloped land located north of E Yosemite Dr. and east of N Gardner Ave. This project falls in Township 7S; Range 14E; Section 9 of the Merced, CA USGS map (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search for the project area. No Native American cultural resources were identified within a one-half mile radius of the proposed project. I am writing to you in order to find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project.

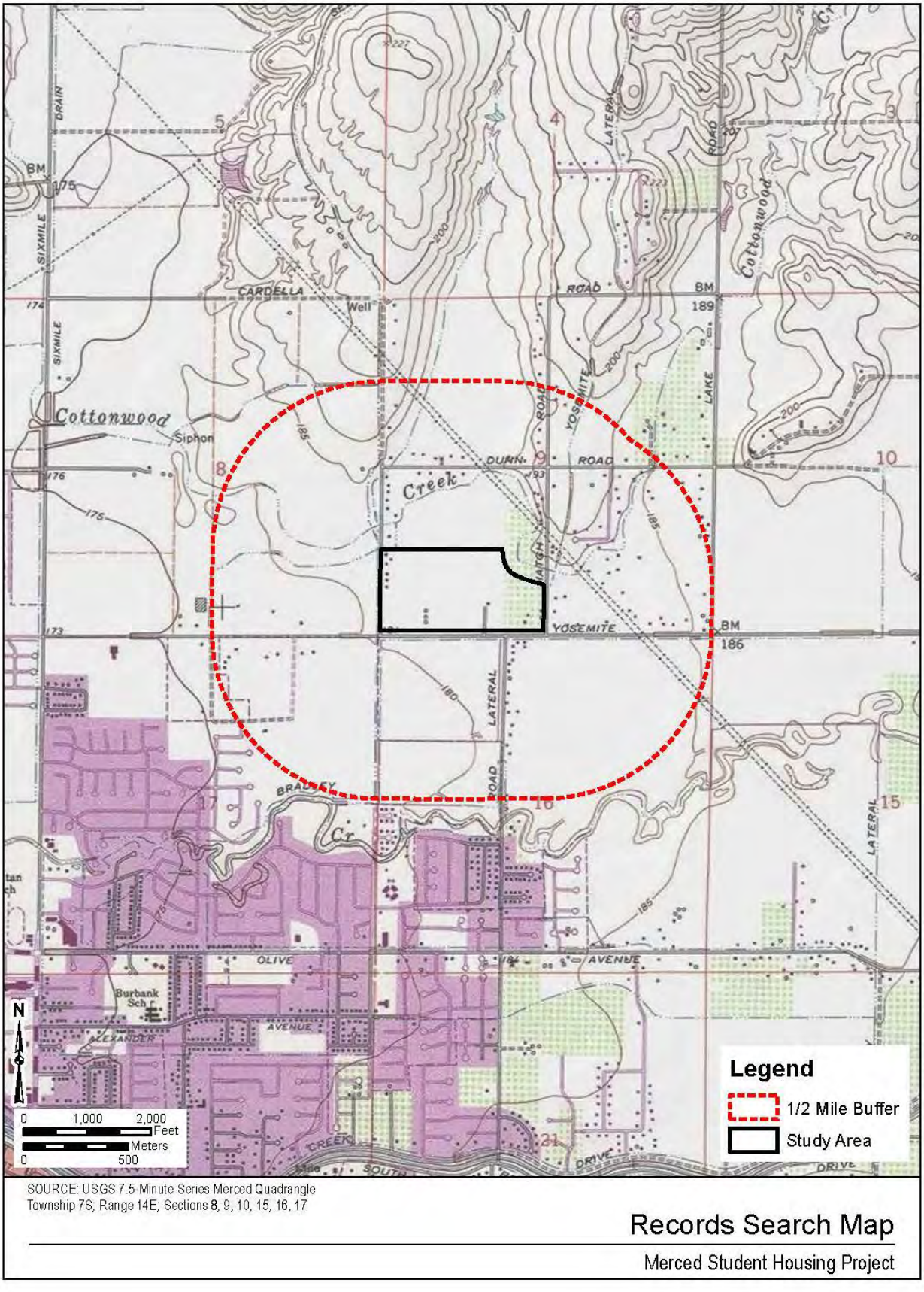
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Respectfully,

William Burns, MSc, RPA
Archaeologist
Phone: (760) 334-1156
Email: wburns@dudek.com

Attachments:

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SOURCE: USGS 7.5-Minute Series Merced Quadrangle
Township 7S; Range 14E; Sections 8, 9, 10, 15, 16, 17

Records Search Map

Merced Student Housing Project

APPENDIX C

DPR Forms

***Recorded by:** Dudek ***Date:** 8/25/2020 ☐ Continuation ■ Update

This DPR serves as an update to the original discovery. Dudek revisited the resource during the 2020 Cultural Resources Inventory of the Yosemite Avenue-Gardner Avenue to Hatch Road Annexation Project, City of Merced California.

P-24-001891 was initially recorded by JRP Historical Consulting Services in 2000 as the Yosemite Lateral, an irrigation canal and part of the Merced Irrigation District (P-24-001909). An extension of the Yosemite Lateral bordered the project area for the above project and so was inspected and rerecorded.

This extension of the lateral flows west from the main section of the Yosemite Lateral across the northern boundary of the project area. It is earthen and covered in grass, trapezoidal in shape and has flat bottom that is earth/grass/river rock with low flat berms on each side of it. Seven particular features of the irrigation ditch are present within the project area, including a concrete dam, two concrete culvert with valve, two wood and concrete dam, and two small outlets with valves. Following are more detailed descriptions of these features.

Feature 1, located 650 feet east of N Gardner Avenue, is a concrete dam. There are notches for a sluice gate but none of the boards remain. A few cracks are present in the concrete on the north side. At the eastern side of the feature is a valve to irrigate the fields to the south. The canal is 16 feet wide and 51 inches deep at this feature. Feature 2, located 1300 feet east of N Gardner Avenue is a concrete culvert leading to a ditch with a valve in a concrete box. The sluice gate is not present. The irrigation ditch is 16 feet wide and 70 inches deep at this feature. Feature 3, located 1900 feet east of N Gardner Avenue where the ditch turn south, is a concrete and wooden dam with the sluice gate still present. The concrete walls align with the canal. The dam allows a 4 foot wide opening with 2 inch by 4 inch boards present. The irrigation ditch is 18 feet wide and 64 inches deep at this feature. Feature 4, located 100 feet south of Feature 3, is an outlet on the south side of the ditch with a valve. Feature 5, located 270 feet south of Feature 3 where the ditch beings to turn east again, is an outlet on the south side of the ditch similar to Feature 4 but the valve is missing. Feature 6, located 90 feet west of Hatch Road, is a concrete dam with no sluice gate still present. The dam allows a 4 foot wide opening. The irrigation ditch is 16 feet wide and 40 inches deep at this feature. Feature 7, located 10 feet west of Hatch Road, is a concrete lined culvert. The irrigation ditch is 16 feet wide and 70 in deep at this feature.

The DPR form, written by JRP Historical Consulting Services in 2000, recommends P-24-001891 ineligible for listing in the NRHP/CRHR due to its very low degree of integrity. The resource appears to be in the same condition as was previously reported and Dudek agrees with this recommendation for the extension to the Yosemite Lateral.

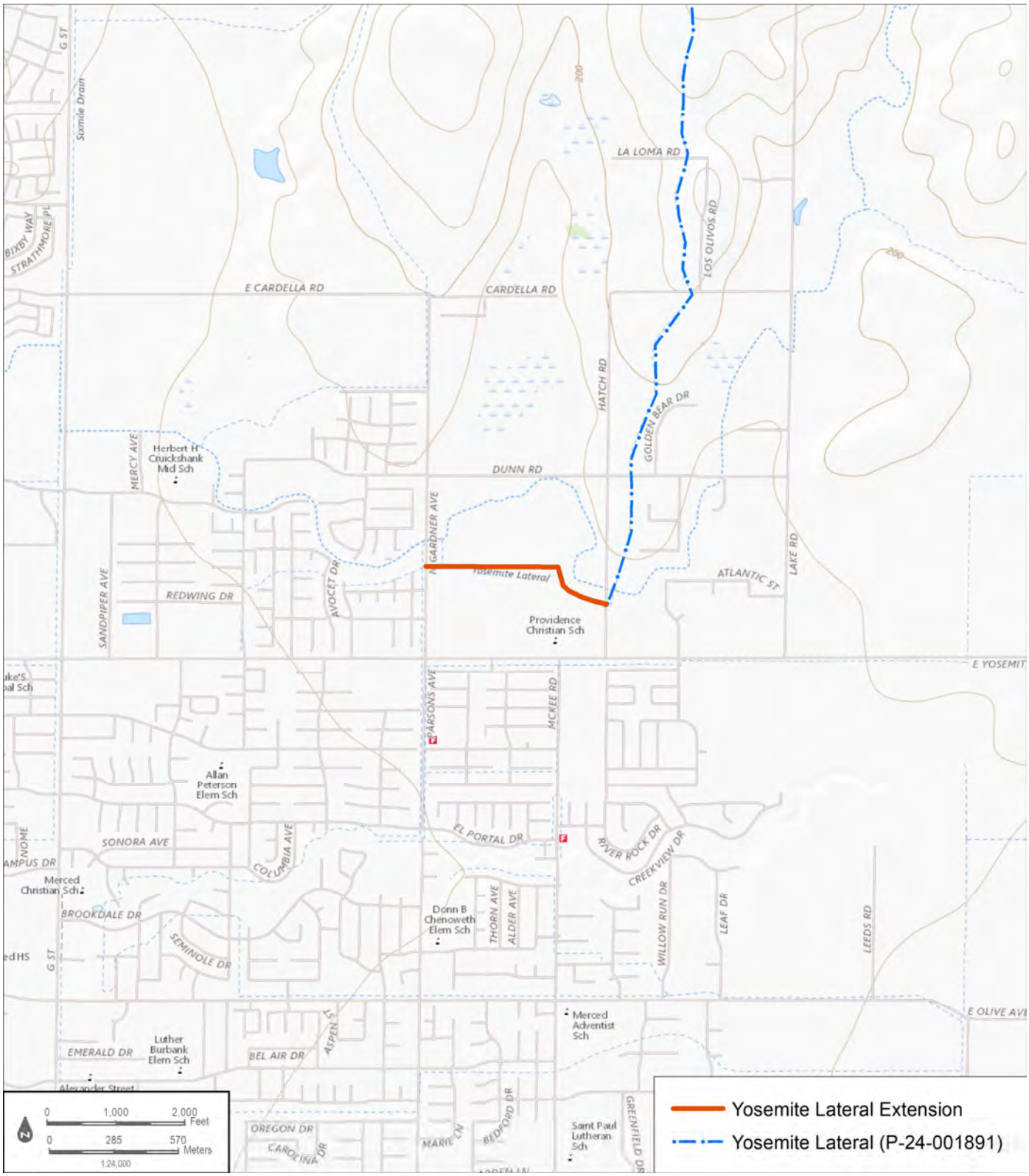
State of California — Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # P-24-001891 (update)
HRI#
Trinomial CA-MER-461H

***Resource Name or #** (Assigned by recorder) P-24-001891

***Map Name:** Location Map ***Scale:** In map ***Date of map:** 08/28/2020



State of California — Natural Resources Agency DEPARTMENT OF PARKS AND RECREATION **SKETCH MAP**	Primary # P-24-001891 (update) HRI# Trinomial CA-MER-461H

Page 3 **of** 3 ***Resource Name or #** (Assigned by recorder) P-24-001891

***Drawn by:** Dudek ***Date of map:** 08/28/2020



Appendix G

Flood Study Report

QK, April 2018

FLOOD STUDY

MERCED CROSSINGS STUDENT HOUSING PROJECT

MERCED, CALIFORNIA

April 13, 2018

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2.3 Conclusion

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1. Introduction

1.1 Project Overview

Merced Crossings (formerly University Village Merced, UVM) proposes to provide privately developed and owned off-campus student housing and commercial retail on a 30-acre site at the northeast corner of Yosemite Avenue and Gardner Avenue. The site is unincorporated land contiguous with the City of Merced and approximately three miles from the UC Merced campus. The Project site is bounded by the city on two sides and will be annexed into the city and receive full urban services.

Based on the site plan by the project architect dated January 6, 2017, the Project will be designed to provide:

- Across an approximately 20-acre portion of the project site:
  - 330 residential units in 22 three-story buildings;
  - A single- or two-story clubhouse/administration building, with gymnasium and study/lounge area ranging in size from 13,000 s.f. to 18,000 s.f.;
  - Outdoor recreation area and amenities;
  - 813 parking spaces.
- Across a 9.5-acre portion of the site fronting the corner of Gardner & Yosemite Avenues:
  - 66,000 s.f. of commercial retail space in five single-story buildings with residential units on the 2nd Floor – 18 extended stay, and 12 apartments;
  - A storm water retention basin accommodating all 30 acres;
  - 323 parking spaces.

1.2 Flood considerations: 100-year Floodplain and 200-year Floodplain

In accordance with City of Merced Flood Ordinances, new construction shall have habitable finish floor elevations above the designated flood elevation in accordance with FEMA criteria. The FEMA Flood Insurance Rate Mate (FIRM) that applies to this project is map number 06047C0429G, revised 12/02/08. This FIRM indicates that the project is in Flood Zone X (not shaded) and is therefore not in a special Flood Hazard Area and is an area outside the 0.2% annual chance Floodplain. No designated flood elevation applies to this project in regard to FEMA criteria for the 100-year Floodplain.

In addition to FEMA requirements, the City of Merced recently revised the Safety and Conservation Elements of their Merced Vision 2030 General Plan in response to various California State Laws (Senate Bill 5) passed since 2007 mandating 200-year floodplain protection in certain areas.

Accordingly, the City of Merced adopted General Plan Amendment #16-02 (GPA#16-02) which requires an "Urban Level of Flood Protection". As part of GPA#16-02, the City's Urban Level of Flood Protection Summary Report states that "Findings" will not be required for new development projects located within unshaded Zone X on FIRMs published by FEMA unless they are located within the 200-year floodplain for Black Rascal Creek (See Exhibits A & B).

The Department of Water Resources (DWR) has prepared informational (best available) floodplain maps for Black Rascal Creek under the assumption that the Black Rascal Creek Diversion channel would fail during a 200-year storm (See Exhibit B). The Flood elevation contours on said map indicate that a portion of the project would experience flood depths varying from 0.0' at the northeast corner to 1.4' at the southwest corner (see Exhibit C).

The City's "Urban Level of Flood Protection Summary Report" also explains that if the property would experience "shallow flooding" (less than 3' depth), then a "finding" would still need to be made, but the standard that would apply would be the National FEMA Standard of Flood Protection (100-year flood event) and not the Urban Level of Flood protection (200-year flood event).

Shallow flooding is defined as flooding that is 3.0' or less in depth from sources other than local drainage. Local drainage is defined as flooding caused by a contributing watershed area of less than 10 square miles measured upstream from a given project.

Since the Merced Station project is located in the relatively small watershed area of Cottonwood Creek (4 sq. miles upstream and 4 sq. miles downstream) it will be necessary to evaluate the amount of local flooding that Cottonwood Creek would contribute in a 200-year event that would add to the amount of flooding already predicted by the failure of the Black Rascal Creek Diversion 200-year event.

The analysis that follows will demonstrate that the effect of local drainage (Cottonwood Creek) will add approximately 0.3' depth to the 1.4' depth generated by Black Rascal Creek for a total of 1.7'. Since 1.7' is below 3.0', the shallow flooding criteria will apply.

1.3 Basis of Analysis

The following analysis of the impact from a Cottonwood Creek 200-year event follows the steps and guidelines as outlined in the document produced by the Federal Emergency Management Agency: "FEMA 265, Managing Floodplain Development in Approximate Zone A Areas". A 200-year flow volume is determined by using a TR-55 model of the upstream watershed of Cottonwood Creek. The 200-year event flow was considered to all be outside of the available channel flow and result in a sheet flow

across the area shown to be inundated from the 200-year Black Rascal Creek event as shown on the DWR informational Map (Exhibit B).

1.4 Background Information

a. Available References

The available reference information on storm event flows in the Merced Area were determined from the NOAA Point Precipitation Frequency Estimate Table (Exhibit G). The 24 hour 200-year event rainfall amount was 3.96 inches and this value was used in the TR-55 software to determine the flow from the Cottonwood Creek watershed upstream of the project site.

b. Channel Flows

The flow determined in the TR-55 analysis of the watershed resulted in a 415 cfs flow at the intersection of Hatch Road and Cottonwood Creek from a watershed area of approximately 4 square miles (Exhibits D & E). This location was chosen based on the most likely location for a levee break on the facility that would impact the project site.

2. Hydraulic Analysis

2.1 Shallow Flooding Analysis

The method outlined in FEMA 265 manual was used to determine the shallow flooding depth in the project area based on a 200-year discharge event in Cottonwood Creek (415 cfs). The depth of overland flow was determined by simplifying the Manning's Equation as shown on page one of Exhibit F. The assumption was that an overtopping or failure of the creek channel banks occurs perpendicular to the project site allowing the flow volume that was within the banks of the channel above the elevation of the adjacent existing ground to flow from the creek to the surrounding ground on both sides of the creek channel. The flow gradient of the Cottonwood Creek Channel is approximately 0.0002 ft./ft. and the adjacent ground in the project site area is sloping at 0.0017 ft./ft. in the west and southwest direction paralleling the creek alignment. The floodplain slope perpendicular to the flow is 0.0008 ft./ft.

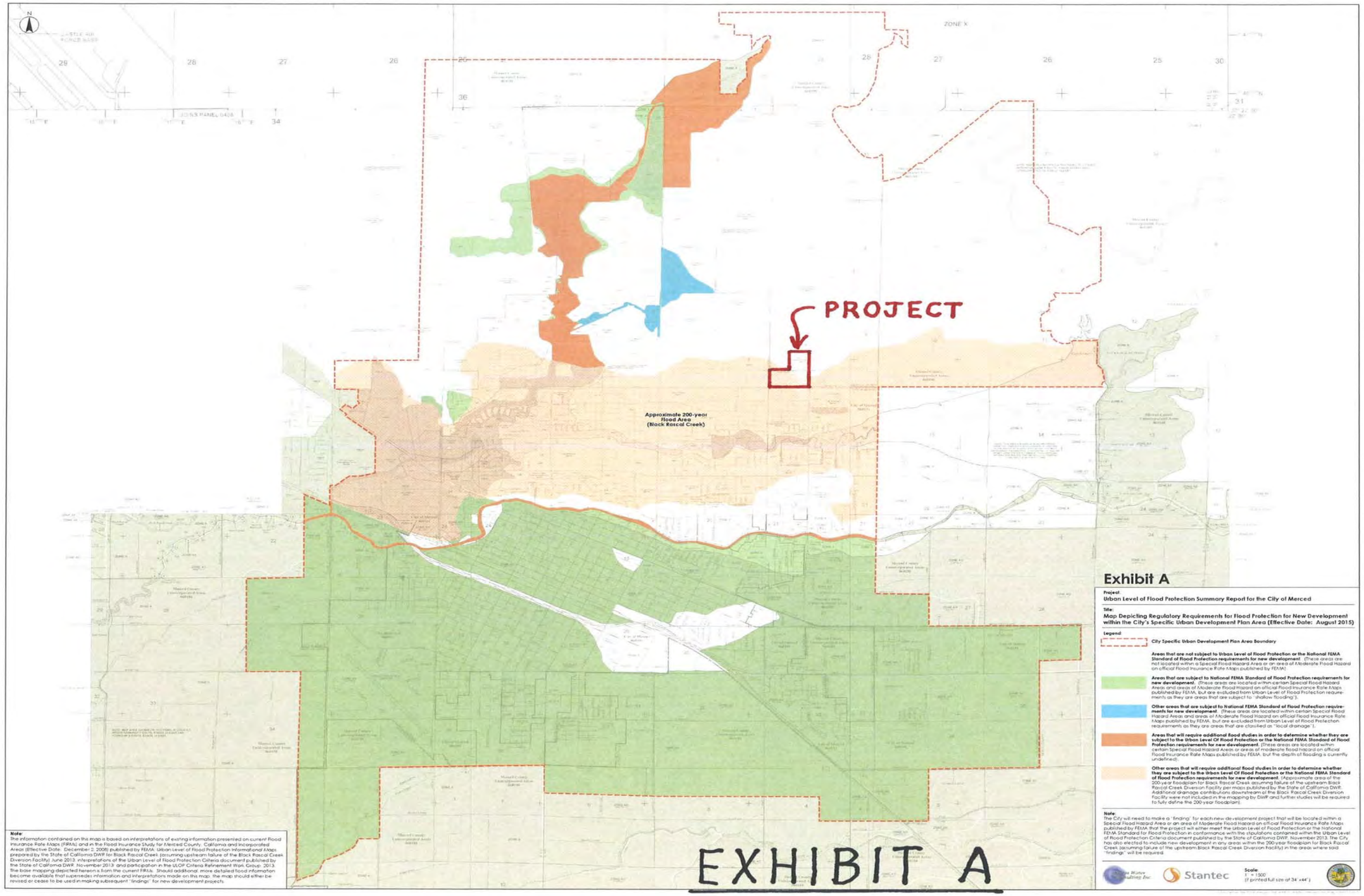
2.2 Project Site

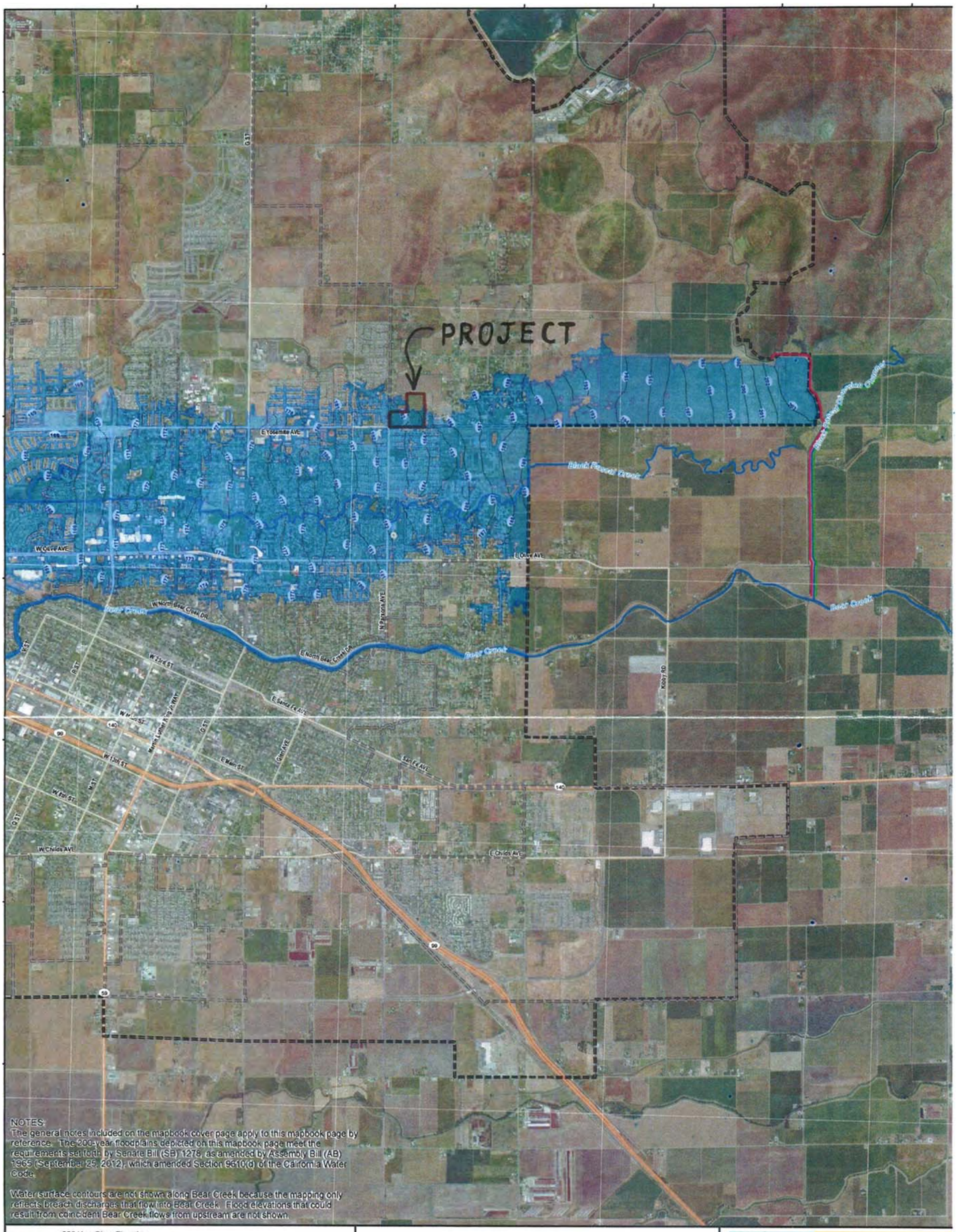
The release flow from the banks of Cottonwood Creek would be the total flow for this analysis at 415 cfs. The normal depth analysis results in an additional depth of 0.31 feet across the floodplain. Therefore, the resulting depth of the combined 200-year event from Black Rascal Creek and Cottonwood Creek is 1.7 feet as a maximum. (1.4' + 0.3' = 1.7') The Floodplain to the southwest and west does not have any obstructions to prevent the flow of drainage waters in that direction, therefore a backwater condition is unlikely at this time based on the present observed field conditions.

The area displacement of the proposed project in the floodplain would result in a negligible change in the elevation of the surface water. The floodplain area along the north side of Black Rascal Creek is approximately eight (8) square miles in the area around the project area and the surface area of the project is approximately 30 acres. The area of the project represents approximately 0.01% of the eight (8) square mile area and would have a 0.004 foot change in the water surface elevation of the floodplain at this project location.

2.3 Conclusion

This flood study supports the Finding that the project site will only be subject to 1.7' of shallow flooding (less than 3') during a 200-year event from the failure of the Black Rascal Diversion combined with "local" drainage (Cottonwood Creek). Therefore, the standard that will apply to the project site is the National FEMA standard of Flood Protection (100-year Flood event) and not the Urban level of Flood Protection (200-year flood event). Since the project site is in Zone X (unshaded), no flood elevation is stipulated and the proposed project will not place structures within a 100-year flood hazard area.

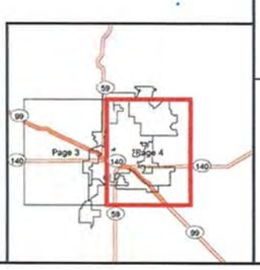

ZONE X
PROJECT
Approximate 200-year
Flood Area
(Black Rascal Creek)
Exhibit A
Project:
Urban Level of Flood Protection Summary Report for the City of Merced
Title:
Map Depicting Regulatory Requirements for Flood Protection for New Development within the City's Specific Urban Development Plan Area (Effective Date: August 2015)
Legend:
City Specific Urban Development Plan Area Boundary
Areas that are not subject to Urban Level of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (These areas are not located within a Special Flood Hazard Area or an area of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA)
Areas that are subject to National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas and areas of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, but are excluded from Urban Level of Flood Protection requirements as they are areas that are subject to 'shallow flooding').
Other areas that are subject to National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas and areas of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, but are excluded from Urban Level of Flood Protection requirements as they are areas that are classified as "local drainage").
Areas that will require additional flood studies in order to determine whether they are subject to the Urban Level Of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas or areas of moderate flood hazard on official Flood Insurance Rate Maps published by FEMA, but the depth of flooding is currently undefined).
Other areas that will require additional flood studies in order to determine whether they are subject to the Urban Level Of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (Approximate area of the 200-year floodplain for Black Rascal Creek assuming failure of the upstream Black Rascal Creek Diversion Facility per maps published by the State of California DWR. Additional drainage contributions downstream of the Black Rascal Creek Diversion Facility were not included in the mapping by DWR and further studies will be required to fully define the 200-year floodplain).
Note:
The City will need to make a 'finding' for each new development project that will be located within a Special Flood Hazard Area or an area of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA that the project will either meet the Urban Level of Flood Protection or the National FEMA Standard for Flood Protection in conformance with the stipulations contained within the Urban Level of Flood Protection Criteria document published by the State of California DWR. November 2013. The City has also elected to include new development in any areas within the 200-year floodplain for Black Rascal Creek (assuming failure of the upstream Black Rascal Creek Diversion Facility) in the areas where said 'findings' will be required.
Stantec
Scale:
1" = 1500'
(If printed full size at 34" x 44")
Note:
The information contained on this map is based on interpretations of existing information presented on current Flood Insurance Rate Maps (FIRMs) and in the Flood Insurance Study for Merced County, California and Incorporated Areas (Effective Date: December 2, 2008) published by FEMA. Urban Level of Flood Protection Informational Maps prepared by the State of California DWR for Black Rascal Creek (assuming upstream failure of the Black Rascal Creek Diversion Facility) June 2013. Interpretations of the Urban Level of Flood Protection Criteria document published by the State of California DWR. November 2013. and participation in the ULOP Criteria Refinement Work Group. 2013. The base mapping depicted hereon is from the current FIRMs. Should additional, more detailed flood information become available that supersedes information and interpretations made on this map, the map should either be revised or cease to be used in making subsequent "findings" for new development projects.
EXHIBIT A



- 200-Year River Elevation Contour (ft)
- 200-Year Riverine Flood Zone
- 200-Year Floodplain Elevation Contour (ft)
- 200-Year Floodplain

CVFED Levees

- Non-Urban Non-State Plan of Flood Control
- Non-Urban State Plan of Flood Control
- Urban Non-State Plan of Flood Control
- Urban State Plan of Flood Control
- Bear Creek — Model Stream Name
- Model Streams
- Corporate Limits-City of Merced
- Sphere of Influence-City of Merced
- Major Highways
- Highways
- Major Roads
- Main Rail Line



SCALE 1:24,000

0 1,000 2,000 4,000 6,000 8,000 Feet

EXHIBIT B

Senate Bill 1278/Assembly Bill 1965
Urban Level of Flood Protection Informational Map with Water Surface Elevation Contours

San Joaquin River Basin
Merced Study Area
Merced USGS Quadrangle
Page: 4

FloodSAFE CALIFORNIA DEPARTMENT OF WATER RESOURCES

DEPARTMENT OF WATER RESOURCES STATE OF CALIFORNIA

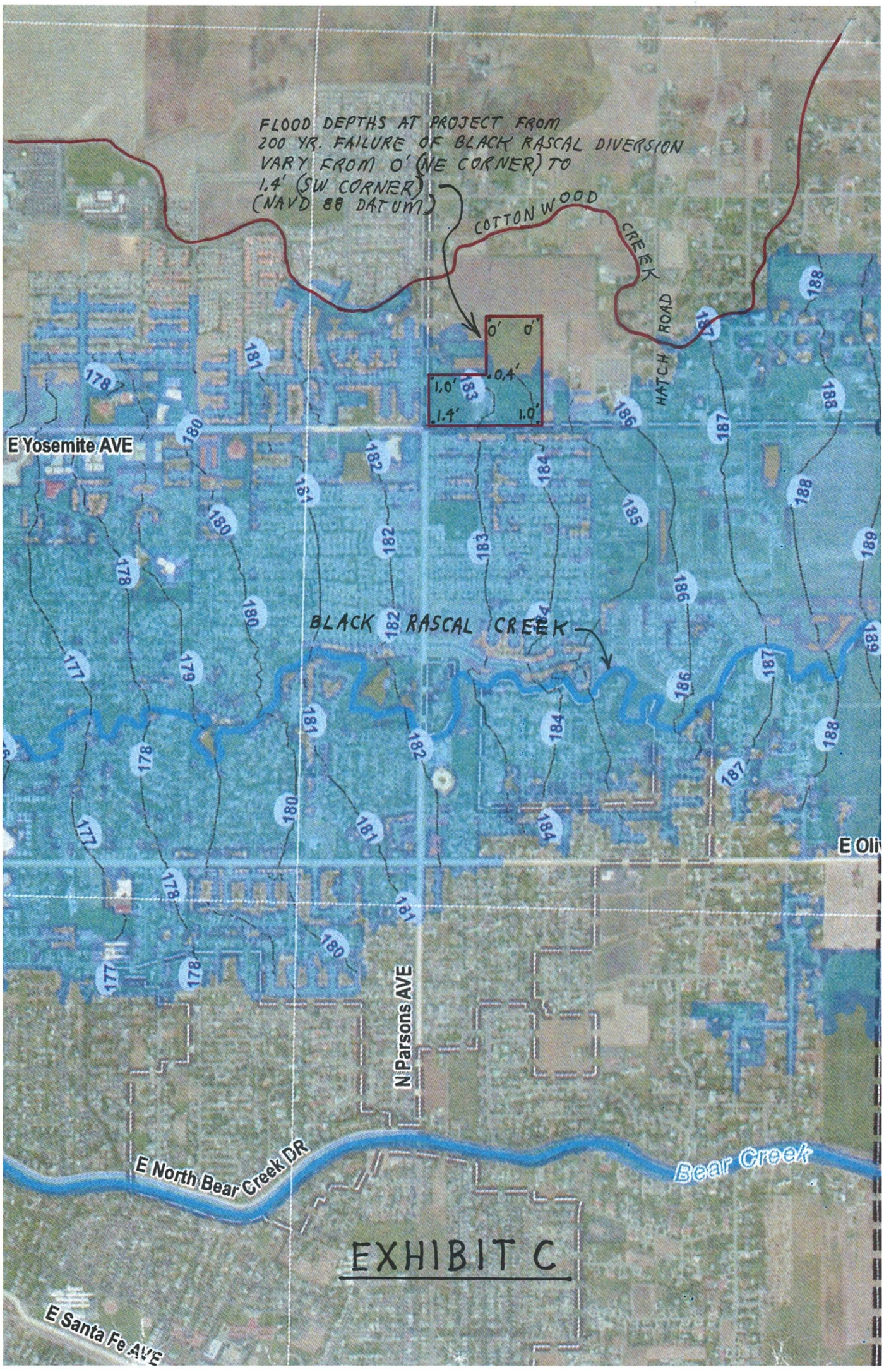
Prepared By: RBF A Dokkar Company

Figure: 4

Date: June 24, 2013

MercedMapbookQuad_2013_06_21

Datum: NAD83 Projection: UTM
Zone: 10N Units: US Feet
Sources: ESRI Maps - Streetmaps North America, MS Bin Maps, City of Merced


FLOOD DEPTHS AT PROJECT FROM
200 YR. FAILURE OF BLACK RASCAL DIVERSION
VARY FROM 0' (NE CORNER) TO
1.4' (SW CORNER)
(NAVD 88 DATUM)
COTTONWOOD CREEK
HATCH ROAD
0' 0'
0.4'
1.0'
1.4'
1.0'
E Yosemite AVE
BLACK RASCAL CREEK
N Parsons AVE
E North Bear Creek DR
Bear Creek
E Santa Fe AVE
EXHIBIT C

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

MERCED QUADRANGLE
CALIFORNIA—MERCED CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 MERCED 15' QUADRANGLE

1958 IV NE (HAYSTACK MTN.)

1958 IV NW (YOSEMITE LAKE)

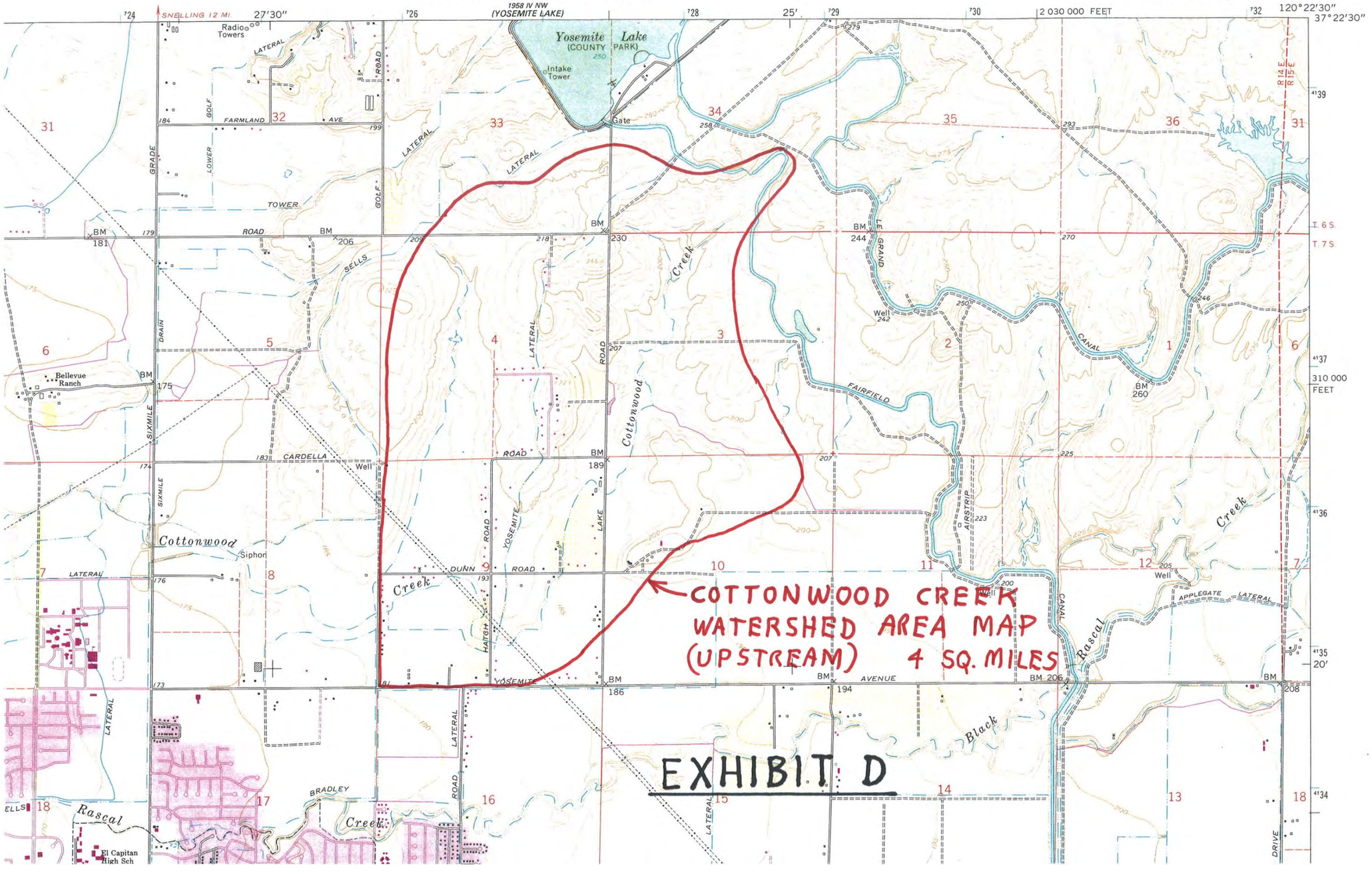


Exhibit E

TR-55 MODEL RUN OUTPUT

GAP

University Village
200 year flod event
Merced County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	2-Yr (cfs) (hr)	200-Yr (cfs) (hr)
SUBAREAS		
Cottonwood	87.87 15.46	414.92 14.75
Upper Cott	11.43 14.88	54.60 14.21
REACHES		
Upper Cott	87.87 15.46	414.92 14.75
Down	49.30 26.06	173.37 26.03
Reach 2	57.28 24.75	201.52 24.65
Down	6.34 56.46	26.85 57.31
OUTLET	6.34	26.85

WinTR-55 Current Data Description

--- Identification Data ---

User: GAP
Project: University Village
SubTitle: 200 year flod event
State: California
County: Merced
Filename: C:\Users\GarthP\AppData\Roaming\WinTR-55\universityvillage200.w55

Date: 2/9/2017
Units: English
Areal Units: Square Miles

--- Sub-Area Data ---

Name	Description	Reach	Area(mi²)	RCN	Tc
Cottonwood	upland area	Upper Cott	4	79	3.572
Upper Cott	stream	Reach 2	0.5	79	3.006

Total area: 4.50 (mi²)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	200-Yr (in)
1.88	.0	.0	.0	.0	2.81	3.96

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type CA-1
Dimensionless Unit Hydrograph: <standard>

University Village
200 year flod event
Merced County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	200-Yr (in)
1.88	.0	.0	.0	.0	2.81	3.96

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type CA-1
Dimensionless Unit Hydrograph: <standard>

EXHIBIT F
University Village
200-year Flood Depth Analysis
From Cottonwood Creek

Normal Depth Analysis:

Manning's Equation:

Q = (1.486/n) xAxR2/3xS1/2

Manning's equation can be simplified for sheet flooding since the hydraulic radius is approximately equal to the depth.

R = Area/Wetted Perimeter = WxD/W+2D = D

Q = (1.486/n) xWxDxD2/3xS1/2

Simplified Manning's Equation:

D = [Qxn/1.486xWxS1/2]3/5

D = Depth of Flow
Q = Quantity of Flow
n = Roughness Value
W = Width of Flow
S = Slope of floodplain topography

Flow in Cottonwood Creek for 200-year event = 415 cfs

Distance from Creek to site = 2,000 feet

Ground Slope = 0.0017 ft./ft.

Width of Floodplain = 3,000 feet

Floodplain Slope = 0.0008 ft./ft.

Normal Depth Analysis:

D = [415 x 0.045/ 1.486 x 3,000 x 0.00081/2]3/5 = 0.318 ft.

Depth of flow from Black Rascal Creek at project site is 1.4' maximum.

EXHIBIT G

NOAA Atlas 14, Volume 6, Version 2
Location name: Merced, California, USA*
Latitude: 37.347°, Longitude: -120.4504°
Elevation: 201.52 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.096 (0.085-0.110)	0.131 (0.115-0.150)	0.181 (0.159-0.208)	0.224 (0.195-0.261)	0.302 (0.250-0.368)	0.358 (0.289-0.450)	0.424 (0.331-0.550)	0.492 (0.369-0.663)	0.591 (0.420-0.842)	0.674 (0.457-1.01)
10-min	0.137 (0.121-0.157)	0.188 (0.165-0.215)	0.259 (0.227-0.298)	0.322 (0.279-0.374)	0.433 (0.359-0.528)	0.514 (0.414-0.644)	0.608 (0.474-0.789)	0.706 (0.529-0.950)	0.848 (0.602-1.21)	0.967 (0.655-1.44)
15-min	0.166 (0.147-0.190)	0.227 (0.200-0.260)	0.313 (0.275-0.360)	0.389 (0.338-0.453)	0.524 (0.434-0.638)	0.621 (0.500-0.779)	0.736 (0.573-0.954)	0.853 (0.640-1.15)	1.03 (0.728-1.46)	1.17 (0.793-1.74)
30-min	0.227 (0.200-0.259)	0.310 (0.273-0.355)	0.427 (0.375-0.492)	0.531 (0.461-0.618)	0.715 (0.593-0.871)	0.848 (0.683-1.06)	1.00 (0.782-1.30)	1.17 (0.874-1.57)	1.40 (0.993-1.99)	1.60 (1.08-2.38)
60-min	0.303 (0.268-0.347)	0.414 (0.365-0.475)	0.572 (0.502-0.658)	0.710 (0.616-0.827)	0.956 (0.793-1.17)	1.14 (0.914-1.42)	1.34 (1.05-1.74)	1.56 (1.17-2.10)	1.87 (1.33-2.67)	2.14 (1.45-3.18)
2-hr	0.452 (0.399-0.517)	0.567 (0.499-0.649)	0.731 (0.642-0.841)	0.877 (0.762-1.02)	1.10 (0.908-1.34)	1.28 (1.03-1.60)	1.48 (1.15-1.92)	1.71 (1.28-2.30)	2.04 (1.45-2.90)	2.32 (1.58-3.46)
3-hr	0.546 (0.482-0.624)	0.668 (0.589-0.766)	0.844 (0.741-0.971)	1.00 (0.869-1.16)	1.23 (1.02-1.50)	1.43 (1.15-1.79)	1.65 (1.28-2.14)	1.89 (1.42-2.54)	2.24 (1.59-3.19)	2.55 (1.73-3.80)
6-hr	0.708 (0.625-0.810)	0.853 (0.752-0.978)	1.06 (0.931-1.22)	1.24 (1.08-1.45)	1.51 (1.25-1.84)	1.73 (1.40-2.18)	1.98 (1.54-2.57)	2.25 (1.69-3.03)	2.64 (1.88-3.76)	2.98 (2.02-4.43)
12-hr	0.906 (0.800-1.04)	1.13 (0.994-1.29)	1.43 (1.26-1.64)	1.68 (1.46-1.96)	2.04 (1.69-2.49)	2.33 (1.88-2.93)	2.63 (2.05-3.42)	2.96 (2.22-3.98)	3.41 (2.42-4.85)	3.78 (2.56-5.62)
24-hr	1.14 (1.06-1.26)	1.48 (1.37-1.64)	1.93 (1.78-2.13)	2.29 (2.10-2.55)	2.79 (2.49-3.19)	3.17 (2.78-3.69)	3.56 (3.06-4.24)	3.96 (3.32-4.83)	4.51 (3.65-5.70)	4.94 (3.88-6.43)
2-day	1.39 (1.29-1.53)	1.80 (1.66-1.98)	2.32 (2.15-2.57)	2.75 (2.53-3.06)	3.34 (2.98-3.82)	3.79 (3.32-4.41)	4.24 (3.64-5.05)	4.72 (3.95-5.74)	5.36 (4.33-6.76)	5.86 (4.59-7.61)
3-day	1.54 (1.43-1.69)	1.97 (1.82-2.17)	2.54 (2.34-2.80)	3.00 (2.75-3.33)	3.62 (3.23-4.15)	4.11 (3.60-4.78)	4.60 (3.95-5.47)	5.11 (4.28-6.22)	5.80 (4.69-7.32)	6.34 (4.97-8.24)
4-day	1.66 (1.54-1.83)	2.12 (1.96-2.34)	2.72 (2.52-3.01)	3.22 (2.95-3.58)	3.88 (3.46-4.44)	4.40 (3.85-5.12)	4.92 (4.22-5.85)	5.46 (4.58-6.65)	6.20 (5.01-7.82)	6.77 (5.31-8.80)
7-day	2.04 (1.89-2.24)	2.58 (2.39-2.85)	3.31 (3.05-3.65)	3.90 (3.57-4.33)	4.70 (4.19-5.37)	5.32 (4.66-6.19)	5.94 (5.10-7.07)	6.59 (5.52-8.03)	7.47 (6.04-9.43)	8.15 (6.40-10.6)
10-day	2.31 (2.14-2.54)	2.93 (2.71-3.23)	3.74 (3.45-4.13)	4.40 (4.03-4.89)	5.29 (4.72-6.06)	5.98 (5.24-6.97)	6.68 (5.73-7.95)	7.40 (6.20-9.01)	8.37 (6.77-10.6)	9.13 (7.16-11.9)
20-day	3.04 (2.81-3.34)	3.84 (3.55-4.23)	4.88 (4.51-5.39)	5.71 (5.24-6.36)	6.84 (6.10-7.82)	7.69 (6.74-8.95)	8.54 (7.33-10.2)	9.41 (7.88-11.5)	10.6 (8.54-13.3)	11.4 (8.98-14.9)
30-day	3.68 (3.41-4.05)	4.64 (4.30-5.12)	5.88 (5.43-6.50)	6.87 (6.30-7.64)	8.17 (7.29-9.35)	9.15 (8.02-10.7)	10.1 (8.69-12.0)	11.1 (9.30-13.5)	12.4 (10.0-15.6)	13.4 (10.5-17.4)
45-day	4.55 (4.22-5.02)	5.74 (5.31-6.33)	7.24 (6.68-8.00)	8.42 (7.72-9.36)	9.96 (8.88-11.4)	11.1 (9.72-12.9)	12.2 (10.5-14.5)	13.3 (11.2-16.2)	14.8 (11.9-18.6)	15.8 (12.4-20.6)
60-day	5.47 (5.06-6.02)	6.88 (6.37-7.58)	8.64 (7.98-9.55)	10.0 (9.19-11.1)	11.8 (10.5-13.5)	13.1 (11.5-15.2)	14.4 (12.3-17.1)	15.6 (13.1-19.0)	17.2 (13.9-21.7)	18.3 (14.4-23.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

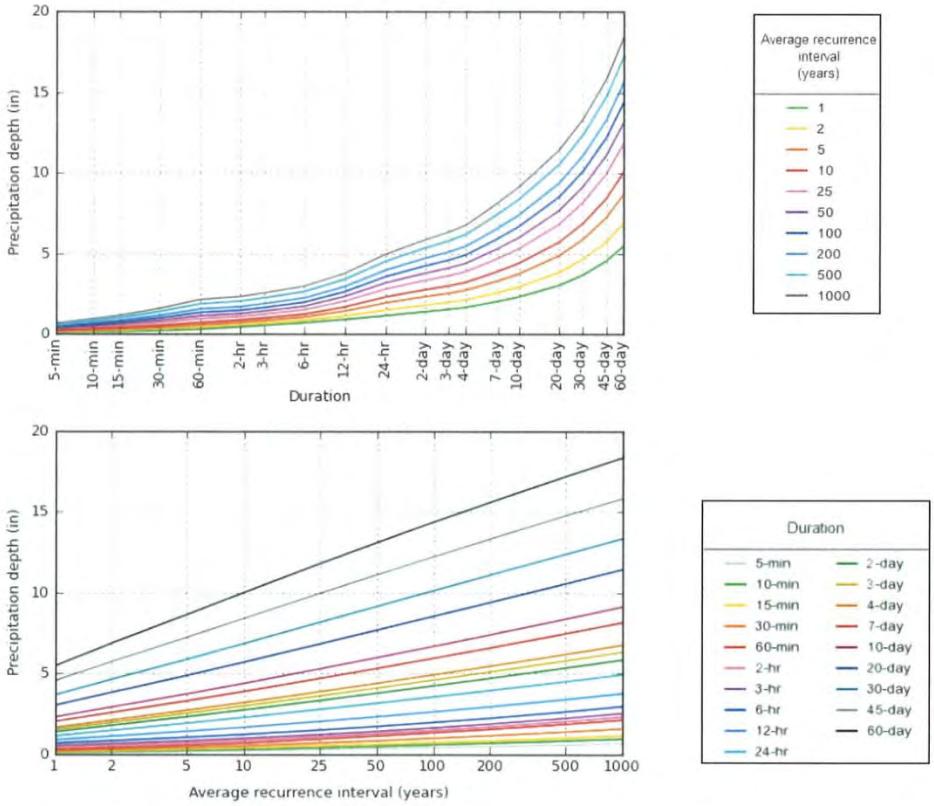
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 37.3470°, Longitude: -120.4504°



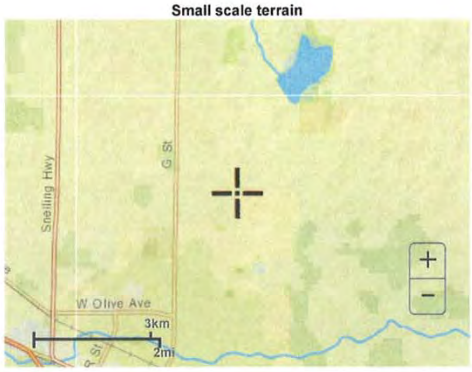
NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Thu Feb 9 23:45:18 2017

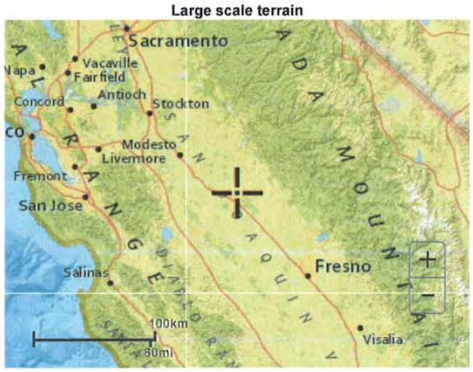
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Maps & aerials

Small scale terrain



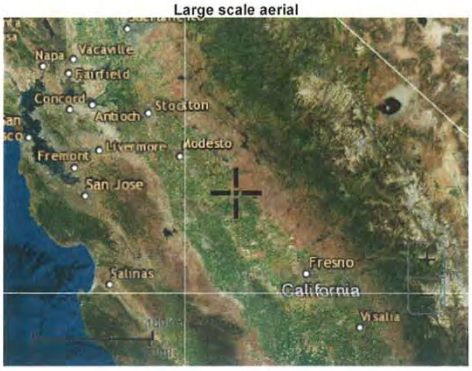
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix H

Storm Drainage Report

QK, April 2018

STORM DRAINAGE REPORT

MERCED CROSSINGS STUDENT HOUSING PROJECT

MERCED, CALIFORNIA

April 13, 2018

INTRODUCTION

The Merced Crossings Student Housing project (formerly University Village Merced, UVM) proposes to provide privately developed and owned off-campus student housing and commercial retail on a 30-acre site at the northeast corner of Yosemite Avenue and Gardner Avenue.

The site plan by the project architect dated January 6, 2017, (see Exhibit A), includes 330 residential units in 22 three-story buildings along with a clubhouse and other amenities on a 20 acre portion of the site, and includes 66000 S.F. of commercial retail space in 5 single-story buildings on a 10 acre portion of the site.

EXISTING CONDITIONS

The project site slopes from the northeast to the southwest and is currently farmed with irrigation water supplied by the Merced Irrigation District (MID). Drainage from the project property and adjacent road ditches flow to the southwest corner where it then flows into a storm drain pipe which crosses under Yosemite Avenue.

In previous years, this drainage continued south in a ditch along Parsons Avenue and discharged into Black Rascal Creek. As properties on the south side of Yosemite Avenue were developed as residential housing projects, their respective storm drainage systems were required to maintain and accommodate the historical drainage pattern from the north side of Yosemite Avenue. Drainage from adjacent parcels to the north, east or west do not enter into or cross the subject parcel.

Since the City of Merced does not provide storm drainage and detention facilities, the City's standards require each development to provide its own system. Since 1983, the City of Merced and other Central Valley cities adopted the "Merced County Critical Area Flooding and Drainage Plan" (Nolte & Associates, February 1983) as their storm drainage design guideline. In simple terms, when undeveloped land is improved with buildings and other improvements which increase the amount of impervious surfaces, City standards require that each project detain the equivalent of a 50 year, 24 hour storm due to the increased run off from the project improvements.

Since Merced clay soils generally have poor percolation characteristics, the detained storm water is typically pumped out at a slow rate into the nearest natural channel or MID facility. This “slow” discharge rate generally occurs over no more than a 48 hour period after the main storm event has passed so that the receiving channel can better handle this “metered flow”. City storm design standards allow this metered discharge rate to be equivalent to the runoff that the undeveloped property would generate from a 2 year, 24 hour storm. Again, in simple terms, the amount to be detained is the difference between the 2 year, 24 hour undeveloped rate versus what the developed property would generate from the 50 year, 24 hour storm.

From approximately 1990 through 1996, when the 3 residential subdivisions on the south side of Yosemite Avenue were developed (Silverado, Camelot, and Oakmont Village - see Exhibit B) each of these three projects had to provide for their respective storm drain collection, detention and pumping facilities.

The Silverado project provided a newer 24” storm pipe across Yosemite Avenue to accommodate the aforementioned flows from the southwest corner of Yosemite Avenue and Gardner Avenue. The Silverado project design accounted for the drainage and the 2 year, 24 hour discharge rate that the subject 30 acre property was “entitled” to. The 24” pipe under Yosemite Avenue continues south and connects with the Silverado storm detention basin. The Silverado collection system and detention basin were sized to include the necessary volume which is still available and ready to accommodate the subject project.

At the time, the City Engineer required that the three subdivisions coordinate and provide one “regional” storm drain system. As a compromise, each subdivision provided their own separate detention basins, but did coordinate the design and construction of one storm pump station on Black Rascal Creek (see exhibit B). Each of the three subdivisions paid their respective share of the cost of the joint pump station in proportion to the allowable pumping rate as follows:

Silverado	6.26 CFS
Camelot	1.55 CFS
Oakmont Village	3.90 CFS
TOTAL	11.61 CFS

The related interconnecting piping from the three subdivisions to the pump station was also coordinated with each of the three developers. As is typical, when these three subdivisions were completed, the City accepted and took over the ownership and maintenance of the public improvements including the storm drain system.

In addition to meeting the City of Merced Storm Drainage Design Standards (in place since 1983), the developer will be required to comply with the City's more recently adopted "Post Construction Standards Plan" (PCSP). The PCSP describes various low impact design and hydro modification concepts to reduce the amount of run-off generated by the project and improve the quality of the storm water being discharged from the site. As an ideal, the PCSP seeks to reduce storm water discharge to zero. However, since the majority of Merced area contains heavy clay soils, it is not contemplated that the storm water can be contained on site as already demonstrated by numerous projects in the City since the adoption of the PCSP. Detention and discharge will be necessary in order to meet the City's Overall Storm Drainage Standards.

PROPOSED PROJECT

The proposed site improvements will create approximately 64% impervious surfaces (roof, pavement, and sidewalks). This equates to a detention volume of approximately 6 acre feet for the 50 year, 24 hour storm.

The full details of the grading design, cuts and fills, location and sizing of storm drainage piping will not occur until the design phase of the project and when geotechnical information is available. There will be a network of storm drain piping to collect storm runoff from the various buildings and paved areas which will direct the storm water to the proposed detention basin. A storm pump station will be required to

empty the detention basin (in less than 48 hours) and will limit the discharge to the allowable metered rate into the existing City system.

In accordance with the city's PCSP, various combinations of low impact design features will be considered during the design phase such as bio swales, modular wetlands biofiltration units, storm water planters, nutrient separating baffle box, etc., which may reduce the detention amount somewhat. However, as stated previously, opportunities for significant infiltration are limited due to Merced heavy clay soils.

The detention basin will provide both storm water storage and quality treatment. Detention times in the range of 24 to 48 hours allows sediment and pollutants to settle out before the storm water is discharged to downstream receiving waters. In this case, the project storm water could experience two detention events since the proposed onsite storm system connects to and is piggy-backed into the existing detention and pumping system for Silverado before it is discharged to Black Rascal Creek.

The proposed storm basin has a relatively small footprint (approximately 1.1 acre) so it will be configured as a "deep & steep" basin rather than a "shallow & wide" basin in order to provide the necessary storage volume in the smaller amount of space. The side slopes will be 2:1 and the water depth will be approximately 10' deep for the 50 year storm event. This basin will be fenced for safety and is not amenable to some sort of recreational joint use. The bottom area of the basin is not large enough for any kind of playfield. While the basin may be dry most of the year, the geometry does not lend itself to recreational use.

Early in the project, the developer decided that the "shallow & wide" basin with potential recreational joint use would require too much space. The joint use basins are typically unfenced, have 8:1 side slopes, and an average water depth of 18". For this project, that would equate to approximately 6 to 7 acres which was deemed unacceptable.

The three subdivisions mentioned above provide an example of both types of storm basins. The Silverado basin is unfenced, has 10:1 side slopes with an average water depth of 18". The Camelot basin is fenced, has 2.5:1 side slopes with an average

water depth of 7'. The Oakmont basin is fenced, has 2.5:1 side slopes with an average water depth of 7.2'.

CONCLUSION

The Merced Station Project can meet all city storm drainage standards. The proposed discharge will be equal to or less than the current discharge from the undeveloped property so there should be no adverse impact to the city's existing downstream system.

VICINITY MAP

PROJECT DIRECTORY

OWNER
CLIFF CATON
952 W. MAIN STREET
MERCED, CA 95340
T 831.262.8747
CONTACT: CLIFF CATON

ARCHITECT
HOCHHAUSER BLATTER
ARCHITECTURE & PLANNING
122 E. ARRELLAGA ST.
SANTA BARBARA, CA, 93101
T 805.962.2746
CONTACT: JAY BLATTER
EMAIL: jay@hbarchitects.com

CIVIL ENGINEER
QUAD KNOPF
2916 PARK AVENUE
MERCED, CA 95348
T 209.723.2066
CONTACT: DESMOND JOHNSTON
EMAIL: Des.Johnston@qkinc.com

LEGEND

- COMMERCIAL/RETAIL SPACE (1 STORY - 66,000 SF)
- LEASING OFFICE/ CLUB HOUSE/ GYMNASIUM/ STUDY LOUNGE (1 STORY)
- RESIDENTIAL BUILDINGS (22 BLDGS - 24,895 SF EACH (2 BEDROOM, 3 BEDROOM & 4 BEDROOM UNITS))



EXHIBIT A

SITE PLAN 1/64" = 1'-0" | 1

PROJECT STATISTICS

PROJECT	:	UNIVERSITY VILLAGE MIXED USE DEVELOPMENT
APN	:	060-570-010
ADDRESS	:	YOSEMITE AVENUE & GARDNER AVENUE, MERCED, CA 95340
PROPERTY OWNER	:	CLIFF CATON 952 W. MAIN STREET, MERCED CA 95340
APPLICANT	:	CLIFF CATON 952 W. MAIN STREET, MERCED CA 95340
TOTAL LOT AREA	:	1,245,415 SQ FT. (28.6 ACRES)
COMMERCIAL/ RETAIL	:	66,000 SQ. FT. (ONE STORY)
RETAIL RESIDENTIAL (EXTENDED STAY)	:	12 - 1-BEDROOM UNITS (950 SF EACH) 6 - 2-BEDROOM UNITS (1,300 SF EACH)
RETAIL RESIDENTIAL (APARTMENTS)	:	12 - 2-BEDROOM UNITS (1,400 SF EACH)
CLUBHOUSE	:	13,000 - 18,000 SQ. FT (ONE - TWO STORIES)
RESIDENTIAL BUILDINGS	:	547,690 SQ. FT. (22 BUILDINGS @ 24,895 SQ. FT. EACH)
RESIDENTIAL UNITS/ BLDG.	:	6 - 2-BEDROOM UNITS 1 - 3-BEDROOM UNIT 8 - 4-BEDROOM UNITS
TOTAL NO.	:	6 X 22 = 132 1 X 22 = 22 8 X 22 = 176 330 RESIDENTIAL UNITS

PARKING

COMMERCIAL/ RETAIL

STANDARD	:	312 SPACES
ACCESSIBLE	:	11 SPACES
TOTAL	:	323 SPACES

RESIDENTIAL

STANDARD	:	675 SPACES
COMPACT	:	102 SPACES
ACCESSIBLE	:	36 SPACES
TOTAL	:	813 SPACES

TOTAL PARKING : 1,136 SPACES

PROJECT DESCRIPTION

UNIVERSITY VILLAGE MERCED is a proposal mixed use project located on a 28.6 acre site that fronts Yosemite Avenue and Gardner Avenue. The project includes:

- A 330 unit student housing village that includes 22 three story residential buildings, an approximate 13,000 - 18,000 SF clubhouse and a network of walking and biking trails and outdoor recreation space, and a community bus stop.
- A 66,000 SF five structures mixed use: commercial retail and residential spaces located around a central community square with pedestrian linkages to the residential development. The residential spaces located at second floor include one & two bedroom apartments.

The project master plan is based on sustainable and green principles of design as follows:

- There will be an internal bus stop to allow guests to and from the University of California Merced campus to discourage use of automobiles.
- The landscape palette will incorporate drought tolerant, indigenous plantings to minimize water use.
- The individual building designs incorporate open and naturally ventilated circulation spaces to minimize energy use.
- Energy efficient mechanical and plumbing systems
- Opportunities for photovoltaic panels to be connected to individual building electric systems.
- Solar shading devices to minimize heat gain on south and west facing facades.
- Secure bicycle storage to encourage use of bicycles in lieu of automobiles.
- Maximum sized fenestration to facilitate both natural ventilation and daylight
- Outdoor terraces and balconies
- Non-toxic, non V.O.C finish materials
- Low flow plumbing fixtures
- LED or other energy efficient lighting fixtures.

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A2.1 RESIDENTIAL BUILDING FLOOR PLANS
A3.1 COMMERCIAL AREA ELEVATIONS
A3.2 COMMERCIAL AREA ELEVATIONS
A3.5 3D VIEWS OF RESIDENTIAL BUILDING
A3.6 CLUB HOUSE FLOOR PLAN AND ITS 3D VIEWS
A3.7 3D VIEWS OF MASTER SITE PLAN
A3.8 3D VIEW OF COURTYARD
A3.9 3D VIEW ON THE RESIDENTIAL AND COMMERCIAL AREAS
A3.10 AERIAL 3D VIEW OVER SITE AND COMMERCIAL AREAS

0' 30' 60' 120' 240'

Hochhauser Blatter
ARCHITECTURE AND PLANNING
122 E. ARRELLAGA
SANTA BARBARA
CALIFORNIA 93101
805 962 2746

UNIVERSITY VILLAGE MERCED
MIXED USE DEVELOPMENT
YOSEMITE AVENUE & GARDNER AVENUE, MERCED, CA 95340

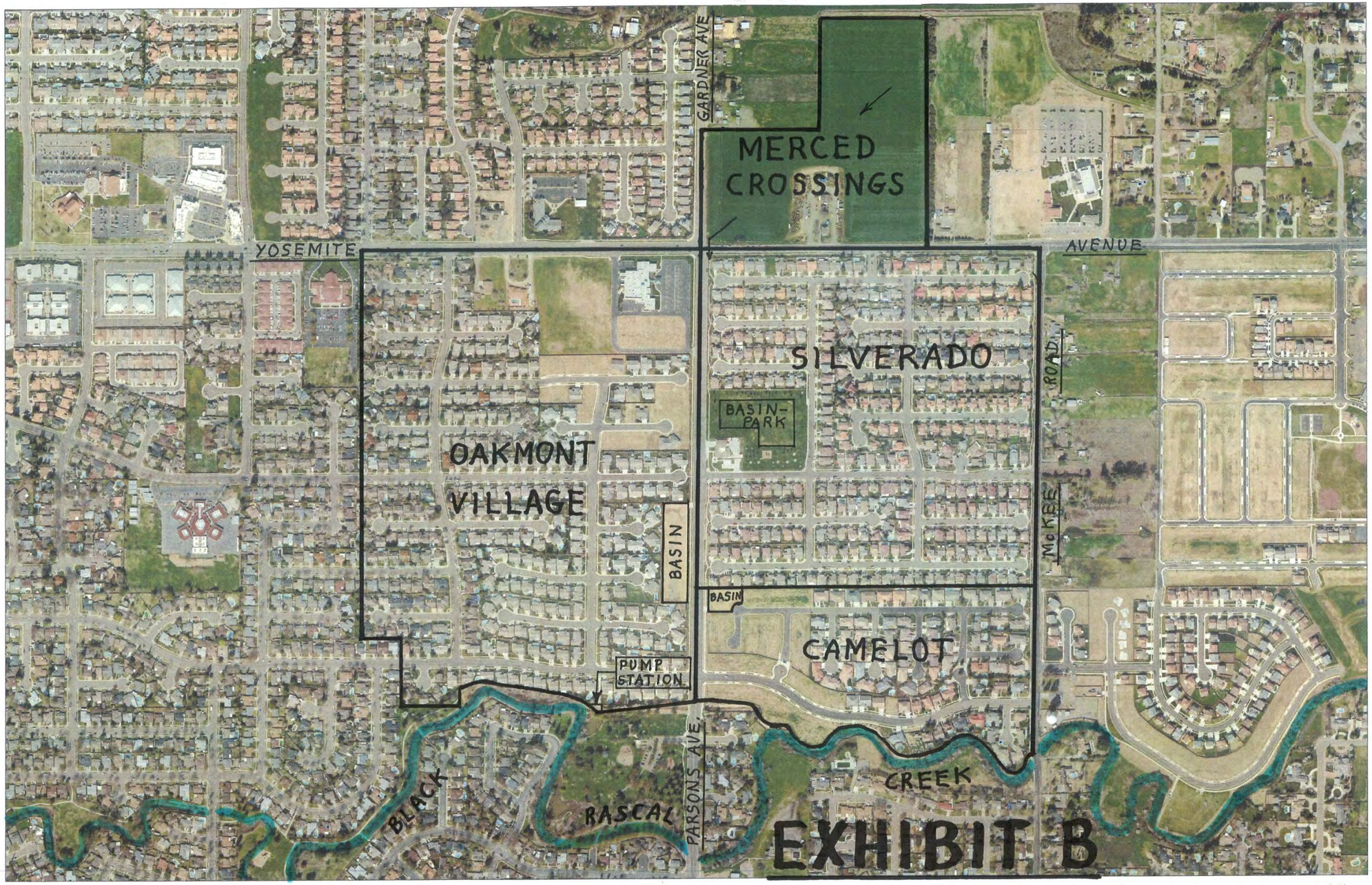
DATE	ISSUANCE OR REVISION
05.29.2016	PRE-APPLICATION
07.14.2016	PLANNING SUBMISSION
08.17.2016	REVISED SITE
09.01.2016	UPDATED PLANS SET
01.06.2017	UPDATED SITE PLAN

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SHEET CONTENTS
SITE PLAN & PROJECT STATISTICS

PROJECT NO 9811

SHEET
A1.1


MERCED CROSSINGS
GARDNER AVE
YOSEMITE
AVENUE
SILVERADO
BASIN-PARK
OAKMONT
VILLAGE
BASIN
BASIN
CAMELOT
PUMP STATION
McKEE ROAD
BLACK
RASCAL
PARSONS AVE
CREEK
EXHIBIT B

Appendix I

Phase I Environmental Site Assessment

Nelson Enviro, LLC, November 2016

PHASE I ENVIRONMENTAL ASSESSMENT

1897 E. Yosemite Ave.

Merced, CA

APN: 060-570-010

Prepared for

Quad Knopf, Inc.

Prepared by

Nelson Enviro, LLC

Atwater, California

November 23, 2016

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- **2.2 Detailed Scope-of-Services**
- **2.3 Significant Assumptions**
- **2.4 Limitations and Exceptions**
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1.0 Summary

Nelson Enviro, LLC was retained by Quad Knopf, Inc. to conduct an Environmental Site Assessment in conformance with the scope and limitations of ASTM International Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312 *et seq*.; "AAI"). The property is located at 1897 E. Yosemite Ave., Merced, Merced County, CA (APN 060-570-010).

The following summarizes the independent conclusions representing the best professional judgment of Nelson Enviro, LLC based on information and data available during this assignment. Although Nelson Enviro, LLC cannot guarantee the accuracy of all the information regarding operations, conditions, and other data provided by the client or their representatives, the conclusions presented are based on the data reviewed and physical site conditions that existed on the date of the assessment. ASTM International Standard Practice E1527-13 defines Recognized Environmental Conditions (RECs) as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.

Based on the results of the Phase I Environmental Assessment, it is my opinion that this assessment has revealed no evidence of Recognized Environmental Conditions in connection with the property. No additional environmental assessment work is recommended.

2.0 Introduction

2.1 Purpose

The purpose of this Phase I Environmental Site Assessment is to evaluate and classify any recognized environmental concerns associated with the subject property in conjunction with the requirements of ASTM International Standard E-1527-13 Standard Practice for Environmental Site Assessments and to qualify the User of this report for appropriate legal defense by conducting All Appropriate Inquiries.

2.2 Detailed Scope-of-Services

Prepare an ESA report per the ASTM International Standard E-1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), including by performing the following:

1. Conduct a records search of the appropriate State and Federal Governmental Databases to identify the uses of the site and identify any past uses that may have had a potential for creating a hazardous condition.

2. Conduct an on-site assessment to verify and evaluate current conditions at the site and the area surrounding the site to identify and evaluate potential hazardous conditions.

3. Conduct interviews with past and present owners, operators, and occupants of the property to obtain information indicating recognized environmental conditions in connection with the property, where practical.

4. Conduct interviews with local government officials to obtain information indicating recognized environmental conditions in connection with the property, where practical.

2.3 Significant Assumptions

The statement of the Environmental Professional appearing in the environmental assessment report is subject to the following conditions and such other specific and limiting conditions as set forth by the Environmental Professional in the report.

1. The Environmental Professional assumes no responsibility for matters of legal nature affecting the property assessed or the title thereto. The property is assessed assuming responsible ownership.

2. Any sketch appearing in or attached to the assessment report, or any statement of dimensions, capacities, quantities or distances, are approximate and are included to assist the reader in visualizing the property. The Environmental Professional has made no survey of the property.

3. Except as may be required by law, the Environmental Professional is not required to give testimony or appear in court because of having made the assessment with reference to the property in question, unless arrangements have been previously made therefore.

4. This report is not intended to have any direct effect on the value of the property assessed but simply to provide an Environmental Assessment solely for the benefit of the Principal Parties.

5. Other than as may be required by the scope of the Environmental Professional's retention, the Environmental Professional assumes that there are no hidden, unapparent, or latent conditions or defects in or of the property, subsoil, or structures, other than those noted on the assessment report or any addendum to the report, which the Environmental Professional has included. The Environmental Professional assumes no responsibility for such conditions, or for the assessment, engineering or repair, which might be required to discover or correct such factors.

6. The Environmental Professional cannot and does not guarantee the reliability or accuracy of information, estimates and opinions furnished to the Environmental Professional, and contained in the report, but has evaluated the thoroughness and reliability of such information.

7. The Environmental Professional and Assessment Report are made by the Environmental Professional solely for the benefit and personal use of the Principal Parties. No third parties may rely on the Assessment Report without the prior written consent of the

Environmental Professional and the Environmental Professional undertakes no responsibility for harm or damages to any party other than the Principal Parties.

8. Neither the Assessment Report, any part thereof, nor any copy of the same (including conclusions or recommendations, the identity of the Environmental Professional, professional designation, reference to any professional organization, or the firm with which the Environmental Professional is connected), shall be used for any purpose by anyone but the Principal Parties. The report shall not be conveyed by anyone to the public for the purpose of advertising or public relations without the prior written consent and approval of the Environmental Professional.

2.4 Limitations and Exceptions

1. The Environmental Professional has no present or contemplated future (a) partnership with Principal Parties nor (b) an interest in the property assessed which could adversely affect the Environmental Professional's ability to perform an objective assessment; and neither the employment of the Environmental Professional to conduct the assessment nor the compensation for it, is contingent on the results of the assessment.

2. The Environmental Professional has no personal interest in or bias with respect to the subject matter of the assessment report or any parties who may be part of a financial transaction involving the Site. The conclusions and recommendations of the report are not based in whole or in part upon the race, color, creed, sex or national origin of any of the Principal Parties.

3. The Environmental Professional has personally observed the Site, both inside and out and has made visual assessment of adjacent properties, to the extent possible by readily available access. The assessment does not include the removal of any soil, water or air samples, the moving of furniture or fixtures, or any type of assessment that would require extraordinary effort to access.

4. All contingent and limiting conditions are identified in Section 11 below (imposed by the terms of the assessment assignment or by the undersigned affecting the conclusions and recommendations contained in the report).

2.5 Special Terms and Conditions

Principles — The following principles are an integral part of this ASTM International Standard E-1527-13 and are intended to be referred to in resolving any ambiguity or exercising such discretion as is accorded the user or environmental professional in performing an environmental site assessment or in judging whether a user or environmental professional has conducted appropriate inquiry or has otherwise conducted an adequate environmental site assessment.

1. Uncertainty Not Eliminated — No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate,

uncertainty regarding the potential for recognized environmental conditions in connection with a property, and this practice recognizes reasonable limits of time and cost.

2. Not Exhaustive — All Appropriate Inquiries does not mean an exhaustive assessment of a property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of this practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an environmental site assessment and the reduction of uncertainty about unknown conditions resulting from additional information.

3. Level of Inquiry is Variable — Not every property will warrant the same level of assessment. Consistent with good commercial and customary practice, the appropriate level of environmental site assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

4. Comparison with Subsequent Inquiry -- It should not be concluded or assumed that an inquiry was not All Appropriate Inquiries merely because the inquiry did not identify recognized environmental conditions in connection with a property. Environmental site assessments must be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made. Subsequent environmental site assessments should not be considered valid standards to judge the appropriateness of any prior assessment based on hindsight, new information, use of developing technology or analytical techniques, or other factors.

5. Continued Viability of Environmental Site Assessment -- An environmental site assessment meeting or exceeding ASTM International Standard 1527-13 and completed less than 180 days prior to the date of acquisition of the property or (for transactions not involving an acquisition) the date of the intended transaction is presumed to be valid. If within this period the assessment will be used by a user different that the user for whom the assessment was originally prepared, the subsequent user must also satisfy the User's Responsibilities listed in the following section.

2.6 User Reliance -- User's Responsibilities

Scope — The purpose of this section is to describe tasks to be performed by the user. The "All Appropriate Inquiries" Final Rule (40 CFR Part 312) requires that these tasks be performed by or on behalf of a party seeking to qualify for Landowner Liability Protection (LLP) to CERCLA liability. These tasks do not require the technical expertise of an environmental professional and are generally not performed by environmental professionals performing a Phase I Environmental Site Assessment.

1. Review Title and Judicial Records for Environmental Liens and Activity and Use Limitations (AULs) — To meet the requirements of 40 CFR 312.20 and 312.23, a search for the existence of environmental liens and AULs that are filed or recorded against the property must be conducted.

2. Reasonably Ascertainable Title and Judicial Records for Environmental Liens and Activity and Use Limitations — Environmental liens and AULs that are recorded or filed in any place other than recorded land title records are not considered to be reasonably ascertainable unless applicable federal, tribal, state, or local statutes or regulations specify a place other than recorded land title records for recording or filing of environmental liens or AULs.

3. Specialized Knowledge or Experience of the User — Users must take into account their specialized knowledge to identify conditions indicative of releases or threatened releases. If the user has any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, the user should communicate any information based on such specialized knowledge or experience to the environmental professional. The user should do so before the environmental professional conducts the site reconnaissance.

4. Actual Knowledge of the User — If the user has actual knowledge of any environmental lien or AULs encumbering the property or in connection with the property, the user should communicate such information to the environmental professional. The user should do so before the environmental professional conducts the site reconnaissance.

5. Reason for Significantly Lower Purchase Price — In a transaction involving the purchase of a parcel of commercial real estate, the user shall consider the relationship of the purchase price of the property to the fair market value of the property if the property was not affected by hazardous substances or petroleum products. The user should try to identify an explanation for a lower price which does not reasonably reflect fair market value if the property was not contaminated, and make a written record of such explanation. Among the factors to consider will be the information that becomes known to the user pursuant to the Phase I Environmental Site Assessment. This practice does not require that a real estate appraisal be obtained in order to ascertain fair market value of the property. The user should inform the environmental professional if the user believes that the purchase price of the property is lower than the fair market value due to contamination. The user is not required to disclose the purchase price to the environmental professional.

6. Commonly Known or Reasonably Ascertainable Information — Commonly known or reasonably ascertainable information within the local community about the property must be taken into account by the user. If the user is aware of any commonly known or reasonably ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property, the user should communicate such information to the environmental professional. The user should do so before the environmental professional conducts the site reconnaissance. The user must gather such information to the extent necessary to identify conditions indicative of releases or threatened releases of hazardous substances or petroleum products.

7. Degree of Obviousness -- The user must consider the degree of obviousness of the presence or likely presence of releases or threatened releases at the property and the ability to detect releases or threatened releases by appropriate investigation.

8. Other — Either the user shall make known to the environmental professional the reason why the user wants to have the Phase I Environmental Site Assessment performed or, if the user does not identify the purpose of the Phase I Environmental Site Assessment, the environmental professional shall assume the purpose is to qualify for Landowner Liability Protections (LLP) to CERCLA liability and state this in the report.

3.0 Site Description

3.1 Location and Legal Description

The Site is located at 1897 E. Yosemite Ave., Merced, CA, at the northeast corner of E. Yosemite Ave. and N. Gardner Ave.

APN: 060-570-010

3.2 Site and Vicinity General Characteristics

The Site consists of an agricultural parcel of 30.0+/- acres. It contains a single-family residence of approximately 1,000 sf, a barn/shop, several outbuildings in various states of repair, and a heavy equipment storage yard which take up approximately 3 acres of the property. The balance of the Site is dedicated to irrigated field crops.

The general vicinity consists of agricultural and residential uses.

3.3 Current Use of the Property

The property is currently in agricultural production and is the equipment storage yard for Reinero's Heavy Haul.

3.4 Descriptions of Structures, Roads, Other Improvements on the Site

Structures on the Site include a two-story house constructed around 1920, a barn/shop, and several outbuildings in various states of repair.

3.5 Current Uses of the Adjoining Properties

Adjoining property uses are as follows:

North: agricultural
South: residential
East: agricultural
West: residential

4.0 User Provided Information

4.1 Title Records

The User did not provide any title records.

4.2 Environmental Liens or Activity and Use Limitations

The User has no knowledge of environmental liens or land use limitations on the property.

4.3 Specialized Knowledge

The User has no specialized knowledge related to the property or nearby properties.

4.4 Commonly Known or Reasonably Ascertainable Information

The User is not aware of any commonly known or reasonably ascertainable information related to the property.

4.5 Valuation Reduction for Environmental Issues

No known environmental issues that would reduce the fair market price were noted.

4.6 Owner and Occupant Information

Owner: Cliff Caton
952 W. Main St.
Merced, CA 95340

Key Site Manager: Cliff Caton

Occupants: Gary Reinero

4.7 Reason for Performing a Phase I Environmental Site Assessment

The reason for conducting a Phase I Environmental Site Assessment is for the purpose of identifying, to the extent feasible pursuant to the processes described in ASTM International Standard 1527-13, recognized environmental conditions in connection with the property and within the agreed scope of work.

4.8 Other

No other information was provided.

5.0 Records Review

5.1 Standard Environmental Record Sources
5.2 Additional Environmental Record Sources

Nelson Enviro, LLC uses the services of Environmental Data Resources, Inc. (EDR) to provide data from the Standard Environmental Record Sources identified in ASTM International Standard 1527-13.

Reference the EDR Environmental Review Report dated November 17, 2016. A copy is located in the Appendix.

A summary of all Record Sources is located in Appendix 16.5 Regulatory Records Documentation.

Dates of the most recent updates to the government version of the databases are indicated. Only sites that have a potential impact on the subject property are called out in the following summary.

Subject Site:

The target property was not listed in any of the database(s) searched by EDR.

Surrounding sites were identified in the following databases:

Only sites that have a potential impact on the subject property are called out in the following summary. Additional information is located within the EDR Radius Map Report and the Map Findings Summary located in Appendix 16.5 Regulatory Records Documentation.

ENVIROSTOR: Identifies sites that have known contamination or sites for which there may be reasons to investigate further (2016)
LUST: Leaking Underground Storage Tank Report (2016)
SWEEPS UST: Historical Statewide Environmental Evaluation and Planning System (1994)
HIST UST: Historical UST Registered Database (1990)
CA FID UST: Historical Facility Inventory Database (1994)
RCRA-NonGen/NLR: Sites which generate, transport, store, treat and/or dispose of hazardous waste. Non-generators do not presently generate hazardous waste. (2016)
CUPA Listings: Sites included in the county's Certified Unified Program Agency database
HIST CORTESE: Historical Hazardous Waste & Substance Site List (2001)

5.3 Physical Setting Source(s)

A current USGS 7.5 Minute Topographic Map (or equivalent) showing the area on which the property is located shall be reviewed. It is the only standard physical setting source and the only physical setting source that is required to be obtained (and only if it is reasonably ascertainable).

The most current USGS 7.5 Minute Topographic Map (Merced Quadrangle, dated 2015) was reviewed. Nelson Enviro, LLC concludes that no conditions exist to require the use of additional physical setting sources.

5.4 Historical Use Information on the Property

The objective of consulting historical sources is to develop a history of the previous uses of the property, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. All obvious uses of the property shall be identified from the present, back to the property's first developed use, or back to 1940, whichever is earlier. This task requires reviewing only as many of the standard historical sources as are necessary and both reasonably ascertainable and likely to be useful.

Aerial photographs dating back to 1937, topographic maps dating back to 1914, and city directories dating back to 1992 were reviewed.

Aerial photography

Data gaps of greater than five years exist due to the lack of available aerial photography. These data gaps are not considered to be significant as past uses of the property have not changed since 1937.

1937 – 1950	The Site appears as an orchard with the current house, barn, and various outbuildings.
1958 – 2014	The Site is shown in its current configuration with the orchard removed, planted to field crops, with the current house, barn, and various outbuildings.

Topographic maps

1914 – 1948	The maps show a residential structure on the Site.
1961 – 1987	The maps show a residential structure on the Site with three additional structures to the rear of the residence.
2012	No distinguishing features or structures are shown on the map.

City Directory

1992 – 2013	Reinero's Heavy Haul

5.5 Historical Use Information on Adjoining Properties

The objective of consulting historical sources is to develop a history of the previous uses of the surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. All obvious uses of adjoining properties shall be identified from the present, back to the properties first developed use, or back to 1940, whichever is earlier. This task requires reviewing only as many of the standard historical sources as are necessary and both reasonably ascertainable and likely to be useful.

Aerial photographs dating back to 1937, topographic maps dating back to 1914, and city directories dating back to 1992 were reviewed.

Aerial photography

Data gaps of greater than five years exist due to the lack of available aerial photography. These data gaps are not considered to be significant.

1937 - 1987	North – agricultural South – agricultural East – agricultural West – agricultural
1999	North – agricultural South – residential East – agricultural West – agricultural
2006 – 2014	North – agricultural South – residential East – agricultural West – residential

Topographic Maps

Topographic maps dating back to 1914 were reviewed. No environmental concerns were noted.

6.0 Site Reconnaissance

6.1 Methodology and Limiting Conditions

The method used to conduct site reconnaissance was to walk the area around the residence and yard of the Site and the interiors of the barn/shop and outbuildings. The interior of the residence was not observed.

6.2 General Site Setting

6.2.1 Current Use(s) of the Property

The property is currently in agricultural production and is the equipment storage yard for Reinero's Heavy Haul.

6.2.2 Past Use(s) of the Property

As noted above in Section 5.4. Aerial photographs dating back to 1937, topographic maps dating back to 1914, and city directories dating back to 1992 were reviewed.

6.2.3 Current Uses of Adjoining Properties

Adjoining property uses are as follows:

North: agricultural
South: residential
East: agricultural
West: residential

6.2.4 Past Uses of Adjoining Properties

As noted above in Section 5.5. Aerial photographs dating back to 1937, topographic maps dating back to 1914, and city directories dating back to 1992 were reviewed.

6.2.5 Current or Past Uses in the Surrounding Area

Current uses in the surrounding area are agricultural, residential, and commercial.

6.2.6 Geologic, Hydrogeologic, Hydrologic, and Topographic Conditions

The Site is flat as is the surrounding terrain. The soil types as provided by ParcelQuest are Ryer clay loam, 0 to 2 percent slopes; Wyman clay loam, deep over hardpan, 0 to 1 percent slopes; and Yokohl clay loam, 0 to 3 percent slopes.

6.2.7 General Description of Structures

Structures on the Site include a two-story house constructed around 1920, a barn/shop, and several outbuildings in various states of repair.

6.2.8 Roads

The Site is accessed from E. Yosemite Ave. and N. Gardner Ave.

6.2.9 Potable Water Supply

Water is supplied by an onsite well.

6.2.10 Sewage Disposal System

Sewer is supplied by an onsite septic system.

6.3 Exterior Observations

The area around the house and barn/shop consists of approximately 3 acres. This area is used for the storage of various pieces of heavy machinery which the tenant, Gary Reinero, uses in the course of his business, Reinero's Heavy Haul.

6.3.1 Current Use(s) of the Property

The property is currently in agricultural production and is the equipment storage yard for Reinero's Heavy Haul.

6.3.2 Past Use(s) of the Property

As noted above in Section 5.4. Aerial photographs dating back to 1937, topographic maps dating back to 1914, and city directories dating back to 1992 were reviewed.

6.3.3 Hazardous Substances and Petroleum Products in Connection with Identified Uses

The following petroleum products and hazardous substances in connection with identified uses were noted:

Three 120# drums of grease and two 5-gallon buckets labeled as gear oil were noted near the barn/shop.

Several 55-gallon drums labeled as motor oil along with up to nine 55-gallon drums of waste motor oil were located on the west of the dilapidated structure south of the barn/shop.

Seven used lead-acid batteries were noted sitting on bare ground south of the barn/shop.

6.3.4 Storage Tanks

Two aboveground fuel tanks were noted in the yard. Both are 550-gallon capacity. One is currently in use for gasoline storage and the other is currently empty. Several portable tanks and trap wagons were noted. Mr. Reinero stated they are all empty and only used off-site when he has jobs elsewhere with his heavy equipment.

6.3.5 Odors

No odors that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.3.6 Pools of Liquid

No pools of liquid that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.3.7 Drums

Three 120# drums of grease and two 5-gallon buckets labeled as gear oil were noted near the barn/shop.

Several 55-gallon drums labeled as motor oil along with up to nine 55-gallon drums of waste motor oil were located on the west of the dilapidated structure south of the barn/shop.

6.3.8 Hazardous Substances and Petroleum Products Containers (Not Necessarily in Connection with Identified Uses)

No hazardous substance and petroleum product containers (not necessarily in connection with identified uses) that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.3.9 Unidentified Substance Containers

No unidentified substance containers that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.3.10 PCB's

No presence of leaking, staining, or any other evidence that would suggest a release of PCBs was observed at the time of the site visit.

6.3.11 Pits, Ponds, or Lagoons

No pits, ponds, or lagoons that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.3.12 Stained Soil or Pavement

De minimis oil staining was noted in the equipment storage area of the yard.

6.3.13 Stressed Vegetation

No stressed vegetation that would constitute evidence of a recognized environmental condition was observed at the time of the site visit.

6.3.14 Solid Waste

No solid waste that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.3.15 Waste Water

No waste water in connection with identified uses that would constitute evidence of a recognized environmental condition was observed at the time of the site visit.

6.3.16 Wells

A domestic well was noted.

6.3.17 Septic Systems

A septic system services the residence.

6.3.18 Vapor Encroachment Concerns

A Tier I Vapor Encroachment Screen was conducted. The screen findings showed that Vapor Encroachment Concerns can be ruled out for all the sites listed. The Vapor Encroachment Screen can be found in Appendix 16.8 Vapor Encroachment Screen.

6.4 Interior Observations

The interior of the residence was not observed. The interiors of the barn/shop and outbuildings were observed.

6.4.1 Heating/Cooling

Unknown.

6.4.2 Stains or Corrosion

De minimis oil staining was noted on the floors of the buildings.

6.4.3 Drains and Sumps

No drains or sumps that would constitute evidence of a recognized environmental condition was observed at the time of the site visit.

6.4.4 Hazardous Substances and Petroleum Products in Connection with Identified Uses

No hazardous substances or petroleum products in connection with identified uses that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.5 Storage Tanks

No storage tanks in connection with identified uses that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.6 Odors

No odors in connection with identified uses that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.7 Pools of Liquid

No pools of liquid in connection with identified uses that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.8 Drums

No drums in connection with identified uses that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.9 Hazardous Substances and Petroleum Products Containers (Not Necessarily in Connection with Identified Uses)

No hazardous substance and petroleum product containers (not necessarily in connection with identified uses) that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.10 Unidentified Substance Containers

No unidentified substance containers that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.11 PCB's

No presence of leaking, staining, or any other evidence that would suggest a release of PCBs was observed at the time of the site visit.

6.4.12 Pits, Ponds, or Lagoons

No pits, ponds, or lagoons in connection with identified uses that would constitute evidence of a recognized environmental condition were observed at the time of the site visit.

6.4.13 Vapor Encroachment Concerns

A Tier I Vapor Encroachment Screen was conducted. The screen findings showed that Vapor Encroachment Concerns can be ruled out for all the sites listed. The Vapor Encroachment Screen can be found in Appendix 16.8 Vapor Encroachment Screen.

7.0 Interviews

7.1 Interview with Owner

Desmond Johnston of QK, Inc. completed the Due Diligence Questionnaire provided by Nelson Enviro, LLC, with the assistance of property owner Cliff Caton.

7.2 Interview with Key Site Manager

Cliff Caton was interviewed on several occasions regarding the property.

7.3 Interview with Occupants

Gary Reinero was present during the site visit and provided information regarding past site operations. Mr. Reinero has farmed the property for approximately the past 50 years. He said there were never any underground tanks on the property. Pesticide use in farming operations was kept to a minimum.

7.4 Interviews with Local Government Officials

According to the EDR environmental database report presented in Section 16.5 Regulatory Records Documentation, the subject property was not listed for environmental conditions in any of the databases searched by EDR. A file review request was submitted to the Merced County Environmental Health Department. Marcia Harvey stated they had no underground storage tank or hazardous materials records for the Subject Site.

7.5 Interviews with Others

No other interviews were conducted.

8.0 Findings

As noted, the Subject Site was not identified in any of the databases which were searched. The property has been in agricultural production since at least 1937 with its attendant equipment usage and with Mr. Reinero's collection of heavy equipment since the 1960's. The items noted (batteries, oil and grease drums, waste oil) should be addressed so that they are in compliance with current regulatory requirements. The waste oil and the batteries should be properly disposed of. The oil and grease drums should be kept off of the ground to avoid soil contact.

8.1 Known or suspect recognized environmental conditions

Based on the following definition, no known or suspected recognized environmental conditions are noted.

A Recognized Environmental Condition is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to

the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

8.2 Known or suspect historical recognized environmental conditions

Based on the following definition, no known or suspected historical recognized environmental conditions are noted.

A Historical Recognized Environmental Condition is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required control, (e.g., property use restrictions, activity and use limitations (AUL's), institutional controls, or engineering controls). Before calling the past release a Historical Recognized Environmental Condition, the Environmental Professional must determine whether the past release is a Recognized Environmental Condition at the time the Phase I Environmental Site Assessment is conducted (e.g., if there has been a change in the regulatory criteria). If the Environmental Professional considers this past release to be a Recognized Environmental Condition at the time the Phase I Environmental Site Assessment is conducted, the condition shall be included in the conclusions section of the report as a Recognized Environmental Condition.

8.3 Known or suspect controlled recognized environmental conditions

Based on the following definition, no known or suspected controlled recognized environmental conditions are noted.

A Controlled Recognized Environmental Condition is defined as a Recognized Environmental Condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a NFA letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., property use restrictions, AUL's, institutional controls, or engineering controls). A condition considered by the Environmental Professional to be a Controlled Recognized Environmental Condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a Recognized Environmental Condition in the conclusions section of the Phase I Environmental Site Assessment report.

8.4 De minimis conditions

Surface stains noted in the equipment storage yard are considered to be de minimis conditions. De minimis conditions are not recognized environmental conditions nor controlled recognized environmental condition.

8.5 Non-Scope Items

Environmental issues include environmental concerns identified during the course of the Phase I Site Assessment that warrant discussion but do not qualify as Recognized Environmental Conditions, as defined by the ASTM International Standard E1527-13. The Standard includes Section 13, Non-scope Considerations such as Asbestos-Containing Building Materials, Lead-Based Paint, Mold, Radon, Wetlands, and Threatened Species that are not part of the required ASTM International Scope of Work.

9.0 Opinion

Based on the results of the Phase I Environmental Assessment, it is my opinion that this assessment has revealed no evidence of Recognized Environmental Conditions in connection with the property. No additional environmental assessment work is recommended.

10.0 Conclusions

I have conducted a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM International Standard Practice E-1527-13 of the parcel located at 1897 E. Yosemite Ave., Merced, Merced County, CA (APN 060-570-010).

A Tier I Vapor Encroachment Screen was conducted. The screen findings showed that Vapor Encroachment Concerns can be ruled out for all the sites listed.

Any exceptions to, or deletions from, this practice are described in Section 11 of this report.

Based upon a review of the current regulatory agency data and assessment of the subject property and general area, I conclude that this assessment has revealed no evidence of recognized environmental conditions in connection with the property.

11.0 Limiting Conditions, Deviations, and Data Gaps

According to ASTM International Standard E1527-13, data gaps occur when the Environmental Professional is unable to obtain information required, despite good faith efforts to gather such information. The lack of aerial photography in five year increments is considered to be a data gap.

12.0 Additional Services

Not applicable.

13.0 References

USGS 7.5 Minute Topographic maps dated 1914 through 2015
Aerial photographs dated 1937 through 2014
EDR Radius Map Report, dated November 17, 2016

EDR Vapor Encroachment Screen, dated November 23, 2016
EDR City Directory Image Report

14.0 Signature(s) of Environmental Professional(s)

I, Michael G. Nelson, declare that I have prepared this report and that I am certified by the National Registry of Environmental Professionals as a Registered Environmental Property Assessor, Registration Number REPA 899052, which expires 3/15/2017.



15.0 Qualification(s) of Environmental Professional(s)

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR §312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and conducted the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.
The Code of Federal Regulations (40 CFR.10, Part 312) spells out the definition of an Environmental Professional (EP). I meet the stated qualifications, as highlighted below.

DEFINITION OF ENVIRONMENTAL PROFESSIONAL, PURSUANT TO 40 CFR.10

Environmental Professional means:
(1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (see §312.1(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in §312.20(e) and (f).
(2) Such a person must: (i) hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or (ii) be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in §312.21 and have the equivalent of three (3) years of full-time relevant experience; or (iii) have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or (iv) have the equivalent of ten (10) years of full-time relevant experience.
(3) An environmental professional should remain current in his or her field through participation in continuing education or other activities.
(4) The definition of environmental professional provided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration laws to the activities to be undertaken as part of the inquiry identified in §312.21(b).

(5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Bachelor of Science, Crop Science - California State Polytechnic University, San Luis Obispo, California, 1980

Certified Environmental Hazardous Materials Technician - Merced College, Merced, CA, 1994

Certified Hazardous Materials Technician - California Specialized Training Institute, 1995

Contaminant Vapor Migration and Intrusion Course - The Northwest Environmental Training Center, 2008

ASTM International Training on Phase I and Phase II – Environmental Site Assessments for Commercial Real Estate, 2016

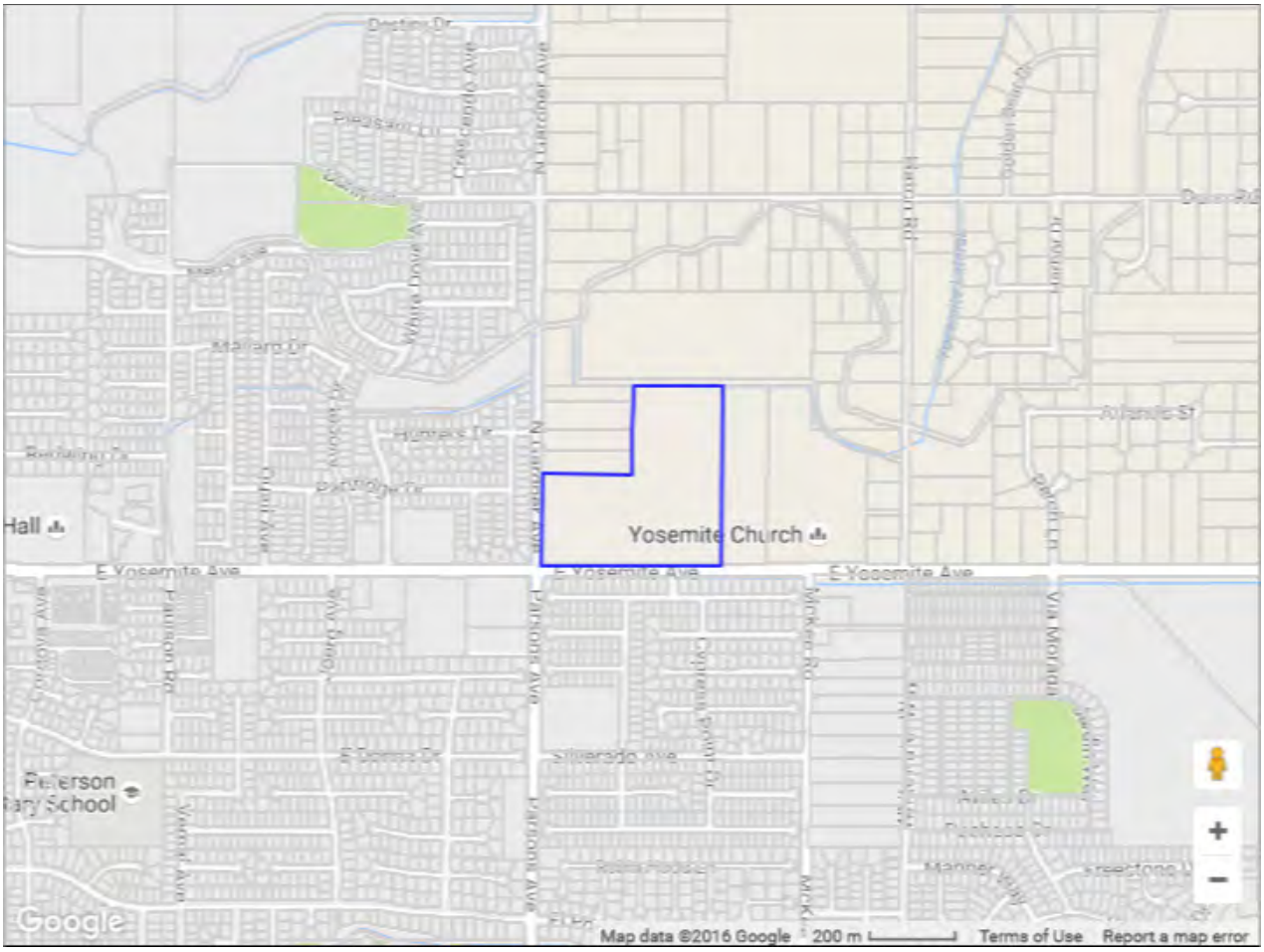
Professional Member, The Risk Management Association

Board Member, The Risk Management Association, Central Valley Chapter

Registered Environmental Property Assessor, National Registry of Environmental Professionals, REAP #899052

16.0 Appendices

16.1 Site (Vicinity) Map



Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com

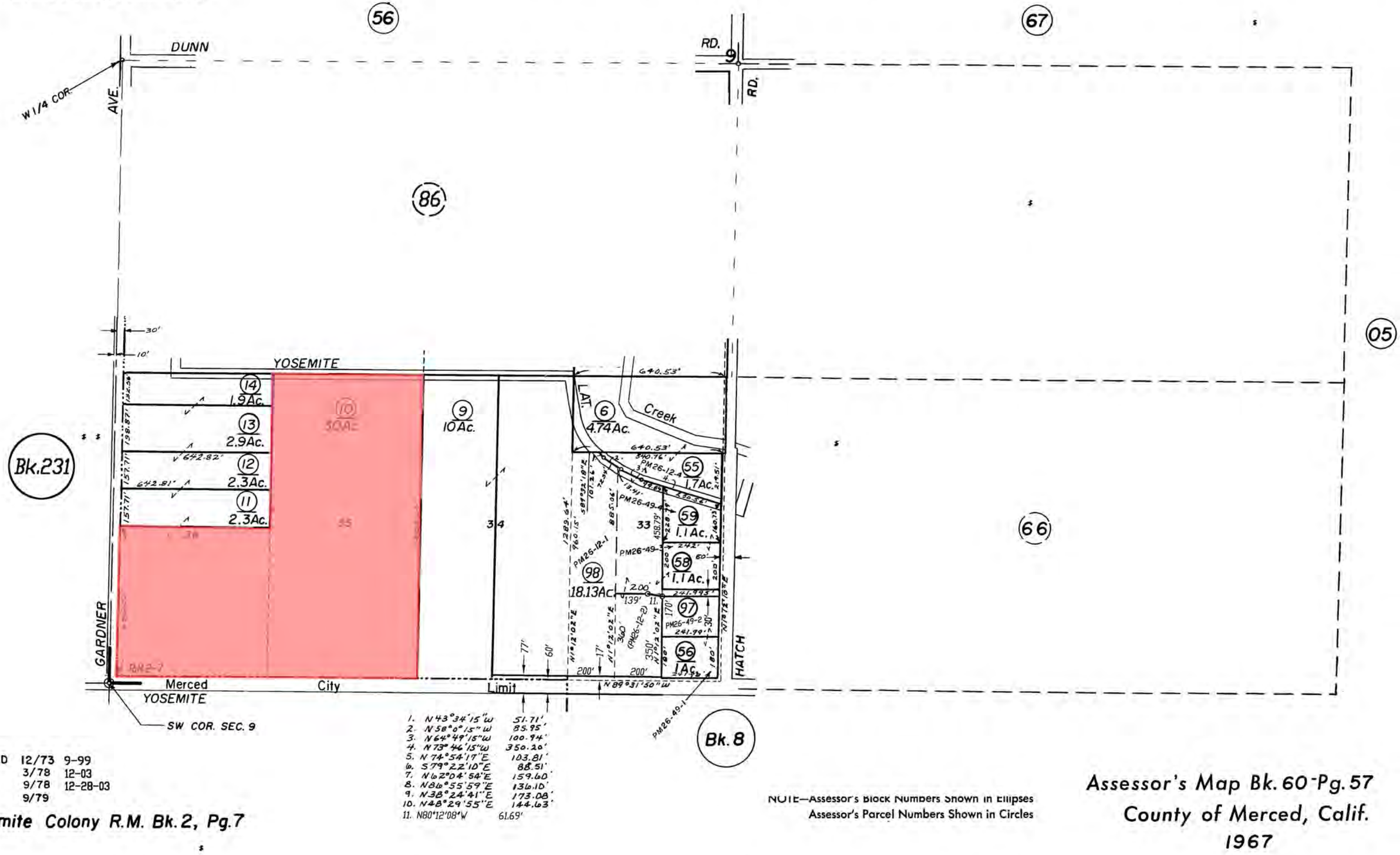
-NOTE-
This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

S 1/2 SEC. 9, T. 7S., R. 14E. M.D.B.&M.

Tax Rate Area 83-28

60-57

1" = 400'



REVISED 12/73 9-99
3/78 12-03
9/78 12-28-03
9/79

Yosemite Colony R.M. Bk. 2, Pg. 7

NOTE—Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles

Assessor's Map Bk. 60-Pg. 57
County of Merced, Calif.
1967

16.3 Site Photographs



1897 E. Yosemite Ave.



View of equipment storage yard, looking north from Yosemite Ave.



View of equipment storage yard, looking south towards Yosemite Ave.



Typical view of land surrounding the house and storage yard

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com



Typical outbuilding, used for vehicle storage



View of barn/shop

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com





Interior view of the barn/shop

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com



550-gallon gasoline tank currently in use



Trap wagon fuel tank for offsite use

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com





Fuel tanks used for off-site use



550-gallon tank currently out-of-service

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com







Oil and grease drums

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com



Used lead-acid batteries

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com

16.4 Historical Research Documentation

Aerial photographs
Historic topographic maps

16.5 Regulatory Records Documentation

Map Findings Summary of Standard and Additional Record Sources
EDR Radius Map Report dated November 17, 2016

16.6 Interview Documentation

Nelson Enviro, LLC Due Diligence Questionnaire

16.7 Special Contractual Conditions between User and Environmental Professional

None

16.8 Vapor Encroachment Screen

EDR Vapor Encroachment Screen dated November 23, 2016

Image Provided By EDR Aerials



NELSON ENVIRO, LLC

AERIAL - 1937

1897 E. Yosemite Ave.
Merced, California 95340

PREPARED FOR:
PROJ. MGR: **DATE: 11/18/2016**
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Image Provided By EDR Aerials



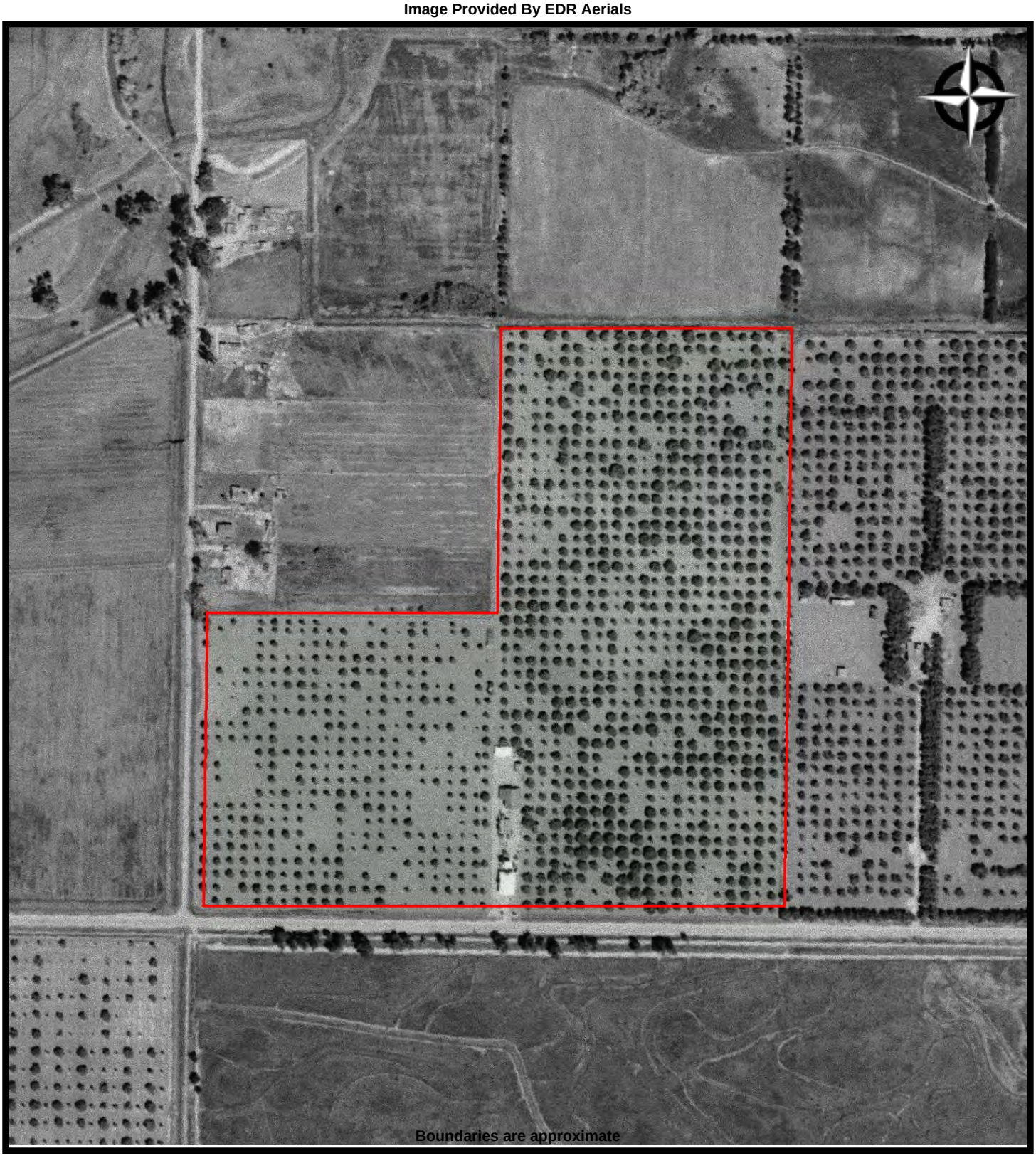
NELSON ENVIRO, LLC

AERIAL - 1942

1897 E. Yosemite Ave.
Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 1946

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Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 1950

1897 E. Yosemite Ave.
Merced, California 95340

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Image Provided By EDR Aerials



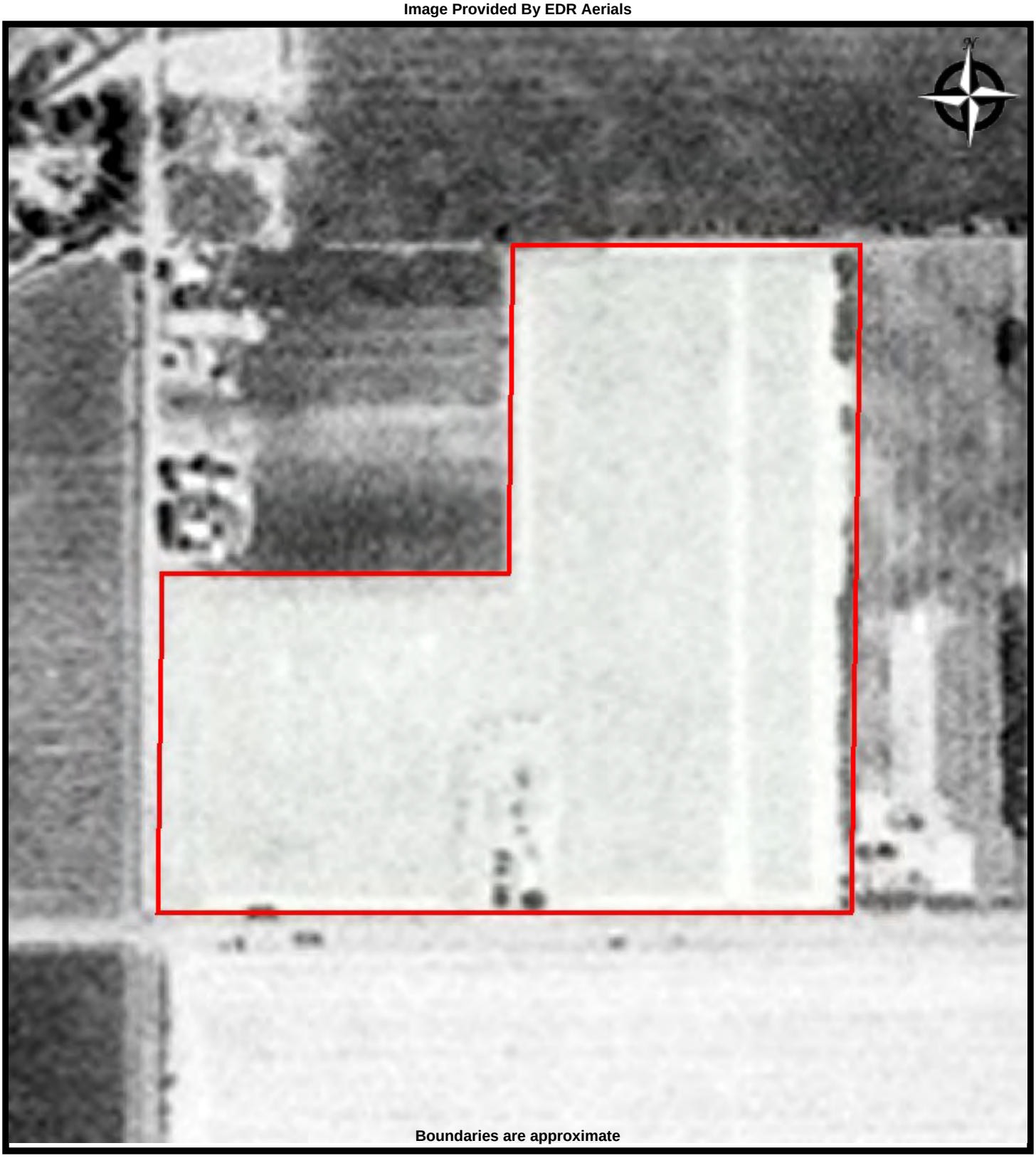
NELSON ENVIRO, LLC

AERIAL - 1958

1897 E. Yosemite Ave.
Merced, California 95340

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DRAWN BY: **PROJ. #:**

Image Provided By EDR Aerials



Boundaries are approximate

NELSON ENVIRO, LLC

AERIAL - 1976

1897 E. Yosemite Ave.
Merced, California 95340

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PROJ. MGR: **DATE: 11/18/2016**
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NELSON ENVIRO, LLC

AERIAL - 1984

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Merced, California 95340

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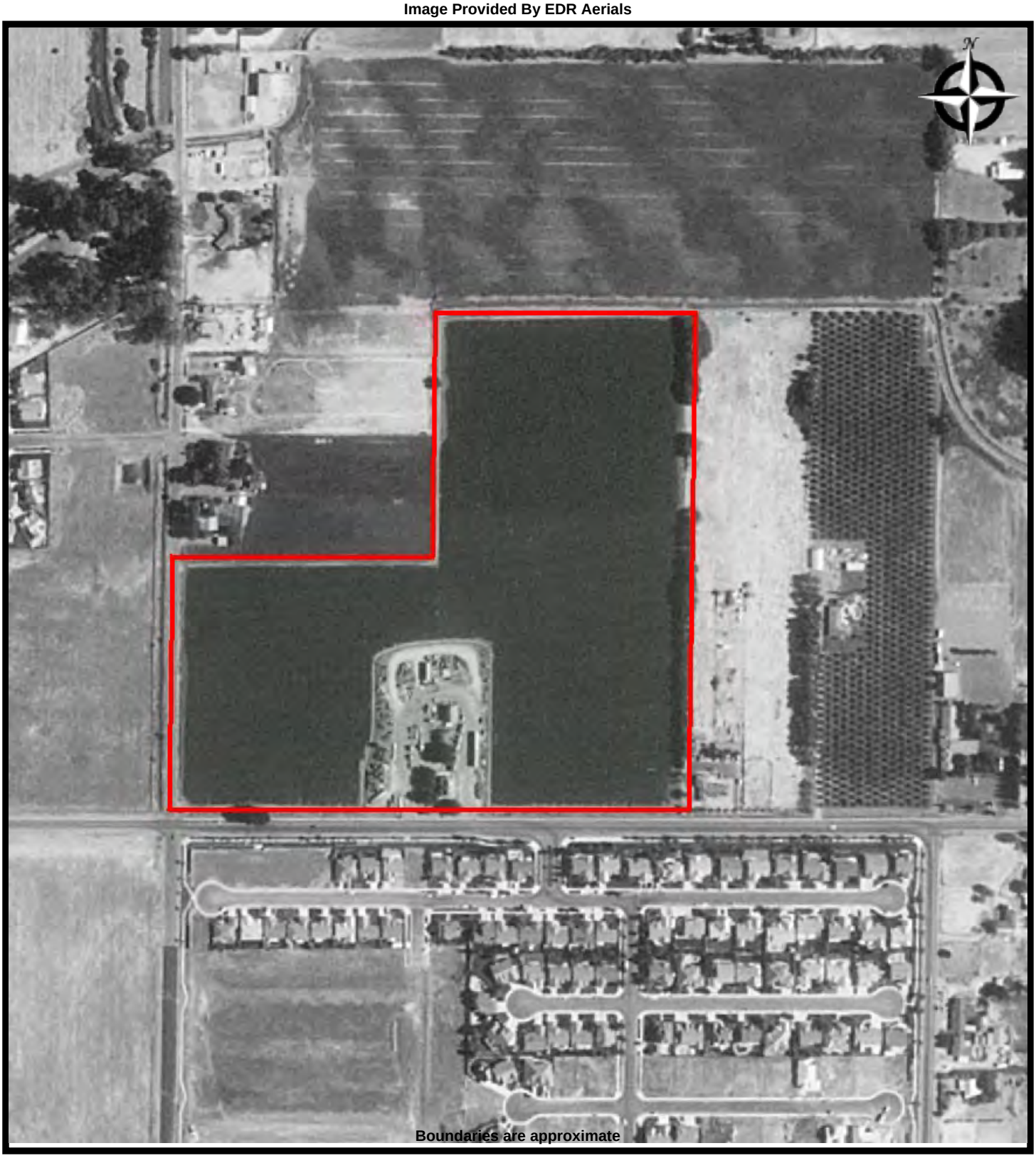
NELSON ENVIRO, LLC

AERIAL - 1987

1897 E. Yosemite Ave.
Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 1999

1897 E. Yosemite Ave.
Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 2006

1897 E. Yosemite Ave.
Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 2009

1897 E. Yosemite Ave.
Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 2010

1897 E. Yosemite Ave.
Merced, California 95340

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NELSON ENVIRO, LLC

AERIAL - 2012

1897 E. Yosemite Ave.
Merced, California 95340

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PROJ. MGR: **DATE: 11/18/2016**
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Image Provided By EDR Aerials



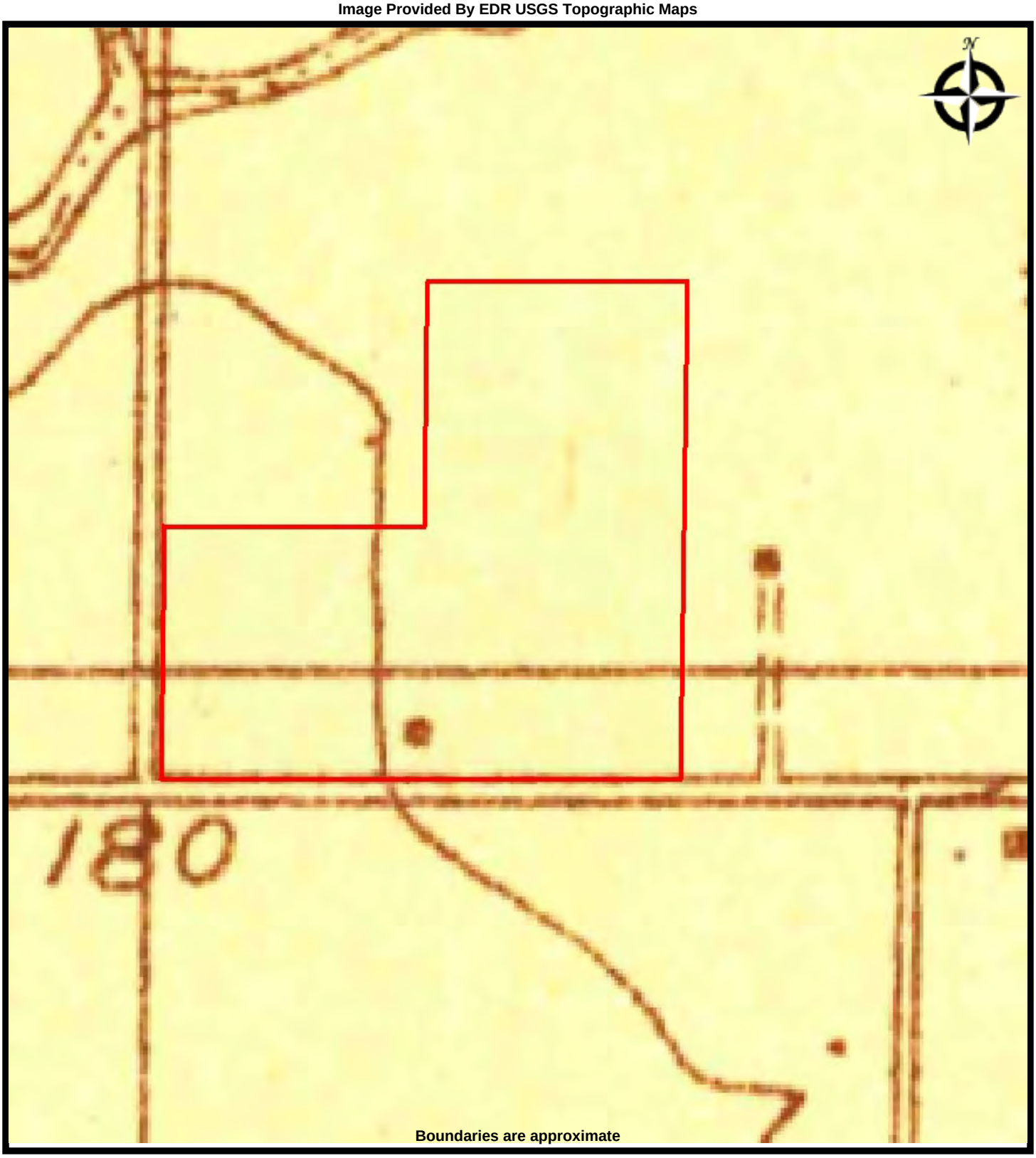
NELSON ENVIRO, LLC

AERIAL - 2014

1897 E. Yosemite Ave.
Merced, California 95340

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Image Provided By EDR USGS Topographic Maps



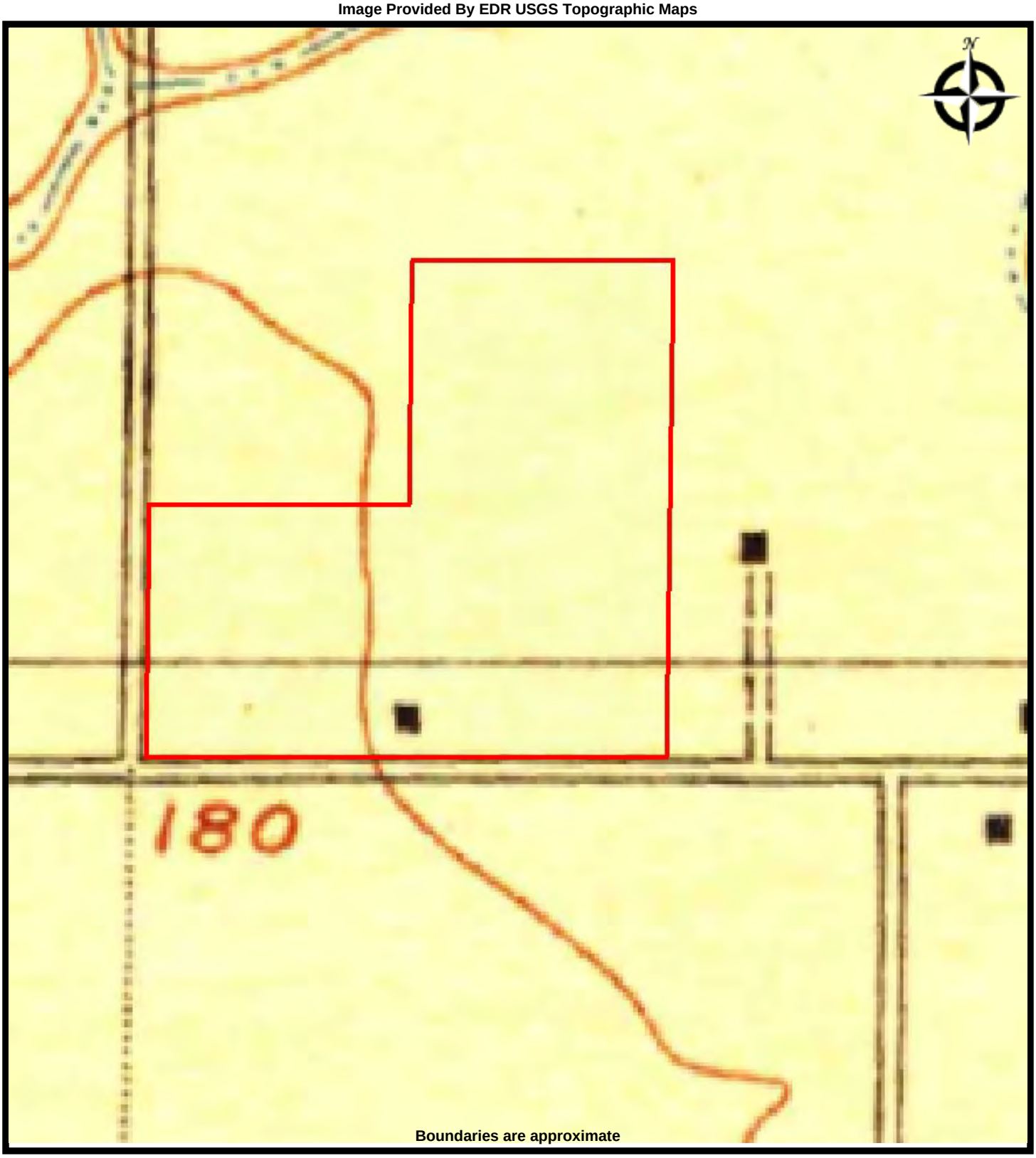
NELSON ENVIRO, LLC

TOPO MAP - 1914

1897 E. Yosemite Ave.
Merced, California 95340

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PROJ. MGR: **DATE: 11/18/2016**
DRAWN BY: **PROJ. #:**

Image Provided By EDR USGS Topographic Maps



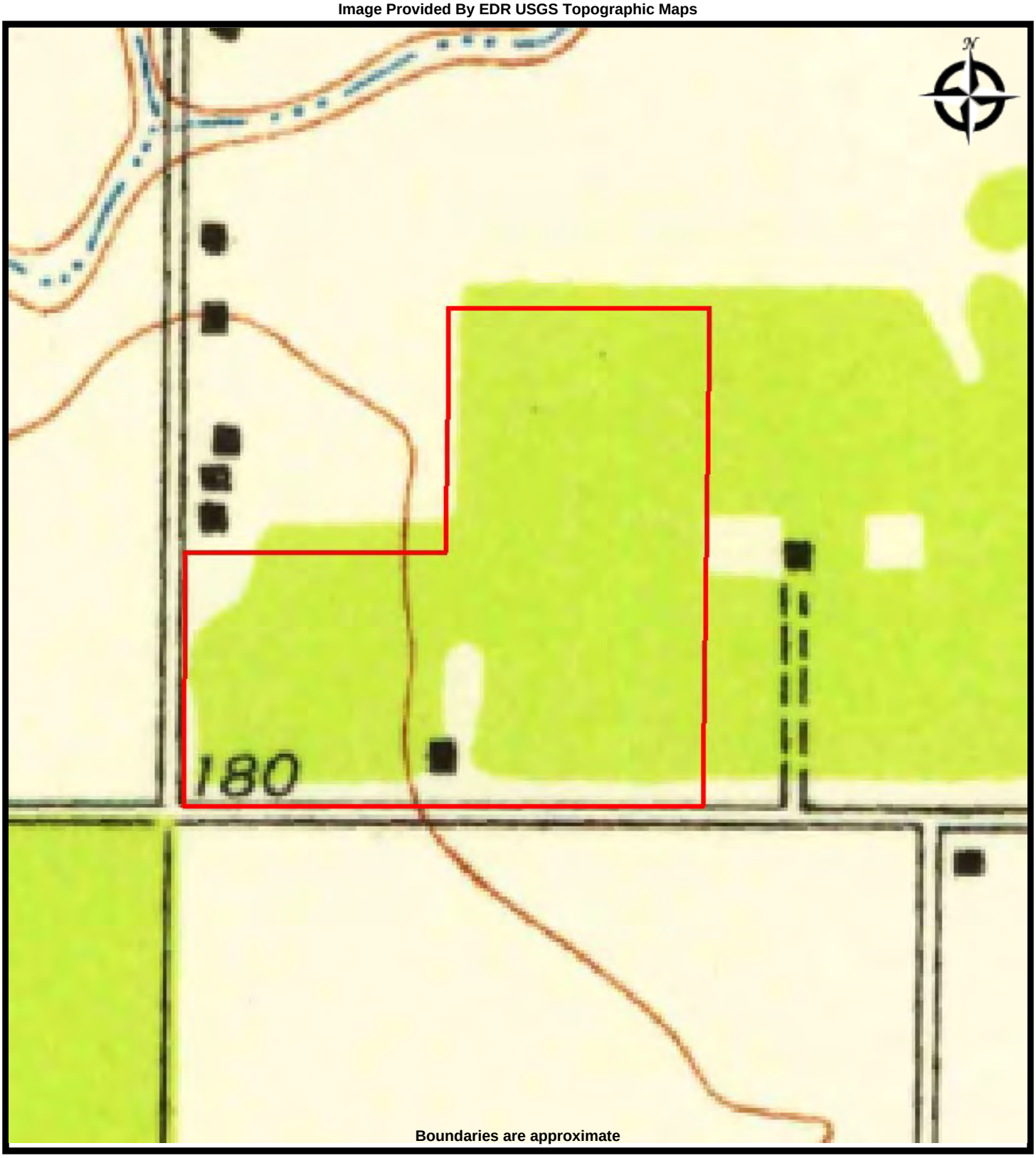
NELSON ENVIRO, LLC

TOPO MAP - 1917

1897 E. Yosemite Ave.
Merced, California 95340

PREPARED FOR:
PROJ. MGR: **DATE: 11/18/2016**
DRAWN BY: **PROJ. #:**

Image Provided By EDR USGS Topographic Maps



Boundaries are approximate

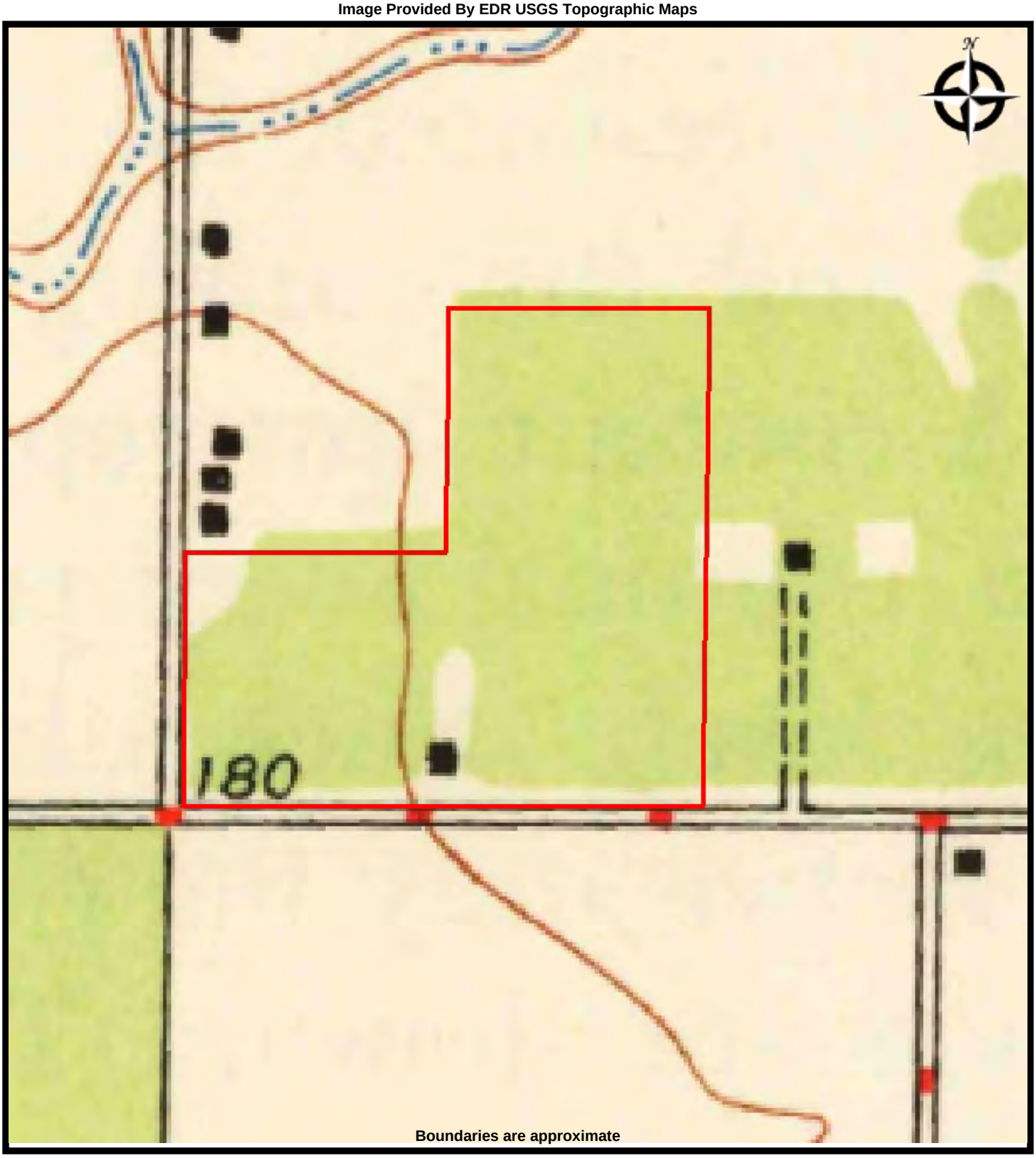
NELSON ENVIRO, LLC

TOPO MAP - 1946

1897 E. Yosemite Ave.
Merced, California 95340

PREPARED FOR:
PROJ. MGR: **DATE: 11/18/2016**
DRAWN BY: **PROJ. #:**

Image Provided By EDR USGS Topographic Maps



Boundaries are approximate

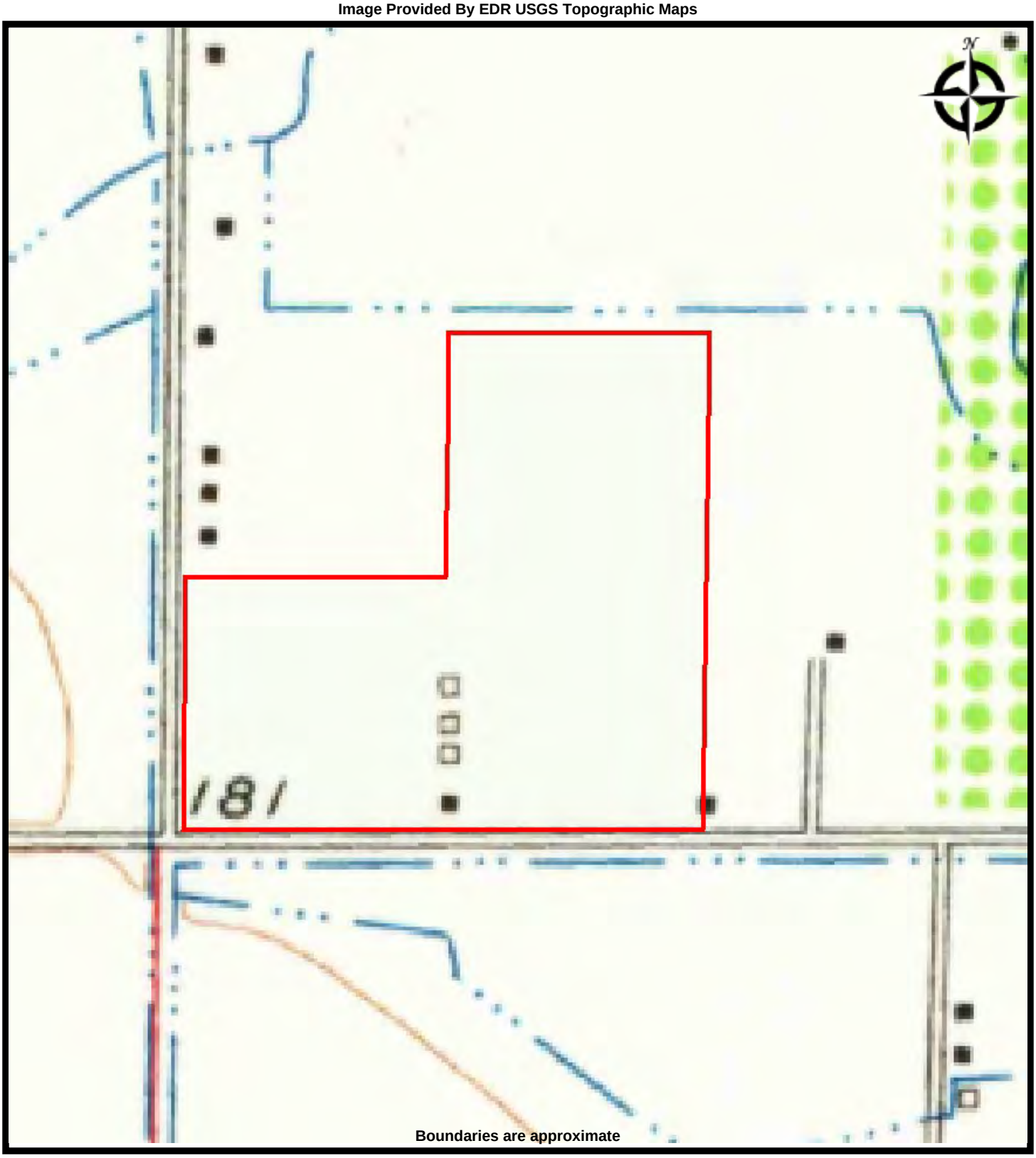
NELSON ENVIRO, LLC

TOPO MAP - 1948

1897 E. Yosemite Ave.
Merced, California 95340

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PROJ. MGR: **DATE: 11/18/2016**
DRAWN BY: **PROJ. #:**

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Boundaries are approximate

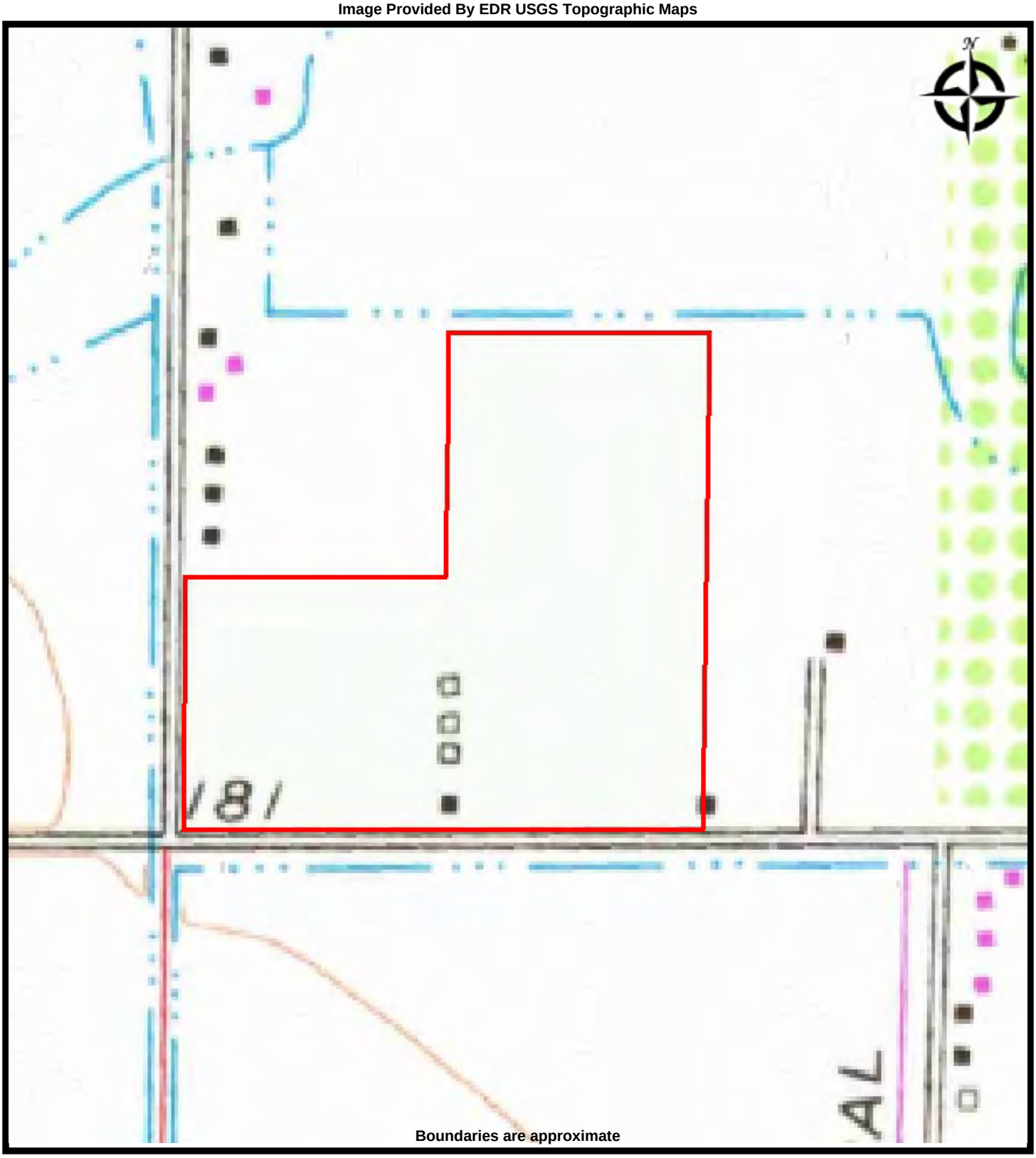
NELSON ENVIRO, LLC

TOPO MAP - 1961

1897 E. Yosemite Ave.
Merced, California 95340

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DRAWN BY: **PROJ. #:**

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Boundaries are approximate

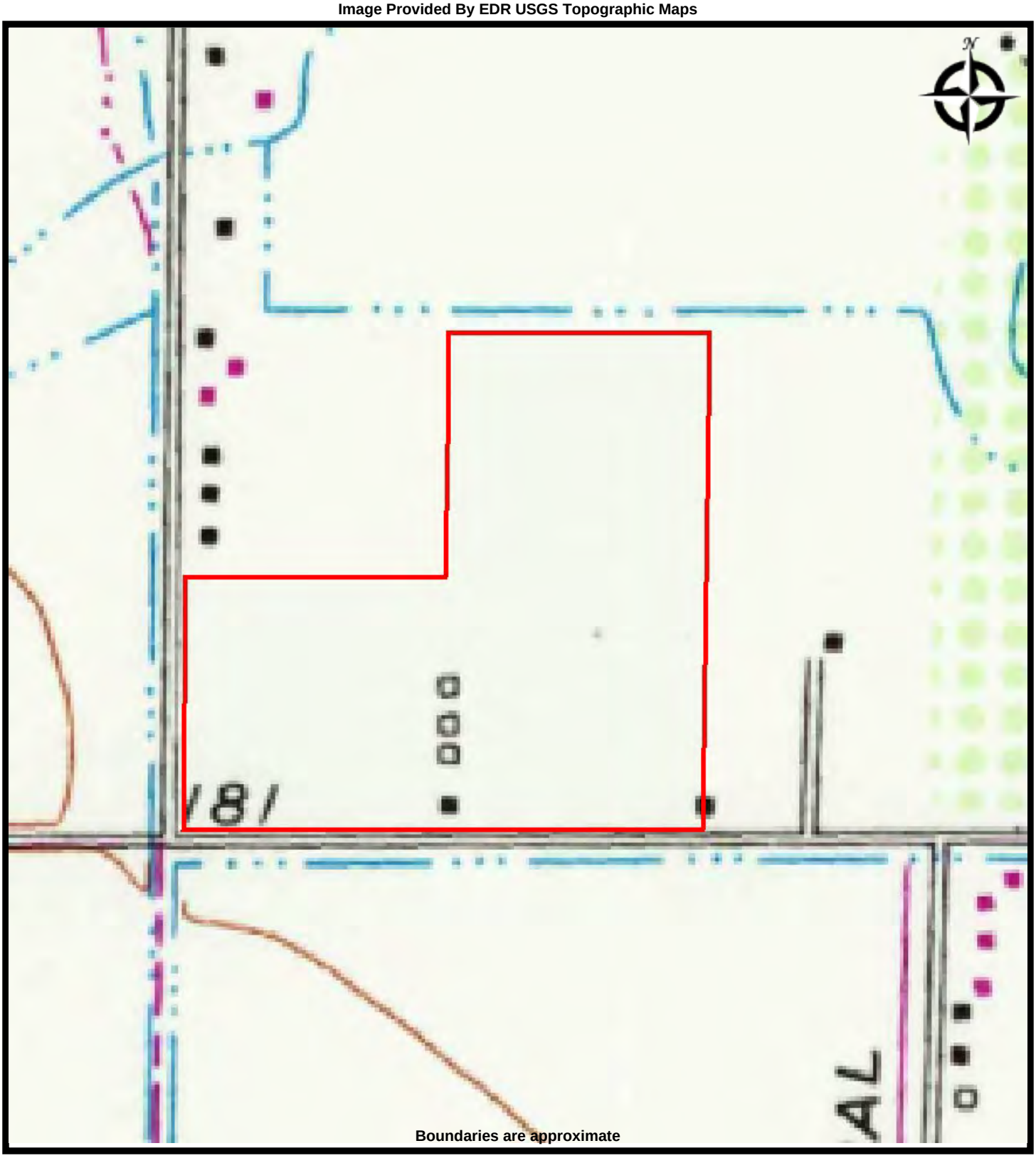
NELSON ENVIRO, LLC

TOPO MAP - 1976

1897 E. Yosemite Ave.
Merced, California 95340

PREPARED FOR:
PROJ. MGR:
DRAWN BY:
DATE: 11/18/2016
PROJ. #:

Image Provided By EDR USGS Topographic Maps



Boundaries are approximate

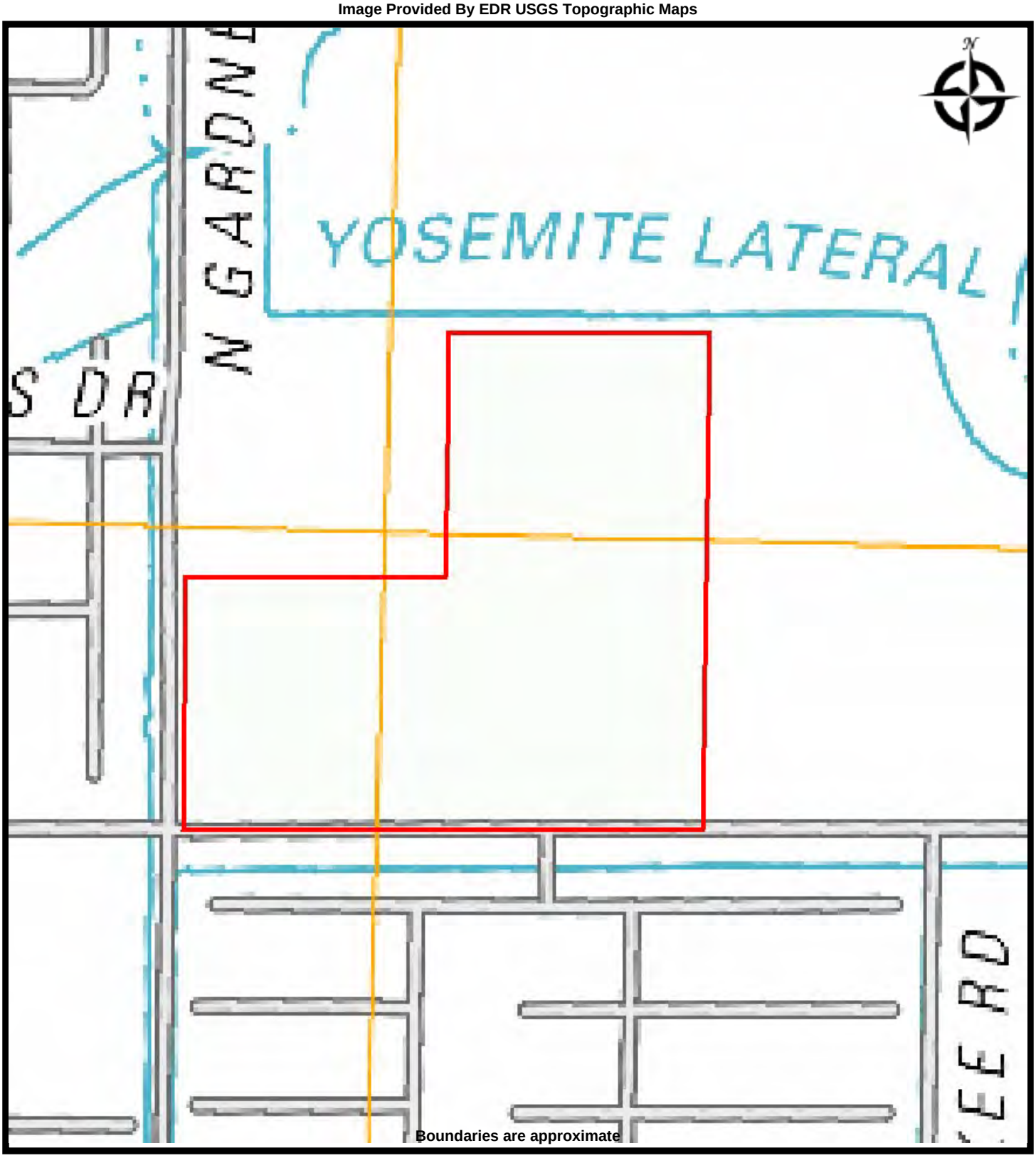
NELSON ENVIRO, LLC

TOPO MAP - 1987

1897 E. Yosemite Ave.
Merced, California 95340

PREPARED FOR:
PROJ. MGR: **DATE: 11/18/2016**
DRAWN BY: **PROJ. #:**

Image Provided By EDR USGS Topographic Maps



NELSON ENVIRO, LLC

TOPO MAP - 2012

1897 E. Yosemite Ave.
Merced, California 95340

PREPARED FOR:
PROJ. MGR: **DATE: 11/18/2016**
DRAWN BY: **PROJ. #:**

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	1	NR	NR	NR	1
HIST UST	0.250		0	1	NR	NR	NR	1
CA FID UST	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	1	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		3	0	NR	NR	NR	3
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	1	NR	NR	1
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	4	4	2	1	0	11

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1897 E. Yosemite Ave.
1897 E. Yosemite Ave.
Merced, CA 95340

Inquiry Number: 4784760.2s
November 17, 2016

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1897 E. YOSEMITE AVE.
MERCED, CA 95340

COORDINATES

Latitude (North):	37.3336950 - 37° 20' 1.30''
Longitude (West):	120.4482480 - 120° 26' 53.69''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	726074.3
UTM Y (Meters):	4134741.5
Elevation:	183 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5640006 MERCED, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140619, 20140620
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
1897 E. YOSEMITE AVE.
MERCED, CA 95340

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	MERCED CITY FIRE DEP	3520 PARSONS AVE.	CUPA Listings	Lower	75, 0.014, SW
A2	UNIVERSITY SURGICAL	1390 E. YOSEMITE AVE	CUPA Listings	Lower	319, 0.060, WSW
A3	MERCED MRI MEDICAL G	1390 E. YOSEMITE AVE	CUPA Listings	Lower	319, 0.060, WSW
4	TAZZ EXPRESS	3757 PIGEON CT	RCRA NonGen / NLR, FINDS, ECHO	Lower	578, 0.109, WNW
5	J D TRUCKING	3752 CHUKAR CT	RCRA NonGen / NLR, FINDS, ECHO	Lower	930, 0.176, WNW
B6	ADOLPH REINERO	1354 E YOSEMITE	HIST UST	Lower	1145, 0.217, WSW
B7	ADOLPH REINERO	1354 E YOSEMITE	SWEEPS UST, CA FID UST	Lower	1145, 0.217, WSW
8	PULSIPHER, DR.	3701 HATCH RD	LUST, HIST CORTESE	Higher	1456, 0.276, NE
9	PAULSON ROAD PROPERT	PAULSON ROAD	ENVIROSTOR, SCH	Lower	3037, 0.575, WNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL Sites with Institutional Controls

Federal ERNS list

ERNS Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST Leaking Underground Storage Tanks on Indian Land
SLIC Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST Underground Storage Tank Listing
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
INDIAN UST Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP Voluntary Cleanup Priority Listing
VCP Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT Waste Management Unit Database
SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
ODI Open Dump Inventory
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing

UXO ---- Unexploded Ordnance Sites
CA BOND EXP. PLAN ---- Bond Expenditure Plan
Cortese ---- "Cortese" Hazardous Waste & Substances Sites List
DRYCLEANERS ---- Cleaner Facilities
EMI ---- Emissions Inventory Data
ENF ---- Enforcement Action Listing
Financial Assurance ---- Financial Assurance Information Listing
HAZNET ---- Facility and Manifest Data
HWP ---- EnviroStor Permitted Facilities Listing
HWT ---- Registered Hazardous Waste Transporter Database
MINES ---- Mines Site Location Listing
MWMP ---- Medical Waste Management Program Listing
NPDES ---- NPDES Permits Listing
PEST LIC ---- Pesticide Regulation Licenses Listing
PROC ---- Certified Processors Database
Notify 65 ---- Proposition 65 Records
UIC ---- UIC Listing
WASTEWATER PITS ---- Oil Wastewater Pits Listing
WDS ---- Waste Discharge System
WIP ---- Well Investigation Program Case List
FUELS PROGRAM ---- EPA Fuels Program Registered Listing
ABANDONED MINES ---- Abandoned Mines
ICE ---- ICE
ECHO ---- Enforcement & Compliance History Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---- EDR Exclusive Historic Gas Stations
EDR Hist Cleaner ---- EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 08/01/2016 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PAULSON ROAD PROPERT	***PAULSON ROAD***	***WNW 1/2 - 1 (0.575 mi.)***	***9***	***14***
Facility Id: 60000113				
Status: No Action Required				

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PULSIPHER, DR.	***3701 HATCH RD***	***NE 1/4 - 1/2 (0.276 mi.)***	***8***	***12***
Database: LUST, Date of Government Version: 09/12/2016				
Database: LUST REG 5, Date of Government Version: 07/01/2008				
Status: Completed - Case Closed				
Status: Case Closed				
Global Id: T0604700140				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no

longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ADOLPH REINERO	***1354 E YOSEMITE***	***WSW 1/8 - 1/4 (0.217 mi.)***	***B7***	***12***
Status: A Tank Status: A Comp Number: 29855				

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ADOLPH REINERO Facility Id: 00000029855	1354 E YOSEMITE	WSW 1/8 - 1/4 (0.217 mi.)	B6	11

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ADOLPH REINERO	***1354 E YOSEMITE***	***WSW 1/8 - 1/4 (0.217 mi.)***	***B7***	***12***
Facility Id: 24001473 Status: A				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/21/2016 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
TAZZ EXPRESS	***3757 PIGEON CT***	***WNW 0 - 1/8 (0.109 mi.)***	***4***	***9***
J D TRUCKING	***3752 CHUKAR CT***	***WNW 1/8 - 1/4 (0.176 mi.)***	***5***	***10***

EXECUTIVE SUMMARY

CUPA Listings: A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

A review of the CUPA Listings list, as provided by EDR, has revealed that there are 3 CUPA Listings sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MERCED CITY FIRE DEP Database: CUPA MERCED, Date of Government Version: 08/17/2016 Facility Id: FA0006194	3520 PARSONS AVE.	SW 0 - 1/8 (0.014 mi.)	1	8
UNIVERSITY SURGICAL Database: CUPA MERCED, Date of Government Version: 08/17/2016 Facility Id: FA0004915	1390 E. YOSEMITE AVE	WSW 0 - 1/8 (0.060 mi.)	A2	8
MERCED MRI MEDICAL G Database: CUPA MERCED, Date of Government Version: 08/17/2016 Facility Id: FA0004923	1390 E. YOSEMITE AVE	WSW 0 - 1/8 (0.060 mi.)	A3	8

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

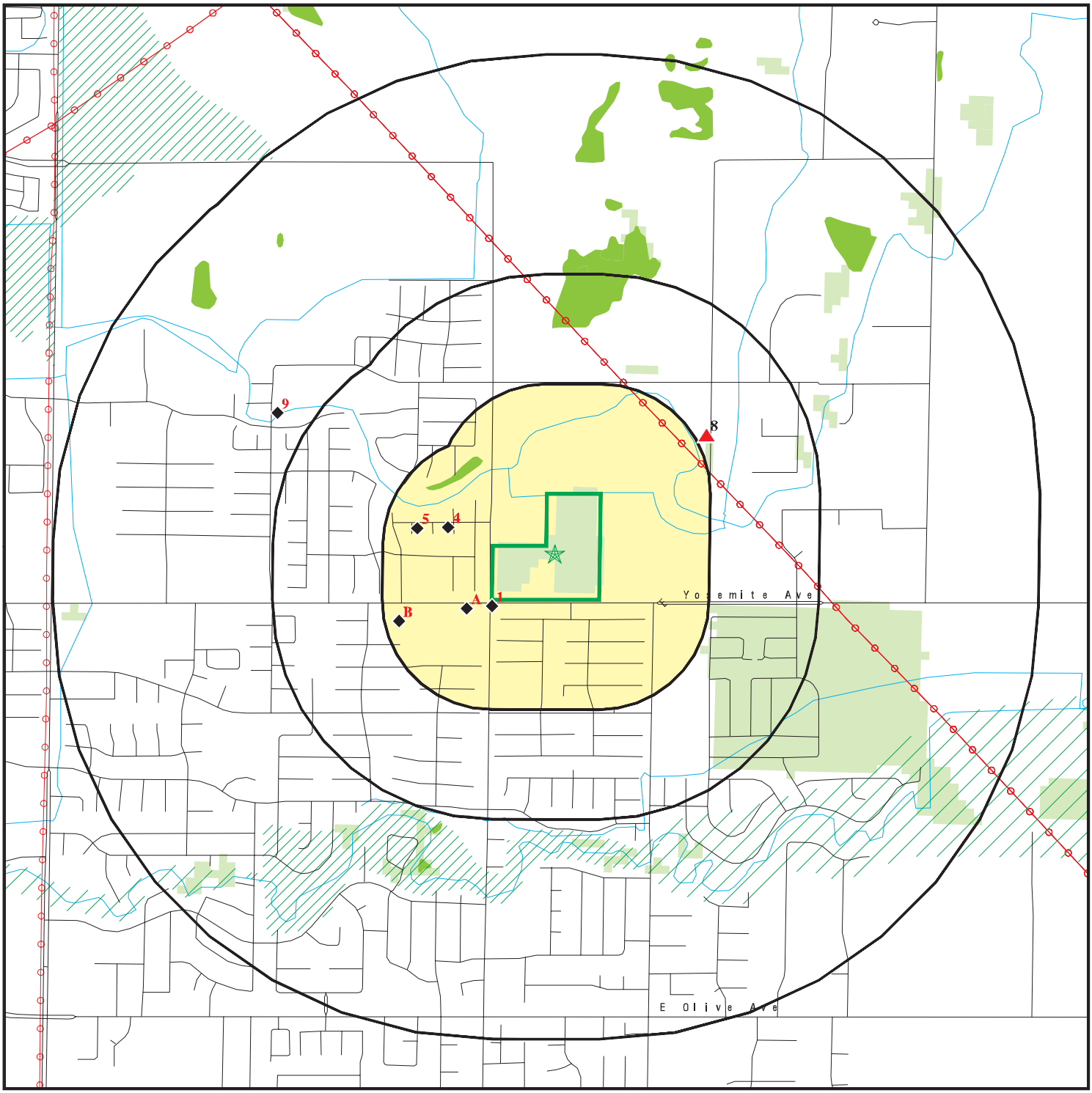
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PULSIPHER, DR. Reg Id: 5T24000278	***3701 HATCH RD***	***NE 1/4 - 1/2 (0.276 mi.)***	***8***	***12***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

Site Name	Database(s)
YOSEMITE AVE R ST PARCEL A	NPDES
YOSEMITE AVE SAN AUGUSTINE TO R ST	NPDES
	CDL

OVERVIEW MAP - 4784760.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

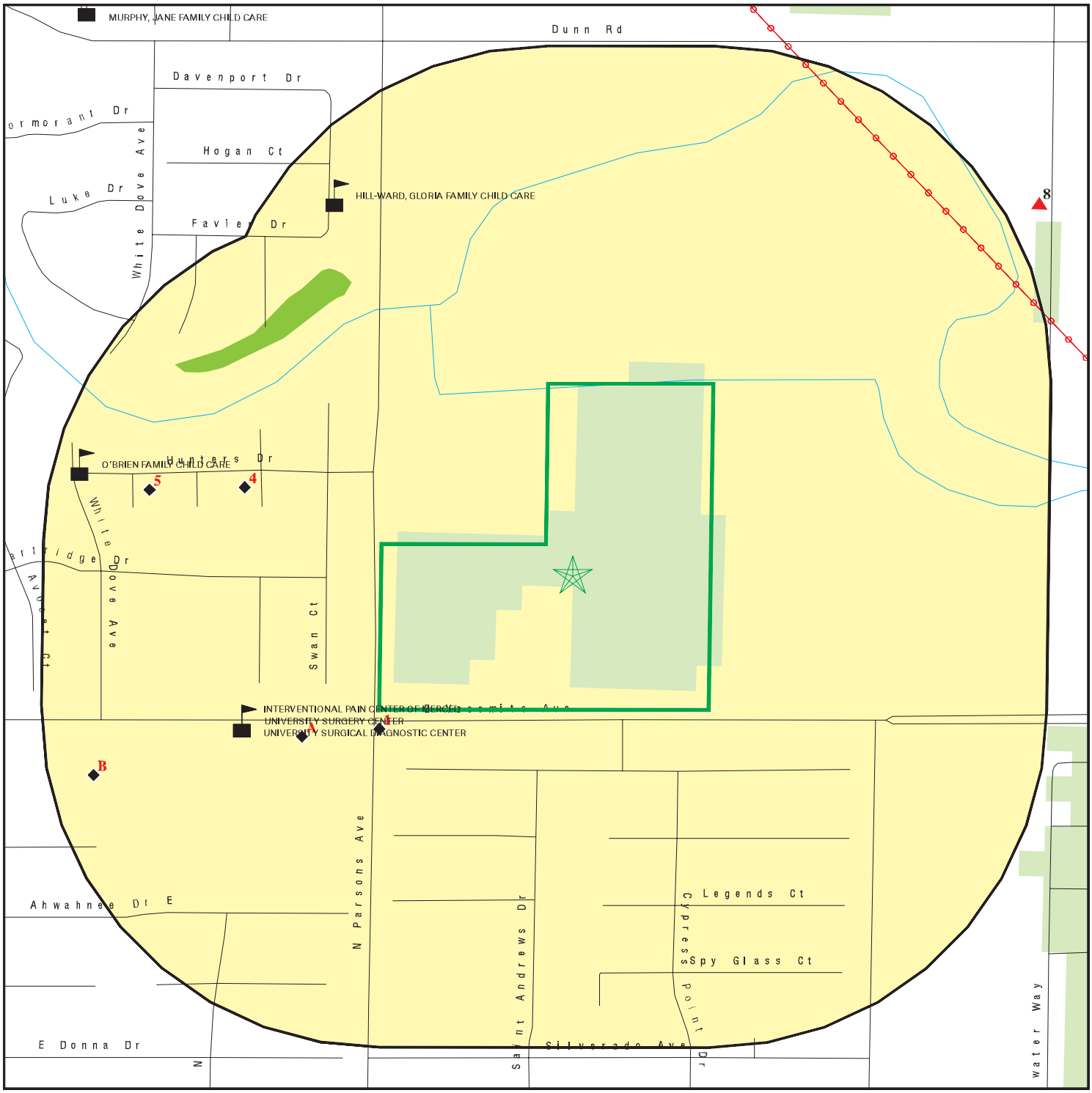
N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 1897 E. Yosemite Ave.	CLIENT: Nelson Enviro, LLC
ADDRESS: 1897 E. Yosemite Ave. Merced CA 95340	CONTACT: Mike
LAT/LONG: 37.333695 / 120.448248	INQUIRY #: 4784760.2s
	DATE: November 17, 2016 9:40 pm

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DETAIL MAP - 4784760.2S



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 1897 E. Yosemite Ave.	CLIENT: Nelson Enviro, LLC
ADDRESS: 1897 E. Yosemite Ave. Merced CA 95340	CONTACT: Mike
LAT/LONG: 37.333695 / 120.448248	INQUIRY #: 4784760.2s
	DATE: November 17, 2016 9:42 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	1	NR	NR	NR	1
HIST UST	0.250		0	1	NR	NR	NR	1
CA FID UST	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	1	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		3	0	NR	NR	NR	3
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	1	NR	NR	1
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	4	4	2	1	0	11

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SW
< 1/8
0.014 mi.
75 ft.

MERCED CITY FIRE DEPT. #55
3520 PARSONS AVE.
MERCED, CA 95348

CUPA Listings

S110738948
N/A

Relative:
Lower

Actual:
182 ft.

CUPA MERCED:

Facility Id:	FA0006194
Region:	MERCED
Program/Element:	2501 HAZ MAT STORAGE PERMIT 1-5 CHEMICALS
Record Id:	PR0010956
Name:	Kenneth Mitten
Billing Status Code:	02
Billing Status:	Inactive, Non-Billable

Facility Id:	FA0006194
Region:	MERCED
Program/Element:	2501 HAZ MAT STORAGE PERMIT 1-5 CHEMICALS
Record Id:	PR0010957
Name:	Kenneth Mitten
Billing Status Code:	02
Billing Status:	Inactive, Non-Billable

Facility Id:	FA0006194
Region:	MERCED
Program/Element:	2502 HAZ MAT STOR 1-5 CHEM. LG VOL/HG RISK
Record Id:	PR0010627
Name:	Mike Mclaughlin
Billing Status Code:	01
Billing Status:	Active Billable

A2
WSW
< 1/8
0.060 mi.
319 ft.

UNIVERSITY SURGICAL & DIAGNOSTIC CE
1390 E. YOSEMITE AVE. STE B
MERCED, CA 95348

Site 1 of 2 in cluster A

CUPA Listings

S110738836
N/A

Relative:
Lower

Actual:
182 ft.

CUPA MERCED:

Facility Id:	FA0004915
Region:	MERCED
Program/Element:	2504 HAZ MAT STOR 6 OR MORE HG RISK/LG VOL
Record Id:	PR0008507
Name:	Gregory Fensin
Billing Status Code:	01
Billing Status:	Active Billable

A3
WSW
< 1/8
0.060 mi.
319 ft.

MERCED MRI MEDICAL GROUP:DBA:EL PORTAL IMAGING
1390 E. YOSEMITE AVE. STE A
MERCED, CA 95348

Site 2 of 2 in cluster A

CUPA Listings

S118690872
N/A

Relative:
Lower

Actual:
182 ft.

CUPA MERCED:

Facility Id:	FA0004923
Region:	MERCED
Program/Element:	2301 SMALL QTY. GENERATOR UP TO 2,199 LBS/MO.
Record Id:	PR0008521
Name:	Jerry Harris

MERCED MRI MEDICAL GROUP:DBA:EL PORTAL IMAGING (Continued) **S118690872**

Billing Status Code: 02
Billing Status: Inactive, Non-Billable

4
WNW
< 1/8
0.109 mi.
578 ft.

Relative:
Lower

Actual:
182 ft.

TAZZ EXPRESS **RCRA NonGen / NLR** **1004676891**
3757 PIGEON CT **FINDS** **CAR000090779**
MERCED, CA 95340 **ECHO**

RCRA NonGen / NLR:
Date form received by agency: 01/26/2001
Facility name: TAZZ EXPRESS
Facility address: 3757 PIGEON CT
MERCED, CA 95340
EPA ID: CAR000090779
Contact: GARY W NUNES
Contact address: 3757 PIGEON CT
MERCED, CA 95340
Contact country: US
Contact telephone: (209) 383-6086
Contact email: Not reported
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: GARY W NUNES
Owner/operator address: 3757 PIGEON CT
MERCED, CA 95340
Owner/operator country: Not reported
Owner/operator telephone: (209) 383-6086
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

TAZZ EXPRESS (Continued) **1004676891**

Registry ID: 110012242698

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:
Envid: 1004676891
Registry ID: 110012242698
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110012242698

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5 WNW 1/8-1/4 0.176 mi. 930 ft. **J D TRUCKING** **RCRA NonGen / NLR** **1004676955**
3752 CHUKAR CT **FINDS** **CAR000091553**
MERCED, CA 95340 **ECHO**

Relative: Lower

Actual: 182 ft.

RCRA NonGen / NLR:
Date form received by agency: 02/08/2001
Facility name: J D TRUCKING
Facility address: 3752 CHUKAR CT
MERCED, CA 95340
EPA ID: CAR000091553
Contact: JOSEPH HALL
Contact address: 3752 CHUKAR CT
MERCED, CA 95340
Contact country: US
Contact telephone: (209) 723-8687
Contact email: Not reported
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: JOSEPH R HALL
Owner/operator address: 3752 CHUKAR CT
MERCED, CA 95340
Owner/operator country: Not reported
Owner/operator telephone: (209) 723-8687
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No

J D TRUCKING (Continued) **1004676955**

On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110012198166

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid:	1004676955
Registry ID:	110012198166
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110012198166

B6 **ADOLPH REINERO** **HIST UST** **U001606409**
WSW **1354 E YOSEMITE** **N/A**
1/8-1/4 **MERCED, CA 95340**
0.217 mi.
1145 ft. **Site 1 of 2 in cluster B**

Relative:
Lower

Actual:
181 ft.

HIST UST:

File Number:	000299A5
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/000299A5.pdf
Region:	STATE
Facility ID:	00000029855
Facility Type:	Other
Other Type:	FARM/PERSONAL
Contact Name:	Not reported
Telephone:	2097230594
Owner Name:	ADOLPH REINERO
Owner Address:	1354 E. YOSEMITE
Owner City,St,Zip:	MERCED, CA 95340
Total Tanks:	0001
Tank Num:	001
Container Num:	01
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Visual

ADOLPH REINERO (Continued) **U001606409**

Click here for Geo Tracker PDF:

B7 **ADOLPH REINERO** **SWEEPS UST** **S101625907**
WSW **1354 E YOSEMITE** **CA FID UST** **N/A**
1/8-1/4 **MERCED, CA 95340**
0.217 mi.
1145 ft. **Site 2 of 2 in cluster B**

Relative:
Lower

Actual:
181 ft.

SWEEPS UST:

Status:	Active
Comp Number:	29855
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	24-000-029855-000001
Tank Status:	A
Capacity:	550
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	1

CA FID UST:

Facility ID:	24001473
Regulated By:	UTNKA
Regulated ID:	00029855
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2097230594
Mail To:	Not reported
Mailing Address:	1354 E YOSEMITE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MERCED 95340
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

---

8 **PULSIPHER, DR.** **LUST** **S101307574**
NE **3701 HATCH RD** **HIST CORTESE** **N/A**
1/4-1/2 **MERCED, CA 95340**
0.276 mi.
1456 ft.

Relative:
Higher

Actual:
192 ft.

LUST:

Region:	STATE
Global Id:	T0604700140
Latitude:	37.337969
Longitude:	-120.44398

PULSIPHER, DR. (Continued) **S101307574**

Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	03/14/1991
Lead Agency:	MERCED COUNTY
Case Worker:	Not reported
Local Agency:	MERCED COUNTY
RB Case Number:	5T24000278
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0604700140
Contact Type:	Regional Board Caseworker
Contact Name:	WARREN GROSS
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5F)
Address:	1685 E STREET
City:	FRESNO
Email:	wgross@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0604700140
Contact Type:	Local Agency Caseworker
Contact Name:	ERIC SWENSON
Organization Name:	MERCED COUNTY
Address:	260 E. 15th Street
City:	MERCED
Email:	eh29@co.merced.ca.us
Phone Number:	2093811075

Status History:

Global Id:	T0604700140
Status:	Completed - Case Closed
Status Date:	03/14/1991

Global Id:	T0604700140
Status:	Open - Case Begin Date
Status Date:	07/27/1989

Regulatory Activities:

Global Id:	T0604700140
Action Type:	Other
Date:	07/27/1989
Action:	Leak Reported

LUST REG 5:

Region:	5
Status:	Case Closed
Case Number:	5T24000278
Case Type:	Soil only
Substance:	GASOLINE

PULSIPHER, DR. (Continued) **S101307574**

Staff Initials: WWG
Lead Agency: Local
Program: LUST
MTBE Code: N/A

HIST CORTESE:
Region: CORTESE
Facility County Code: 24
Reg By: LTNKA
Reg Id: 5T24000278

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9 PAULSON ROAD PROPERTY **ENVIROSTOR S118757065**
WNW PAULSON ROAD **SCH N/A**
1/2-1 MERCED, CA 95340
0.575 mi.
3037 ft.

Relative: Lower

Actual: 182 ft.

ENVIROSTOR:
Facility ID: 60000113
Status: No Action Required
Status Date: 09/12/2005
Site Code: 104492
Site Type: School Investigation
Site Type Detailed: School
Acres: 11
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Jose Luevano
Supervisor: Mark Malinowski
Division Branch: Northern California Schools & Santa Susana
Assembly: 21
Senate: 12
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 37.3384
Longitude: -120.4597
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - LIVESTOCK
Potential COC: NONE SPECIFIED No Contaminants found
Confirmed COC: No Contaminants found
Potential Description: NMA
Alias Name: MERCED CITY SD-PAULSON ROAD PROPERTY
Alias Type: Alternate Name
Alias Name: 104492
Alias Type: Project Code (Site Code)
Alias Name: 60000113
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 09/14/2005
Comments: Not reported

PAULSON ROAD PROPERTY (Continued) **S118757065**

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	06/28/2005
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	09/12/2005
Comments:	DTSC approved the Phase I and issued a no action determination.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Letter - Demand
Completed Date:	11/25/2010
Comments:	Mailed final and 3rd payment demand letter to district

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Facility ID:	60000113
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	11
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Jose Luevano
Supervisor:	Mark Malinowski
Division Branch:	Northern California Schools & Santa Susana
Site Code:	104492
Assembly:	21
Senate:	12
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	09/12/2005
Restricted Use:	NO
Funding:	School District
Latitude:	37.3384
Longitude:	-120.4597
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - LIVESTOCK
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	No Contaminants found
Potential Description:	NMA

PAULSON ROAD PROPERTY (Continued) **S118757065**

Alias Name: MERCED CITY SD-PAULSON ROAD PROPERTY
Alias Type: Alternate Name
Alias Name: 104492
Alias Type: Project Code (Site Code)
Alias Name: 60000113
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 09/14/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 06/28/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 09/12/2005
Comments: DTSC approved the Phase I and issued a no action determination.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 11/25/2010
Comments: Mailed final and 3rd payment demand letter to district

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 3 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MERCED	S107538987		INTERSECTION OF ARBOLEEDA AND	95340	CDL
MERCED	S118613745	YOSEMITE AVE R ST PARCEL A	PARCEL A CORNER OF YOSEMITE AV		NPDES
MERCED	S118613746	YOSEMITE AVE SAN AUGUSTINE TO R ST	YOSEMITE AVE SAN AUGUSTINE TO		NPDES

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 09/14/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/04/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/20/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/20/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/27/2016
Date Data Arrived at EDR: 06/30/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 64

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/28/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/21/2016
Date Data Arrived at EDR: 06/30/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/28/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016
Date Data Arrived at EDR: 06/30/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/28/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/21/2016
Date Data Arrived at EDR: 06/30/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/28/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016
Date Data Arrived at EDR: 06/30/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/28/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 11/28/2016
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/09/2016
Date Data Arrived at EDR: 06/01/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 93

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/31/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/09/2016
Date Data Arrived at EDR: 06/01/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 93

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/31/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/29/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/02/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/02/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/15/2016
Date Data Arrived at EDR: 08/16/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 50

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/13/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 112

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Semi-Annually

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 02/19/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 105

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/13/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/11/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 119
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 120
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/02/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 02/29/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/20/2016
Date Data Arrived at EDR: 09/21/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 51
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/21/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 11/04/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 17

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/31/2016
Next Scheduled EDR Contact: 10/10/2016
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/02/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 05/10/2016
Date Made Active in Reports: 06/17/2016
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 17

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/31/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 10/20/2016
Number of Days to Update: 23

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 09/12/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 09/07/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/27/2016
Date Data Arrived at EDR: 06/28/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 87

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/27/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/03/2016
Date Data Arrived at EDR: 07/26/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 59

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/26/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/13/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 31

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/13/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 11/01/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/21/2016
Date Data Arrived at EDR: 06/30/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/28/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 10/20/2016
Next Scheduled EDR Contact: 11/28/2016
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 07/12/2016
Date Data Arrived at EDR: 08/17/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 65

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 11/08/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/23/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/26/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/25/2016
Next Scheduled EDR Contact: 11/07/2016
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/27/2016
Date Data Arrived at EDR: 08/05/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 77
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/11/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/17/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/17/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/06/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 10/28/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/03/2016
Date Data Arrived at EDR: 10/05/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 16
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/05/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/02/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2016
Date Data Arrived at EDR: 08/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 53

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/26/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016
Date Data Arrived at EDR: 07/26/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 59

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 11/08/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/09/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/07/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 148

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/20/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 06/30/2016
Date Data Arrived at EDR: 07/25/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 88

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 06/30/2016
Date Data Arrived at EDR: 07/25/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 88

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016
Date Data Arrived at EDR: 09/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/01/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 65

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/07/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 10/17/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/24/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/27/2016
Date Data Arrived at EDR: 06/28/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 51

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/27/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 37

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 09/23/2016
Date Made Active in Reports: 10/24/2016
Number of Days to Update: 31

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/23/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 08/24/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 42

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 11/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/10/2016
Date Data Arrived at EDR: 08/15/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 51

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 10/14/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 58

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/12/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Annually

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 08/23/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 43

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/23/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/11/2016
Date Data Arrived at EDR: 07/13/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 36

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/12/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/07/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/16/2016
Date Data Arrived at EDR: 05/18/2016
Date Made Active in Reports: 06/23/2016
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/15/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 37

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 09/07/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/19/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/23/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 08/23/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 59

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/23/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/18/2016
Date Data Arrived at EDR: 09/20/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/20/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Quarterly

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 81

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/12/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 08/23/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 43

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/23/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 07/07/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 37

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/07/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/07/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 08/08/2016
Number of Days to Update: 27

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/07/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 18

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 07/20/2016
Date Data Arrived at EDR: 07/25/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 60

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/22/2016
Date Data Arrived at EDR: 08/24/2016
Date Made Active in Reports: 10/10/2016
Number of Days to Update: 47

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 04/08/2016
Date Data Arrived at EDR: 05/03/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 50

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/24/2016
Date Data Arrived at EDR: 05/26/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 75

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/13/2016
Date Data Arrived at EDR: 07/19/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 21

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/29/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/08/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 41

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 10/13/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 07/25/2016
Date Data Arrived at EDR: 07/26/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 59

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 08/04/2016
Date Data Arrived at EDR: 08/08/2016
Date Made Active in Reports: 10/18/2016
Number of Days to Update: 71

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/25/2016
Date Data Arrived at EDR: 05/27/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 26

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 09/08/2016
Date Data Arrived at EDR: 09/09/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 35

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/17/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/19/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/05/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 37

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 07/19/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 78

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/18/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/17/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/17/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/17/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/23/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 28
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/07/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/18/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 32
Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 04/07/2016
Date Data Arrived at EDR: 04/26/2016
Date Made Active in Reports: 06/01/2016
Number of Days to Update: 36
Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 09/29/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 08/17/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 32

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 08/29/2016
Date Data Arrived at EDR: 08/31/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 44

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/24/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/22/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 07/25/2016
Date Data Arrived at EDR: 08/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 53

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/15/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 51

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/03/2016
Date Data Arrived at EDR: 08/15/2016
Date Made Active in Reports: 10/07/2016
Number of Days to Update: 53

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/09/2016
Date Made Active in Reports: 10/11/2016
Number of Days to Update: 63

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/08/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 06/13/2016
Date Data Arrived at EDR: 07/18/2016
Date Made Active in Reports: 10/07/2016
Number of Days to Update: 81

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/19/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/13/2016
Date Data Arrived at EDR: 07/18/2016
Date Made Active in Reports: 08/08/2016
Number of Days to Update: 21

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/19/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/02/2016
Date Data Arrived at EDR: 07/06/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 43

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/04/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/02/2016
Date Data Arrived at EDR: 07/06/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 43

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/04/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 09/06/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 10/19/2016
Number of Days to Update: 42

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/02/2016
Next Scheduled EDR Contact: 09/19/2016
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/21/2016
Date Data Arrived at EDR: 09/22/2016
Date Made Active in Reports: 10/18/2016
Number of Days to Update: 26
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/19/2016
Next Scheduled EDR Contact: 01/02/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 08/18/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 10/04/2016
Number of Days to Update: 43
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 15
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/12/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 57
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/12/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 08/17/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 10/04/2016
Number of Days to Update: 43
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/24/2016
Next Scheduled EDR Contact: 12/12/2016
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/03/2016
Date Data Arrived at EDR: 08/08/2016
Date Made Active in Reports: 10/07/2016
Number of Days to Update: 60

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 11/07/2016
Next Scheduled EDR Contact: 02/20/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 08/17/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 10/04/2016
Number of Days to Update: 43

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/16/2016
Next Scheduled EDR Contact: 03/06/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/15/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 29

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/22/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 57

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 10/18/2016
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 07/10/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 28

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/01/2016
Date Data Arrived at EDR: 07/05/2016
Date Made Active in Reports: 08/18/2016
Number of Days to Update: 44

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/26/2016
Next Scheduled EDR Contact: 01/09/2017
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/23/2016
Number of Days to Update: 16

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 09/02/2016
Next Scheduled EDR Contact: 12/19/2016
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 08/12/2016
Date Data Arrived at EDR: 08/16/2016
Date Made Active in Reports: 10/04/2016
Number of Days to Update: 49

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 06/28/2016
Date Data Arrived at EDR: 08/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 53

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/29/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/14/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 06/28/2016
Date Data Arrived at EDR: 08/01/2016
Date Made Active in Reports: 10/07/2016
Number of Days to Update: 67
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/24/2016
Next Scheduled EDR Contact: 02/06/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/29/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/11/2016
Number of Days to Update: 27
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/14/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/30/2016
Date Data Arrived at EDR: 08/24/2016
Date Made Active in Reports: 10/11/2016
Number of Days to Update: 48
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 11/14/2016
Next Scheduled EDR Contact: 01/16/2017
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 08/03/2016
Date Data Arrived at EDR: 08/05/2016
Date Made Active in Reports: 10/05/2016
Number of Days to Update: 61
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/17/2015
Date Made Active in Reports: 08/12/2015
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/12/2016
Next Scheduled EDR Contact: 01/23/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/03/2016
Date Made Active in Reports: 09/09/2016
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/02/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/24/2015
Date Made Active in Reports: 08/18/2015
Number of Days to Update: 25

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/14/2016
Next Scheduled EDR Contact: 01/30/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/20/2016
Next Scheduled EDR Contact: 12/05/2016
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 04/14/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 50

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/12/2016
Next Scheduled EDR Contact: 12/26/2016
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

1897 E. YOSEMITE AVE.
1897 E. YOSEMITE AVE.
MERCED, CA 95340

TARGET PROPERTY COORDINATES

Latitude (North):	37.333695 - 37° 20' 1.30''
Longitude (West):	120.448248 - 120° 26' 53.69''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	726074.3
UTM Y (Meters):	4134741.5
Elevation:	183 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640006 MERCED, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

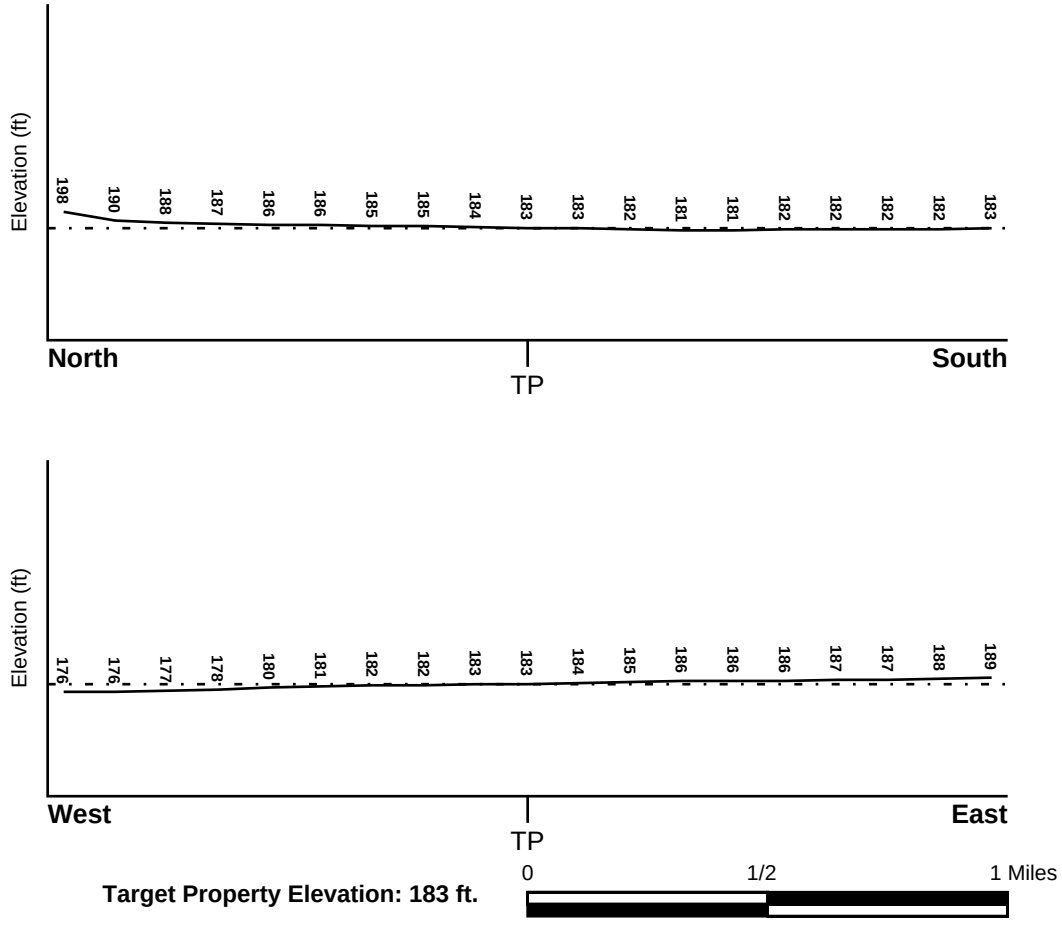
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06047C0429G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06047C0427G	FEMA FIRM Flood data
06047C0435G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
MERCED	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

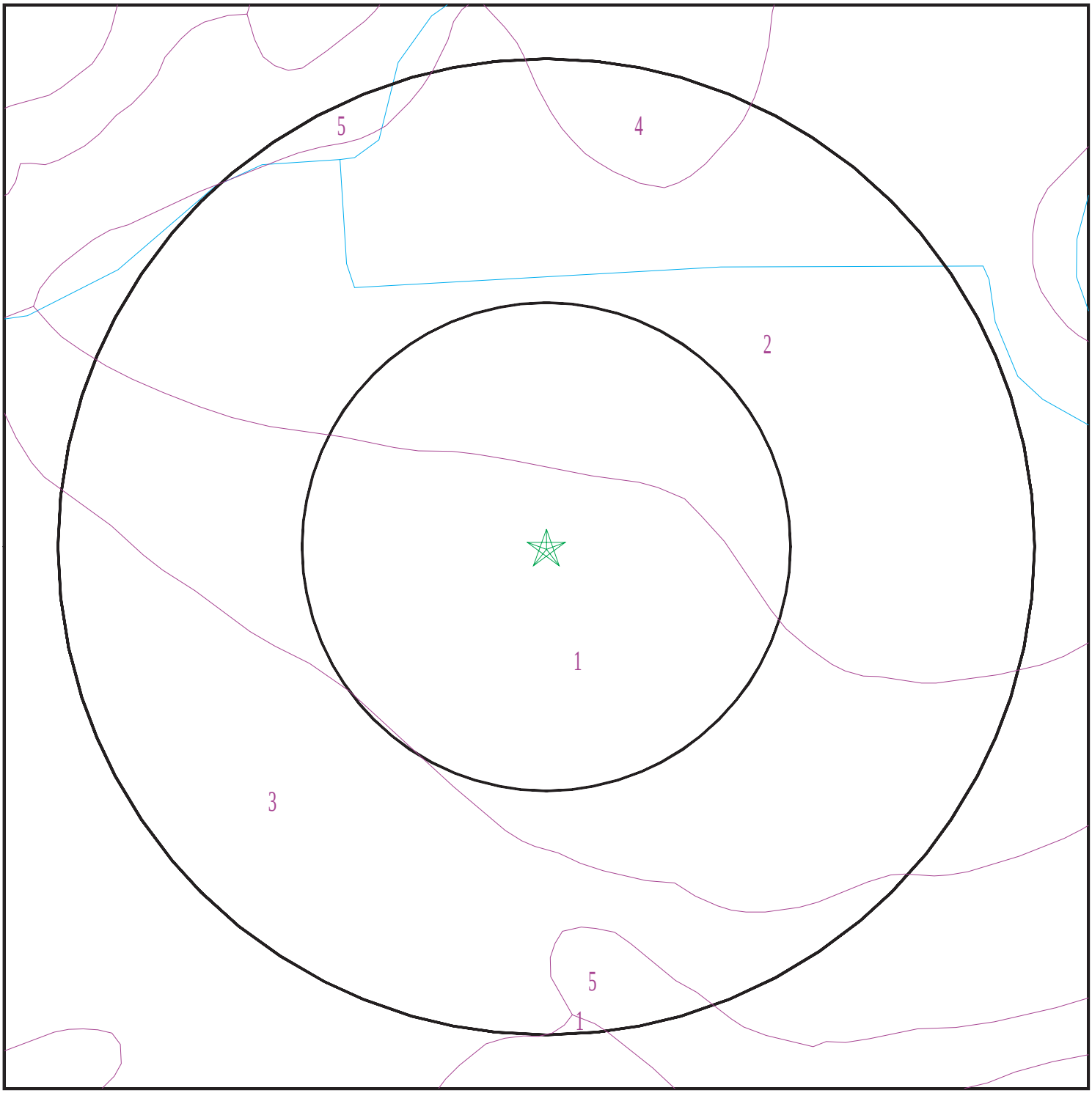
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4784760.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	1897 E. Yosemite Ave.	CLIENT:	Nelson Enviro, LLC
ADDRESS:	1897 E. Yosemite Ave. Merced CA 95340	CONTACT:	Mike
		INQUIRY #:	4784760.2s
LAT/LONG:	37.333695 / 120.448248	DATE:	November 17, 2016 9:43 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Wyman

Soil Surface Texture: clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
2	14 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	40 inches	59 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: Ryer

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 6 Min: 5.6
2	20 inches	64 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1
3	64 inches	83 inches	stratified sandy loam to clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

Soil Map ID: 3

Soil Component Name: Yokohl

Soil Surface Texture: clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.3 Min: 6.1
2	9 inches	18 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 7.3 Min: 6.1
3	18 inches	48 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	48 inches	59 inches	stratified sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

Soil Map ID: 4

Soil Component Name: Marguerite

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
2	9 inches	29 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	29 inches	59 inches	stratified gravelly fine sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

Soil Map ID: 5

Soil Component Name: Landlow

Soil Surface Texture: clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	11 inches	46 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4
3	46 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	USGS40000182251	1/4 - 1/2 Mile ESE
B7	USGS40000182268	1/2 - 1 Mile East
C9	USGS40000182203	1/2 - 1 Mile SSE
C11	USGS40000182202	1/2 - 1 Mile SSE
12	USGS40000182189	1/2 - 1 Mile South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
14	USGS40000182301	1/2 - 1 Mile WNW
D17	USGS40000182370	1/2 - 1 Mile North
E18	USGS40000182161	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

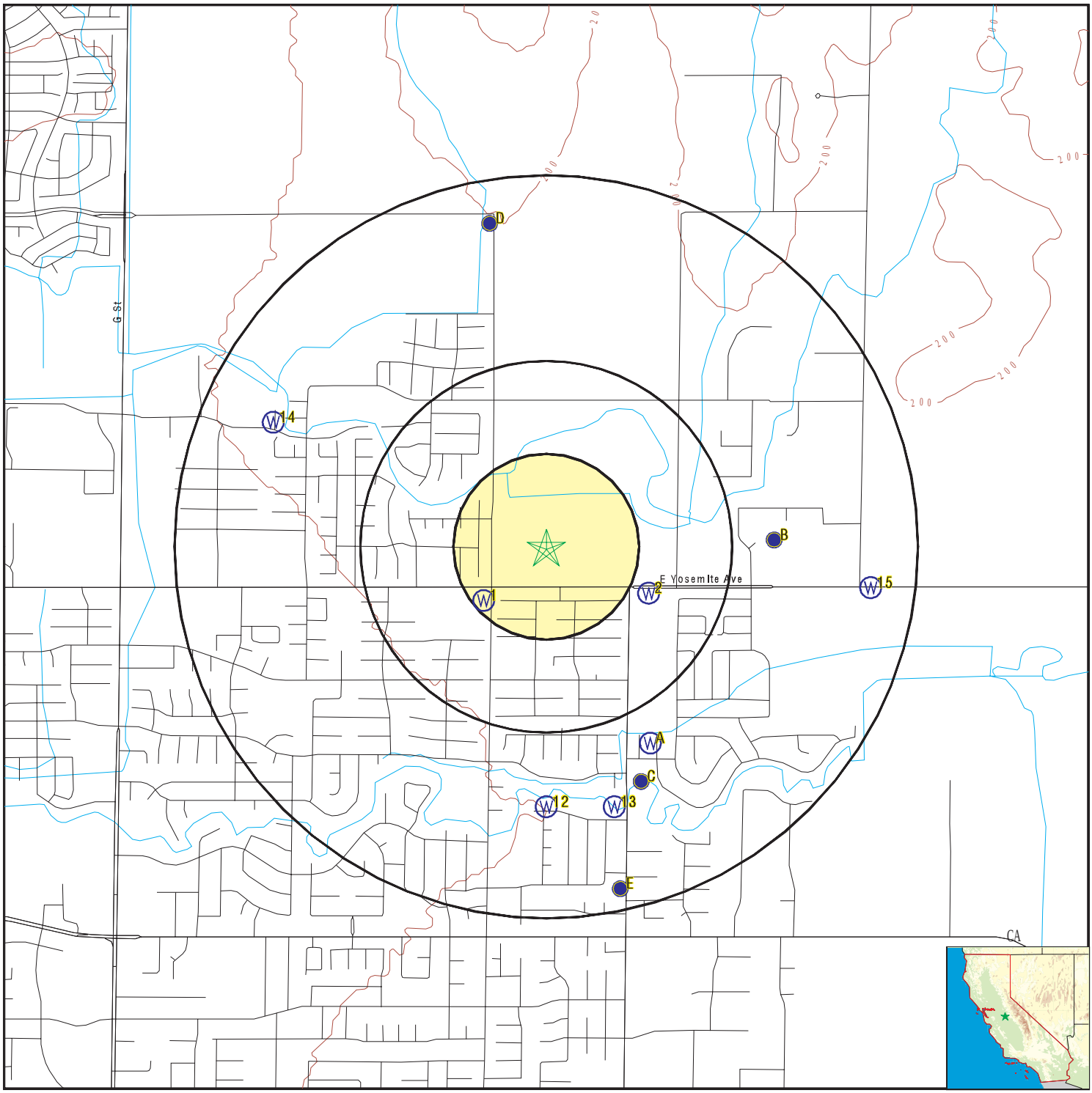
No PWS System Found

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADW60000022340	1/8 - 1/4 Mile SW
A3	CADW60000005608	1/2 - 1 Mile SSE
A4	CADW60000005566	1/2 - 1 Mile SSE
A5	CADW60000005567	1/2 - 1 Mile SSE
A6	CADW60000005607	1/2 - 1 Mile SSE
B8	CADW60000031100	1/2 - 1 Mile East
C10	7990	1/2 - 1 Mile SSE
13	7993	1/2 - 1 Mile SSE
15	CADW60000022334	1/2 - 1 Mile East
D16	CADW60000022333	1/2 - 1 Mile North
E19	7994	1/2 - 1 Mile SSE

PHYSICAL SETTING SOURCE MAP - 4784760.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: 1897 E. Yosemite Ave.	CLIENT: Nelson Enviro, LLC
ADDRESS: 1897 E. Yosemite Ave.	CONTACT: Mike
Merced CA 95340	INQUIRY #: 4784760.2s
LAT/LONG: 37.333695 / 120.448248	DATE: November 17, 2016 9:43 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SW
1/8 - 1/4 Mile
Lower

CA WELLS **CADW60000022340**

Objectid:	22340
Latitude:	37.3316
Longitude:	-120.4513
Site code:	373316N1204513W001
State well numbe:	07S14E17A001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000022340

2
ESE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000182251**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-371955120263201		
Monloc name:	007S014E16C001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3318849
Longitude:	-120.4432445	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	182.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19730101	Welldepth:	264
Welldepth units:	ft	Wellholedepth:	264
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

A3
SSE
1/2 - 1 Mile
Higher

CA WELLS **CADW60000005608**

Objectid:	5608
Latitude:	37.326034
Longitude:	-120.44316
Site code:	373260N1204432W004
State well numbe:	07S14E16F004M
Local well name:	'MW4-Well Site 7'
Well use id:	1
Well use descrip:	Observation
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000005608

A4
SSE **CA WELLS** **CADW60000005566**
1/2 - 1 Mile
Higher

Objectid:	5566
Latitude:	37.326034
Longitude:	-120.44316
Site code:	373260N1204432W001
State well numbe:	07S14E16F001M
Local well name:	'MW1-Well Site 7'
Well use id:	1
Well use descrip:	Observation
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000005566

A5
SSE **CA WELLS** **CADW60000005567**
1/2 - 1 Mile
Higher

Objectid:	5567
Latitude:	37.326034
Longitude:	-120.44316
Site code:	373260N1204432W002
State well numbe:	07S14E16F002M
Local well name:	'MW2-Well Site 7'
Well use id:	1
Well use descrip:	Observation
County id:	24
County name:	Merced

Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000005567

A6
SSE **CA WELLS** **CADW60000005607**
1/2 - 1 Mile
Higher

Objectid:	5607
Latitude:	37.326034
Longitude:	-120.44316
Site code:	373260N1204432W003
State well numbe:	07S14E16F003M
Local well name:	'MW3-Well Site 7'
Well use id:	1
Well use descrip:	Observation
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000005607

B7
East **FED USGS** **USGS40000182268**
1/2 - 1 Mile
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-372002120261001		
Monloc name:	007S014E09R001M		
Monloc type:	Well		
Monloc desc:	MID -- MID-105		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3338293
Longitude:	-120.4371332	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	185.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19430701	Welldepth:	66
Welldepth units:	ft	Wellholedepth:	148
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 70

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1990-07-24					
Note: The site was being pumped.					
1989-07-26					
Note: The site was being pumped.					
1988-07-13					
Note: The site was being pumped.					
1987-07-15	27.81				
Note: The site had been pumped recently.					
1987-02-03					
Note: An obstruction was encountered in the well above the water surface (no water level recorded).					
1986-07-14					
Note: An obstruction was encountered in the well above the water surface (no water level recorded).					
1986-02-26					
Note: An obstruction was encountered in the well above the water surface (no water level recorded).					
1985-06-26	26.65		1985-02-13	21.60	
1984-06-29	25.82		1984-01-24	20.43	
1983-07-26	19.25		1983-02-03	21.5	
1982-07-01	25.15		1982-01-28	24.49	
1981-10-07	26.90		1981-08-18	28.75	
1981-07-08	28.87		1981-05-20	30.26	
1981-04-30	30.01		1981-02-13	29.20	
1981-01-02	25.90		1980-12-04	24.15	
1980-09-18	26.35		1980-08-08	27.28	
1980-06-11	26.63		1980-04-29	25.54	
1980-03-28	25.25		1980-02-26	24.58	
1980-01-30	25.00		1979-12-28	24.90	
1979-12-01	25.10		1979-10-29	26.08	
1979-10-03	26.50		1979-09-03	27.42	
1979-08-07	28.03		1979-07-09	27.84	
1979-05-31	27.19		1979-04-26	26.40	
1979-03-30	25.62		1979-02-27	25.65	
1979-02-02	27.90		1978-12-28	26.05	
1978-12-02	28.80		1978-11-03	26.37	
1978-09-27	28.37		1978-08-31	28.63	
1978-07-27	47.50				
Note: The site was being pumped.					
1978-06-30	33.82		1978-05-31	32.20	
1978-04-28	29.60		1978-03-30	30.26	
1978-02-27	30.46		1978-01-31	36.29	
1977-12-29	38.10		1977-11-29	31.85	
1977-10-18	33.20		1977-09-26	54.30	
1977-08-30	34.12				
1977-08-04	54.10				
Note: The site was being pumped.					
1977-07-07	30.49		1977-06-02	29.20	
1977-05-03	28.10				
1977-04-05	55.04				
Note: The site was being pumped.					
1977-03-01	48.04				
Note: The site was being pumped.					
1977-02-03	21.33		1977-01-05	22.45	
1975-09-09	43.30		1970-11-19	14.57	
1943-07-01	4.00				

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B8
East
1/2 - 1 Mile
Higher

CA WELLS **CADW60000031100**

Objectid:	31100
Latitude:	37.3341
Longitude:	-120.4371
Site code:	373341N1204371W001
State well numbe:	07S14E09R001M
Local well name:	'105D'
Well use id:	6
Well use descrip:	Unknown
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000031100

C9
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS40000182203**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-371928120263302		
Monloc name:	007S014E16L002M		
Monloc type:	Well		
Monloc desc:	GAMA-CESJO;SLOW		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3245833
Longitude:	-120.4440833	Sourcemap scale:	24000
Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	180.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19680415	Welldepth:	266
Welldepth units:	ft	Wellholedepth:	352
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 49

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1980-12-01	41				

Note: The site was being pumped.

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1980-11-01	40	
Note: The site was being pumped.		
1980-10-01	60	
Note: The site was being pumped.		
1980-09-01	53	
Note: The site was being pumped.		
1980-08-01	55	
Note: The site was being pumped.		
1980-07-01	61	
Note: The site was being pumped.		
1980-06-01	54	
Note: The site was being pumped.		
1980-05-01	50	
Note: The site was being pumped.		
1980-04-01	50	
Note: The site was being pumped.		
1980-03-01	50	
Note: The site was being pumped.		
1980-02-01	35	
1980-01-01	38	
Note: The site was being pumped.		
1979-12-01	38	
Note: The site was being pumped.		
1979-11-01	37	
Note: The site was being pumped.		
1979-10-01	45	
Note: The site was being pumped.		
1979-09-01	48	
Note: The site was being pumped.		
1979-08-01	55	
Note: The site was being pumped.		
1979-07-01	60	
Note: The site was being pumped.		
1979-06-01	60	
Note: The site was being pumped.		
1979-05-01	60	
Note: The site was being pumped.		
1979-04-01	40	
1979-03-01	45	
Note: The site was being pumped.		
1979-02-01	50	
Note: The site was being pumped.		
1979-01-01	45	
Note: The site was being pumped.		
1978-12-01	40	
Note: The site was being pumped.		
1978-11-01	40	
Note: The site was being pumped.		
1978-10-01	52	
Note: The site was being pumped.		
1978-09-01	53	
Note: The site was being pumped.		
1978-08-01	50	
Note: The site was being pumped.		
1978-07-01	66	
Note: The site was being pumped.		

Date	Feet below Surface	Feet to Sealevel

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1978-06-01	68	
Note: The site was being pumped.		
1978-05-01	56	
Note: The site was being pumped.		
1978-04-01	51	
Note: The site was being pumped.		
1978-03-01	44	
Note: The site was being pumped.		
1978-02-01	44	
Note: The site was being pumped.		
1978-01-01	48	
Note: The site was being pumped.		
1977-12-01	56	
Note: The site was being pumped.		
1977-11-01	47	
Note: The site was being pumped.		
1977-10-01	60	
Note: The site was being pumped.		
1977-09-01	63	
Note: The site was being pumped.		
1977-08-01	61	
Note: The site was being pumped.		
1977-07-01	62	
Note: The site was being pumped.		
1977-06-01	59	
Note: The site was being pumped.		
1977-05-01	56	
Note: The site was being pumped.		
1977-04-01	45	
Note: The site was being pumped.		
1977-03-01	53	
Note: The site was being pumped.		
1977-02-01	69	
Note: The site was being pumped.		
1977-01-01	68	
Note: The site was being pumped.		
1968-04-15	17.00	

Date	Feet below Surface	Feet to Sealevel

C10
SSE
1/2 - 1 Mile
Lower

CA WELLS **7990**

Water System Information:

Prime Station Code:	07S/14E-16F01 M	User ID:	AGE
FRDS Number:	2410009022	County:	Merced
District Number:	11	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	371929.0 1202632.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 07C		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number: 2410009
System Name: CITY OF MERCED
Organization That Operates System:
PO BOX 2068
MERCED 95340
Pop Served: 60187 Connections: 14218
Area Served: CITY OF MERCED AND VICINITY

Sample Collected:	12-FEB-16	Findings:	290. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12-FEB-16	Findings:	4.3 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	16-FEB-12	Findings:	290. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	16-FEB-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-FEB-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-MAR-12	Findings:	21. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-MAR-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-MAR-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-MAR-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-JAN-14	Findings:	28. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-JAN-14	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-FEB-14	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-FEB-14	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-FEB-14	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-FEB-14	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-MAR-14	Findings:	26. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-MAR-14	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-MAR-12	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-APR-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	12-APR-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-APR-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-APR-12	Findings:	26. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-MAY-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-MAY-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-MAR-14	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-MAR-14	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-MAY-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-MAY-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	31-MAY-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-JUN-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-JUN-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-JUN-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-JUN-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-JUL-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-JUL-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-JUL-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-JUL-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-AUG-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	16-AUG-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-AUG-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-AUG-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	07-SEP-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-SEP-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-SEP-12	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-SEP-12	Findings:	25. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-OCT-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-OCT-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-OCT-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-OCT-12	Findings:	29. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-OCT-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-NOV-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-NOV-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-NOV-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-NOV-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-NOV-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-DEC-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11-DEC-12	Findings:	27. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-NOV-14	Findings:	2.6 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	07-JAN-11	Findings:	13. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-JAN-11	Findings:	12. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-JAN-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-JAN-11	Findings:	280. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	26-JAN-11	Findings:	8.
Chemical:	PH, LABORATORY		

Sample Collected:	26-JAN-11	Findings:	110. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	26-JAN-11	Findings:	130. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	26-JAN-11	Findings:	99. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	26-JAN-11	Findings:	25. MG/L
Chemical:	CALCIUM		
Sample Collected:	26-JAN-11	Findings:	9. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	26-JAN-11	Findings:	16. MG/L
Chemical:	SODIUM		
Sample Collected:	26-JAN-11	Findings:	7. MG/L
Chemical:	POTASSIUM		
Sample Collected:	26-JAN-11	Findings:	6.2 MG/L
Chemical:	CHLORIDE		
Sample Collected:	26-JAN-11	Findings:	9.3 MG/L
Chemical:	SULFATE		
Sample Collected:	20-DEC-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-DEC-12	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-JAN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-JAN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-JAN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	31-JAN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	31-JAN-13	Findings:	0.11 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	31-JAN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	31-JAN-13	Findings:	2.59 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	08-FEB-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-FEB-13	Findings:	26. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-JAN-11	Findings:	3. UG/L
Chemical:	ARSENIC		
Sample Collected:	26-JAN-11	Findings:	240. UG/L
Chemical:	BARIUM		

Sample Collected:	26-JAN-11	Findings:	240. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	26-JAN-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-JAN-11	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	28-JAN-11	Findings:	19. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11-FEB-11	Findings:	20. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-FEB-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-FEB-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-MAR-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-MAR-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-MAR-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-MAR-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-APR-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-APR-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-FEB-13	Findings:	25. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-FEB-13	Findings:	20. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-MAR-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-MAR-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-JAN-15	Findings:	300. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	29-JAN-15	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-APR-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-APR-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-APR-11	Findings:	20. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	06-MAY-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-MAY-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-MAY-11	Findings:	13. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-MAY-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-MAR-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-MAR-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-APR-13	Findings:	24. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11-APR-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-APR-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-APR-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-MAY-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-MAY-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-JUN-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JUN-11	Findings:	22. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-JUN-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-JUN-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-JUL-11	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	08-JUL-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-JUL-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-JUL-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	16-MAY-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-MAY-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	30-MAY-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-JUN-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-JUL-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-AUG-11	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-AUG-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-JUN-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-JUN-13	Findings:	290. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	20-JUN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-JUN-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-JUL-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11-JUL-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-JUL-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-JUL-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-AUG-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	08-AUG-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-AUG-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-AUG-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-AUG-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-AUG-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-SEP-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-SEP-11	Findings:	40. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-SEP-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	23-SEP-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-SEP-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-OCT-11	Findings:	21. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-OCT-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-OCT-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-AUG-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-SEP-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-SEP-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-SEP-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-SEP-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-OCT-11	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-NOV-11	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-NOV-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-OCT-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11-OCT-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-OCT-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-OCT-13	Findings:	32. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	31-OCT-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-NOV-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-NOV-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-NOV-11	Findings:	30. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-NOV-11	Findings:	19. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	01-DEC-11	Findings:	20. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	08-DEC-11	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-DEC-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-DEC-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-DEC-11	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-JAN-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-JAN-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-JAN-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-NOV-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-NOV-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-DEC-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-DEC-13	Findings:	19. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-DEC-13	Findings:	19. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-JAN-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-FEB-12	Findings:	15. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-FEB-12	Findings:	19. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	16-FEB-12	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-DEC-13	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-JAN-14	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JAN-14	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JAN-14	Findings:	5. UNITS
Chemical:	COLOR		
Sample Collected:	09-JAN-14	Findings:	8.
Chemical:	PH, LABORATORY		

Sample Collected:	09-JAN-14	Findings:	120. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	09-JAN-14	Findings:	150. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	09-JAN-14	Findings:	110. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	09-JAN-14	Findings:	27. MG/L
Chemical:	CALCIUM		
Sample Collected:	09-JAN-14	Findings:	9.4 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	09-JAN-14	Findings:	17. MG/L
Chemical:	SODIUM		
Sample Collected:	09-JAN-14	Findings:	7.2 MG/L
Chemical:	POTASSIUM		
Sample Collected:	09-JAN-14	Findings:	6.9 MG/L
Chemical:	CHLORIDE		
Sample Collected:	09-JAN-14	Findings:	10. MG/L
Chemical:	SULFATE		
Sample Collected:	09-JAN-14	Findings:	2.7 UG/L
Chemical:	ARSENIC		
Sample Collected:	09-JAN-14	Findings:	270. UG/L
Chemical:	BARIUM		
Sample Collected:	09-JAN-14	Findings:	240. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	09-JAN-14	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JAN-14	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	16-JAN-14	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		

C11
SSE **FED USGS** **USGS40000182202**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-371928120263301		
Monloc name:	007S014E16L001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3243851
Longitude:	-120.4435221	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	180.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19630207	Welldepth:	268
Welldepth units:	ft	Wellholedepth:	358
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 48

Date	Feet below Surface	Feet to Sealevel
1980-12-01	43	
Note: The site was being pumped.		
1980-11-01	42	
Note: The site was being pumped.		
1980-10-01	50	
Note: The site was being pumped.		
1980-09-01	55	
Note: The site was being pumped.		
1980-08-01	60	
Note: The site was being pumped.		
1980-07-01	70	
Note: The site was being pumped.		
1980-06-01	62	
Note: The site was being pumped.		
1980-05-01	55	
Note: The site was being pumped.		
1980-04-01	50	
Note: The site was being pumped.		
1980-03-01	48	
Note: The site was being pumped.		
1980-02-01	35	
1980-01-01	35	
Note: The site was being pumped.		
1979-12-01	40	
Note: The site was being pumped.		
1979-11-01	40	
Note: The site was being pumped.		
1979-10-01	48	
Note: The site was being pumped.		
1979-09-01	65	
Note: The site was being pumped.		
1979-08-01	55	
Note: The site was being pumped.		
1979-07-01	60	
Note: The site was being pumped.		
1979-06-01	60	
Note: The site was being pumped.		
1979-05-01	59	
Note: The site was being pumped.		
1979-04-01	40	
1979-03-01	35	
Note: The site was being pumped.		

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1979-02-01	45	
Note: The site was being pumped.		
1979-01-01	40	
Note: The site was being pumped.		
1978-12-01	38	
Note: The site was being pumped.		
1978-11-01	35	
Note: The site was being pumped.		
1978-10-01	52	
Note: The site was being pumped.		
1978-09-01	54	
Note: The site was being pumped.		
1978-08-01	50	
Note: The site was being pumped.		
1978-07-01	58	
Note: The site was being pumped.		
1978-06-01	60	
Note: The site was being pumped.		
1978-05-01	55	
Note: The site was being pumped.		
1978-04-01	48	
Note: The site was being pumped.		
1978-03-01	44	
Note: The site was being pumped.		
1978-02-01	44	
Note: The site was being pumped.		
1978-01-01	45	
Note: The site was being pumped.		
1977-12-01	50	
Note: The site was being pumped.		
1977-11-01	53	
Note: The site was being pumped.		
1977-10-01	60	
Note: The site was being pumped.		
1977-09-01	60	
Note: The site was being pumped.		
1977-08-01	60	
Note: The site was being pumped.		
1977-07-01	62	
Note: The site was being pumped.		
1977-06-01	60	
Note: The site was being pumped.		
1977-05-01	56	
Note: The site was being pumped.		
1977-04-01	45	
Note: The site was being pumped.		
1977-03-01	50	
Note: The site was being pumped.		
1977-02-01	57	
Note: The site was being pumped.		
1977-01-01	57	
Note: The site was being pumped.		

Date	Feet below Surface	Feet to Sealevel

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

12
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000182189**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-371925120265001		
Monloc name:	007S014E16M001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3235518
Longitude:	-120.4482445	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	181.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19650101	Welldepth:	185
Welldepth units:	ft	Wellholedepth:	185
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-09-19	32.70	

13
SSE
1/2 - 1 Mile
Lower

CA WELLS **7993**

Water System Information:

Prime Station Code:	07S/14E-16L03 M	User ID:	24C
FRDS Number:	2400046002	County:	Merced
District Number:	54	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	371925.0 1202638.0	Precision:	100 Feet (one Second)
Source Name:	WELL 02		
System Number:	2400046		
System Name:	BLACK RASCAL WC		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

Sample Collected:	21-OCT-14	Findings:	4.5 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	15-JAN-15	Findings:	23.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-JAN-15	Findings:	500. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	21-JAN-16	Findings:	5.3 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	28-JUN-16	Findings:	521. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-JUN-16	Findings:	7.2
Chemical:	PH, LABORATORY		
Sample Collected:	28-JUN-16	Findings:	209.8 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-JUN-16	Findings:	255. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-JUN-16	Findings:	4.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	28-JUN-16	Findings:	251.2 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	28-JUN-16	Findings:	48.2 MG/L
Chemical:	CALCIUM		
Sample Collected:	28-JUN-16	Findings:	18. MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-JUN-16	Findings:	12.1 MG/L
Chemical:	SULFATE		
Sample Collected:	28-JUN-16	Findings:	400. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-JUN-16	Findings:	4.8 MG/L
Chemical:	NITRATE + NITRITE (AS N)		

14
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000182301**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-372019120273801		
Monloc name:	007S014E08L001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3385514
Longitude:	-120.4615788	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	180.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

15
East
1/2 - 1 Mile
Higher

CA WELLS **CADW60000022334**

Objectid:	22334
Latitude:	37.3321
Longitude:	-120.4324
Site code:	373321N1204324W001
State well numbe:	07S14E10N001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000022334

D16
North
1/2 - 1 Mile
Higher

CA WELLS **CADW60000022333**

Objectid:	22333
Latitude:	37.3463
Longitude:	-120.451
Site code:	373463N1204510W001
State well numbe:	07S14E08A001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	24
County name:	Merced
Basin code:	'5-22.04'
Basin desc:	Merced
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000022333

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D17
North
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000182370**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-372047120270001		
Monloc name:	007S014E08A001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.346329
Longitude:	-120.451023	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	197.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Altimeter		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

E18
SSE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000182161**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-371914120263701		
Monloc name:	007S014E16P002M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040001	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.3204963
Longitude:	-120.4446332	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	182.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	1965	Welldepth:	120
Welldepth units:	ft	Wellholedepth:	168
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

E19
SSE
1/2 - 1 Mile
Higher

CA WELLS **7994**

Water System Information:

Prime Station Code:	07S/14E-16P01 M	User ID:	24C
FRDS Number:	2400046001	County:	Merced
District Number:	54	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	371913.0 1202637.0	Precision:	100 Feet (one Second)
Source Name:	WELL 01		
System Number:	2400046		
System Name:	BLACK RASCAL WC		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		
Sample Collected:	27-SEP-11	Findings:	360. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	30-SEP-14	Findings:	470. US
Chemical:	SPECIFIC CONDUCTANCE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95340	35	9

Federal EPA Radon Zone for MERCED County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95340

Number of sites tested: 4

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	3.075 pCi/L	75%	25%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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NELSON
ENVIRO, LLC

Due Diligence Questionnaire

In order to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, the user of this Phase I Environmental Site Assessment must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The user should provide the following information to the environmental professional. Failure to conduct these inquiries could result in a determination that "All Appropriate Inquiry" is not complete.

Please complete the entire questionnaire carefully and to the best of your knowledge. Attach extra sheets of paper as necessary.

Owner

Name: Cliff Caton

Address: 952 W. Main Street, Merced, CA 95340

Phone: 209-617-6723

Key Site Manager (the person identified by the owner or operator of the property as having good knowledge of the uses and physical characteristics of the property.)

Name: Cliff Caton

Address: same as above

Phone: _____

Occupants (if more than one, please list others on a separate sheet.)

Name: Gary Reinero

Address: 1897 E. Yosemite Ave., Merced, CA 95340

Phone: 209-723-6850

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103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com

Please check the appropriate box.

YES	NO	
	✔	Did a search of recorded land title records identify any environmental liens filed or recorded against the property under federal, tribal, state, or local law? If yes, please explain.
	✔	Did a search of recorded land title records indentify any activity and land use limitations (AUL's), such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law?
	✔	Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? If yes, please explain.
✔		Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property? If no, please describe.
	✔	Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, a) Do you know the past uses of the property? b) Do you know of specific chemical that are present or once were present at the property? c) Do you know of spills or other chemical releases that have taken place at the property? d) Do you know of any environmental cleanups that have taken place at the property? If yes, please describe.
	✔	Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or like presence of releases at the property? If yes, please describe.

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Current Site Operations and Conditions

Please describe current site operations: Farming
Construction dates of all buildings present on the property: Circa 1900
Please describe the Current and Previous uses of Adjoining Sites: In the last 100 years, all agriculture. In the last 20 years, low-density residential to the west and south.
Please describe any regulatory agency violations, pending environmental lawsuits, environmental permits for the use, storage or generation of hazardous materials or waste (if any): None known.

Please check the appropriate box.

YES	NO	
✔		Is construction, redevelopment or significant rehab to the site planned? If yes, please describe. The site is proposed for medium-density student housing and a retail commercial plaza.
	✔	Has an environmental risk study ever been performed for the property? If yes, please submit copies of all previous reports. List the type of report and date completed.
	✔	Has the property ever been contaminated or included on any government list of contaminated sites? If yes, please describe. Not that we know of.
✔		Are chemicals used on the property? Attach a list describing the type of material, the amount used, source, storage, usage, and disposal method for each waste product or describe in the space provided. Conventional agricultural chemicals likely but not known.
	✔	Are you aware of Asbestos at the property? If yes, describe and indicate if an O&M Plan is in place.

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YES	NO	
	✔	Are you aware of Lead-based Paint at the property? If yes, describe.
	✔	Are you aware of PCBs at the property? If yes, describe.

Check if applicable to the property & list agency providing service:

____ Public Sewer	✔ On-site Septic	____ Public Water	✔ On-site Well
Agency: _____		Agency: _____	

Are any of the following characteristics present at the property? If applicable provide size, contents and age in the space provided or on an additional sheet.

Responses are based on our understanding of a typical farm operation and not on first-hand experience with the site.

YES	NO		YES	NO	
✔		Above ground storage tank(s)		✔	Stockpiled soils
	✔	Underground storage tank(s)		✔	Mold
	✔	Heating oil tank		✔	Dry Cleaning
	✔	Wood treatment		✔	Monitoring Wells
	✔	Drains, clarifiers, pits or sumps, oil/water separators		✔	Foundry
	✔	Stained soils or paving		✔	Manufacturing or Metal Fabrication
	✔	Oil or gas wells		✔	Landfill
	✔	Auto salvage yard		✔	Fill Dirt
	✔	Gas station/fuel dispensing			

Probable fuel for on-site farm equipment only

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Historic Site Operations and Conditions

Please describe past site operations. (All obvious uses of the property shall be identified from the present, back to the property's first developed use, or back to 1940, whichever is earlier):

Farming and storage of heavy equipment used for farming and land leveling.

Have any of the following characteristics existed at the property? If applicable provide size, contents and age in the space provided or on an additional sheet.

Same as previous responses.

YES	NO		YES	NO	
✔		Above ground storage tank(s)		✔	Stockpiled soils
	✔	Underground storage tank(s)		✔	Mold
	✔	Heating oil tank		✔	Dry Cleaning
	✔	Wood treatment		✔	Monitoring Wells
	✔	Drains, clarifiers, pits or sumps, oil/water separators		✔	Foundry
	✔	Stained soils or paving		✔	Manufacturing or Metal Fabrication
	✔	Oil or gas wells		✔	Landfill
	✔	Auto salvage yard		✔	Fill Dirt
	✔	Gas station/fuel dispensing			

Probable fuel for on-site farm equipment only

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Please check the appropriate box

YES	NO	
	✔	Is the *property* used for an industrial use?
	✔	Is any *adjoining property* used for an industrial use?
	✔	Do you have any prior knowledge that the *property* has been used for an industrial use in the past?
	✔	Do you have any prior knowledge that any *adjoining property* has been used for an industrial use in the past?
	✔	Is the *property* used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment storage, disposal, processing, or recycling facility (if applicable, identify which)? The site was likely used to repair the kinds of vehicles presently stored there.
	✔	Is any *adjoining property* used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment storage, disposal, processing, or recycling facility (if applicable, identify which)?
	✔	Do you have any prior knowledge that the *property* has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?
	✔	Do you have any prior knowledge that any *adjoining property* has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?
	✔	Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the *property* or at the facility? Unknown
	✔	Do you have any prior knowledge that there have been previously any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on or used at the *property* or at the facility? Unknown
	✔	Are there currently any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the *property* or at the facility? Not likely, but unknown.
	✔	Do you have any prior knowledge that there have been previously any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the *property* or at the facility? Unknown

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YES	NO	
	✔	Do you have any prior knowledge that *fill dirt* has been brought onto the *property* that originated from a contaminated site?
	✔	Do you have any prior knowledge that *fill dirt* has been brought onto the *property* that is of an unknown origin?
	✔	Are there currently any *pits, ponds,* or *lagoons* located on the *property* in connection with waste treatment or waste disposal?
	✔	Do you have any prior knowledge that there have been previously, any *pits, ponds,* or *lagoons* located on the *property* in connection with waste treatment or waste disposal?
	✔	Is there currently any stained soil on the *property*? Unknown
	✔	Do you have any prior knowledge that there has been previously, any stained soil on the *property*?
	✔	Are there currently any registered or unregistered storage tanks (above or underground) located on the *property?* Not Known
	✔	Do you have any prior knowledge that there have been previously, any registered or unregistered storage tanks (above or underground) located on the *property?*
	✔	Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*?
	✔	Do you have any prior knowledge that there have been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*?
	✔	Is there currently evidence of leaks, spills or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the *property*? Not Known
	✔	Do you have any prior knowledge that there have been previously any leaks, spills or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the *property*?
	✔	If the property is served by a private well or non-public water system, do you have prior knowledge that the well has been designated as contaminated by any government environmental/health agency?
	✔	Does the *owner* or *occupant* of the *property* have any knowledge of *environmental liens* or governmental notification relating to past or recurrent violations of environmental laws with respect to the *property* or any facility located on the *property*? Not known.

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YES	NO	
	✔	Has the *owner* or *occupant* of the *property* been informed of the current existence of *hazardous substances* or *petroleum products* with respect to the *property* or any facility located on the *property*?
	✔	Has the *owner* or *occupant* of the *property* been informed of the past existence of environmental violations with respect to the *property* or any facility located on the *property*?
	✔	Has the *owner* or *occupant* of the *property* been informed of the current existence of environmental violations with respect to the *property* or any facility located on the *property*?
	✔	Does the *owner* or *occupant* of the *property* have any knowledge of any *environmental site assessment* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?
	✔	Does the *owner* or *occupant* of the *property* know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property* by any *owner* or *occupant* of the *property*?
	✔	Does the *property* discharge *waste-water* (not including sanitary waste or storm water) onto or adjacent to the *property* and/or into a storm water system?
	✔	Does the *property* discharge waste water (not including sanitary waste or storm water) onto or adjacent to the *property* and/or into a sanitary sewer system?
	✔	Do you have any prior knowledge that any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been dumped above grade, buried, and/or burned on the *property*?
	✔	Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of *PCBs*?
	✔	Do you know of specific chemicals that are present or once were present at the property? If yes, please explain.
	✔	Do you know of spills or other chemical releases that have taken place at the property? If yes, please explain.
	✔	Do you know of any environmental cleanups that have taken place at the property? If yes, please explain.
	✔	Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property? If yes, please explain.

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com

Completed by:

Name Desmond Johnston

Title Senior Planner

Firm QK, Inc.

Address 2816 Park Ave., Merced, CA

Phone 209-723-2066

Revised January 2016

Nelson Enviro, LLC
103 Laurel Ave., Atwater, CA 95301
Office 209-769-7460 Fax (775) 254-3748
www.nelsonenviro.com

1897 E. Yosemite Ave.
1897 E. Yosemite Ave.
Merced, CA 95340

Inquiry Number: 4784760.6s
November 23, 2016

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600).

STANDARD ENVIRONMENTAL RECORDS	Maximum Search Distance*	Summary: property	1/10	1/10 - 1/3
Federal NPL	0.333	0	0	0
Federal CERCLIS	0.333	0	0	0
Federal RCRA CORRACTS facilities list	0.333	0	0	0
Federal RCRA TSD facilities list	0.333	0	0	0
Federal RCRA generators list	property	0	-	-
Federal institutional controls / engineering controls registries	0.333	0	0	0
Federal ERNS list	property	0	-	-
State and tribal - equivalent NPL	0.333	0	0	0
State and tribal - equivalent CERCLIS	0.333	0	0	0
State and tribal landfill / solid waste disposal	0.333	0	0	0
State and tribal leaking storage tank lists	0.333	0	0	1
State and tribal registered storage tank lists	property	0	-	-
State and tribal institutional control / engineering control registries	not searched	-	-	-
State and tribal voluntary cleanup sites	0.333	0	0	0
State and tribal Brownfields sites	0.333	0	0	0
Other Standard Environmental Records	0.333	0	0	1

HISTORICAL USE RECORDS				
Former manufactured Gas Plants	0.333	0	0	0
Historical Gas Stations	0.125	0	0	0
Historical Dry Cleaners	0.125	0	0	0
Exclusive Recovered Govt. Archives	property	0	-	-

*Each category may include several separate databases, each having a different search distance. For each category, the table reports the maximum search distance applied. See the section 'Record Sources and Currency' for information on individual databases.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

1897 E. YOSEMITE AVE.
1897 E. YOSEMITE AVE.
MERCED, CA 95340

COORDINATES

Latitude (North):	37.333695 - 37° 20′ 1.3000488″
Longitude (West):	120.448248 - 120° 26′ 53.69934″
Elevation:	183 ft. above sea level

EXECUTIVE SUMMARY

PHYSICAL SETTING INFORMATION

Flood Zone:	Available
NWI Wetlands:	Available

AQUIFLOW®

Search Radius: 0.333 Mile.

No Aquiflow sites reported.

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name:	Wyman
Soil Surface Texture:	clay loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained
Hydric Status:	Not hydric
Corrosion Potential - Uncoated Steel:	High
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	40 inches	59 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: Ryer

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 6 Min: 5.6
2	20 inches	64 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	64 inches	83 inches	stratified sandy loam to clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

Soil Map ID: 3

Soil Component Name: Yokohl

Soil Surface Texture: clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.3 Min: 6.1
2	9 inches	18 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 7.3 Min: 6.1

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	18 inches	48 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	48 inches	59 inches	stratified sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

Soil Map ID: 4

Soil Component Name: Marguerite

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	9 inches	29 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	29 inches	59 inches	stratified gravelly fine sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

Soil Map ID: 5

Soil Component Name: Landlow

Soil Surface Texture: clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	46 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4
3	46 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9

Soil Map ID: 6

Soil Component Name: Ryer

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 6 Min: 5.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	20 inches	64 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1
3	64 inches	83 inches	stratified sandy loam to clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

Soil Map ID: 7

Soil Component Name: Wyman

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.1
3	40 inches	59 inches	stratified silt loam to clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 8

Soil Component Name: Raynor

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	38 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4
3	38 inches	42 inches	weathered bedrock	Not reported	Not reported	Max: 4 Min: 1.4	Max: Min:

Soil Map ID: 9

Soil Component Name: Corning

Soil Surface Texture: gravelly loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.1

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	29 inches	cobbly clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 6.5 Min: 4.5
3	29 inches	59 inches	stratified gravelly sandy loam to gravelly clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 5.1

Soil Map ID: 10

Soil Component Name: Raynor

Soil Surface Texture: cobbly clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	cobbly clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	38 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.4 Min: 7.4
3	38 inches	42 inches	weathered bedrock	Not reported	Not reported	Max: 4 Min: 1.4	Max: Min:

Soil Map ID: 11

Soil Component Name: Redding

Soil Surface Texture: gravelly loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Clayey Gravel	Max: 14 Min: 4	Max: 6.5 Min: 5.1
2	16 inches	22 inches	gravelly clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 6.5 Min: 5.1

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	22 inches	35 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 12

Soil Component Name: Alamo

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1
2	7 inches	20 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
3	20 inches	25 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

EXECUTIVE SUMMARY

Soil Map ID: 13

Soil Component Name: Keyes

Soil Surface Texture: gravelly clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	gravelly clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 5.6
2	7 inches	11 inches	gravelly clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	11 inches	16 inches	gravelly clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 7.3 Min: 6.1
4	16 inches	29 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
5	29 inches	59 inches	stratified very gravelly loamy coarse sand to gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 14 Min: 4	Max: 8.4 Min: 6.6

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

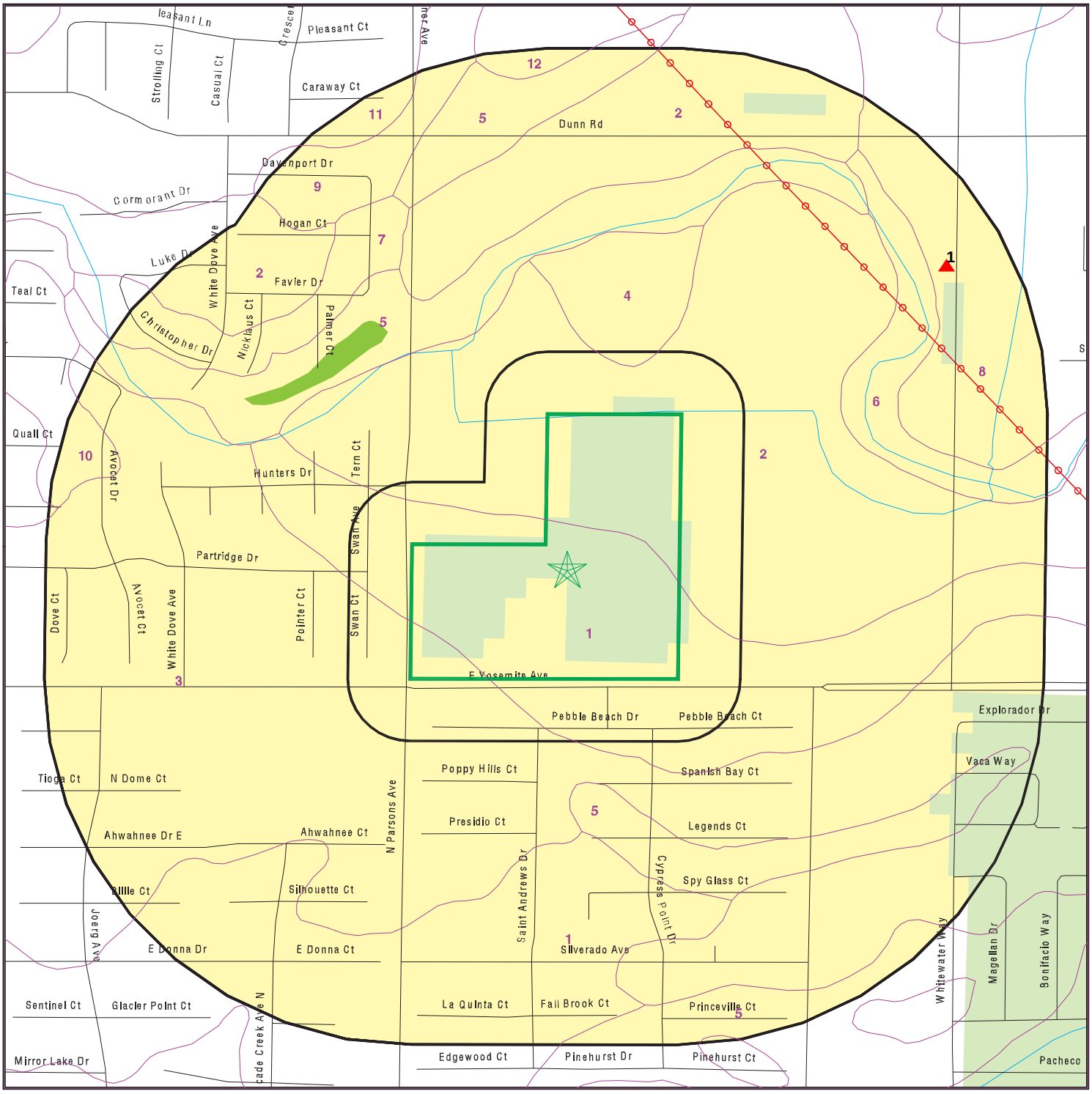
STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
PULSIPHER, DR.	3701 HATCH RD	1/10 - 1/3 NE	▲ 1	21
LUST: State and tribal leaking storage tank lists HIST CORTESE: Other Standard Environmental Records				

HISTORICAL USE RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 4784760.6S



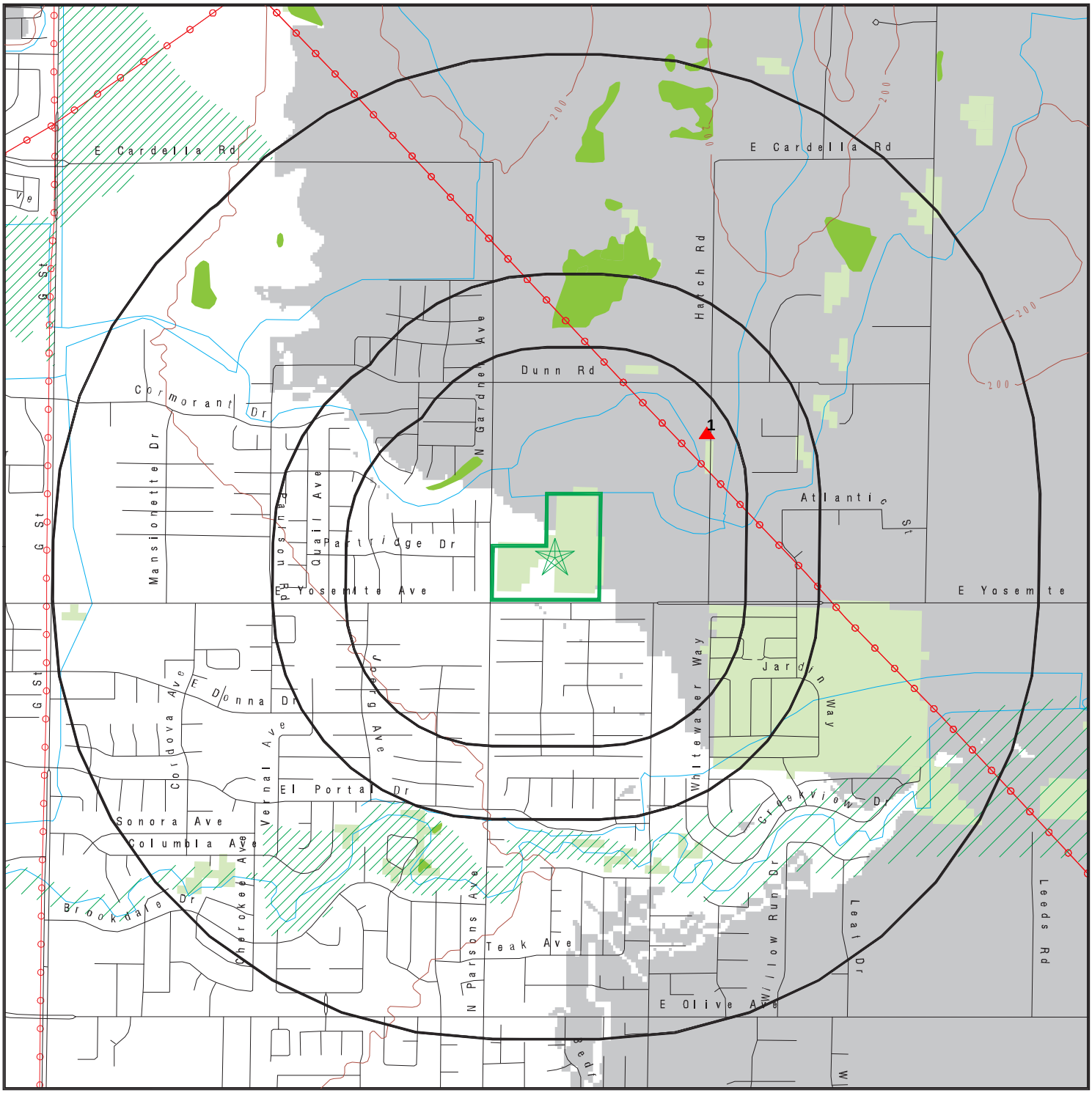
0 300 1/3 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- SSURGO Soil
- Areas of Concern

SITE NAME: 1897 E. Yosemite Ave.	CLIENT: Nelson Enviro, LLC
ADDRESS: 1897 E. Yosemite Ave. Merced CA 95340	CONTACT: Mike
LAT/LONG: 37.333695 / 120.448248	INQUIRY #: 4784760.6s
	DATE: November 23, 2016 9:20 am

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SECONDARY MAP - 4784760.6S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Contour Lines
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Upgradient Area
- Areas of Concern

SITE NAME:	1897 E. Yosemite Ave.	CLIENT:	Nelson Enviro, LLC
ADDRESS:	1897 E. Yosemite Ave. Merced CA 95340	CONTACT:	Mike
		INQUIRY #:	4784760.6s
LAT/LONG:	37.333695 / 120.448248	DATE:	November 23, 2016 9:19 am

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AERIAL PHOTOGRAPHY - 4784760.6s



SITE NAME:	1897 E. Yosemite Ave.	CLIENT:	Nelson Enviro, LLC
ADDRESS:	1897 E. Yosemite Ave. Merced CA 95340	CONTACT:	Mike
		INQUIRY #:	4784760.6s
LAT/LONG:	37.333695 / 120.448248	DATE:	November 23, 2016 9:21 am

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MAP FINDINGS

LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**		EDR SITE ID NUMBER
▼ MAP ID#	Direction Distance Range (Distance feet / miles) Relative Elevation Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.

Worksheet:

Comments:
Comments may be added on the online Vapor Encroachment Worksheet.

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

PULSIPHER, DR. 3701 HATCH RD, MERCED, CA, 95340			S101307574
▲ 1	NE 1/10 - 1/3	(1456 ft. / 0.276 mi.)	State and tribal leaking storage tank lists Other Standard Environmental Records
	9 ft. Higher Elevation	192 ft. Above Sea Level	

Worksheet:

Impact on Target Property: VEC does not exist
Conditions:

Petroleum Hydrocarbon Chemicals of Concern: YES
Groundwater Flow Gradient:

Upgradient or Indeterminate: YES

Hydrogeologically: YES

RECORD SOURCES AND CURRENCY

To maintain currency of the following databases, EDR contacts the appropriate agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

PRP: Potentially Responsible Parties
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Number of Days to Update: 3
Last EDR Contact :11/07/2016

Source: EPA
Telephone: 202-564-6023

RMP: Risk Management Plans
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2016
Number of Days to Update: 81
Last EDR Contact :11/18/2016

Source: Environmental Protection Agency
Telephone: 202-564-8600

ALAMEDA CO. UST: Underground Tanks
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Alameda county.

Date of Government Version: 07/07/2016
Number of Days to Update: 27
Last EDR Contact :10/07/2016

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

AST: Aboveground Petroleum Storage Tank Facilities
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Number of Days to Update: 69
Last EDR Contact :11/21/2016

Source: California Environmental Protection Agency
Telephone: 916-327-5092

Alameda County CS: Contaminated Sites
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/12/2016
Number of Days to Update: 35
Last EDR Contact :10/07/2016

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

BROWNFIELDS: Considered Brownfieds Sites Listing

Standard Environmental Record Source: State and tribal Brownfields sites
Search Distance: 0.333 Mile

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 02/29/2016
Number of Days to Update: 58
Last EDR Contact :09/26/2016

Source: State Water Resources Control Board
Telephone: 916-323-7905

CA BOND EXP. PLAN: Bond Expenditure Plan

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Number of Days to Update: 6
Last EDR Contact :05/31/1994

Source: Department of Health Services
Telephone: 916-255-2118

CA FID UST: Facility Inventory Database

Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Number of Days to Update: 24
Last EDR Contact :12/28/1998

Source: California Environmental Protection Agency
Telephone: 916-341-5851

CA LA LF: City of Los Angeles Landfills

Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Number of Days to Update: 56
Last EDR Contact :10/17/2016

Source: Engineering & Construction Division
Telephone: 213-473-7869

CDL: Clandestine Drug Labs

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2015

Source: Department of Toxic Substances Control

Number of Days to Update: 38
Telephone: 916-255-6504
Last EDR Contact :11/07/2016

CHMIRS: California Hazardous Material Incident Report System
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/03/2016
Source: Office of Emergency Services
Number of Days to Update: 59
Telephone: 916-845-8400
Last EDR Contact :10/26/2016

CONTRA COSTA CO. SITE LIST: Site List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/22/2016
Source: Contra Costa Health Services Department
Number of Days to Update: 47
Telephone: 925-646-2286
Last EDR Contact :10/31/2016

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/26/2016
Source: CAL EPA/Office of Emergency Information
Number of Days to Update: 52
Telephone: 916-323-3400
Last EDR Contact :09/27/2016

CUPA AMADOR: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility List

Date of Government Version: 08/22/2016
Source: Amador County Environmental Health
Number of Days to Update: 38
Telephone: 209-223-6439
Last EDR Contact :09/02/2016

CUPA BUTTE: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 10/21/2016
Source: Public Health Department
Number of Days to Update: 23
Telephone: 530-538-7149
Last EDR Contact :10/24/2016

CUPA CALVERAS: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility Listing

Date of Government Version: 10/25/2016
Source: Calveras County Environmental Health

Number of Days to Update: 22
Telephone: 209-754-6399
Last EDR Contact :09/26/2016

CUPA COLUSA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 09/02/2016
Source: Health & Human Services
Number of Days to Update: 38
Telephone: 530-458-0396
Last EDR Contact :11/07/2016

CUPA DEL NORTE: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility list

Date of Government Version: 11/01/2016
Source: Del Norte County Environmental Health Division
Number of Days to Update: 19
Telephone: 707-465-0426
Last EDR Contact :10/31/2016

CUPA EL DORADO: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility list.

Date of Government Version: 05/24/2016
Source: El Dorado County Environmental Management Department
Number of Days to Update: 75
Telephone: 530-621-6623
Last EDR Contact :10/31/2016

CUPA FRESNO: CUPA Resources List
Standard Environmental Record Source: Other Standard Environmental Records
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/11/2016
Source: Dept. of Community Health
Number of Days to Update: 35
Telephone: 559-445-3271
Last EDR Contact :09/29/2016

CUPA HUMBOLDT: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility list.

Date of Government Version: 10/25/2016
Source: Humboldt County Environmental Health
Number of Days to Update: 22
Telephone: Not Reported
Last EDR Contact :11/21/2016

CUPA IMPERIAL: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 10/24/2016
Source: San Diego Border Field Office
Number of Days to Update: 22
Telephone: 760-339-2777
Last EDR Contact :10/24/2016

CUPA INYO: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 09/10/2013
Number of Days to Update: 33
Last EDR Contact :11/16/2016
Source: Inyo County Environmental Health Services
Telephone: 760-878-0238

CUPA KINGS: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/25/2016
Number of Days to Update: 26
Last EDR Contact :11/16/2016
Source: Kings County Department of Public Health
Telephone: 559-584-1411

CUPA LAKE: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list

Date of Government Version: 09/08/2016
Number of Days to Update: 35
Last EDR Contact :10/17/2016
Source: Lake County Environmental Health
Telephone: 707-263-1164

CUPA MADERA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/18/2016
Number of Days to Update: 32
Last EDR Contact :11/16/2016
Source: Madera County Environmental Health
Telephone: 559-675-7823

CUPA MERCED: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility list.

Date of Government Version: 08/17/2016
Number of Days to Update: 32
Last EDR Contact :11/16/2016
Source: Merced County Environmental Health
Telephone: 209-381-1094

CUPA MONO: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA Facility List

Date of Government Version: 08/29/2016
Number of Days to Update: 44
Last EDR Contact :08/24/2016
Source: Mono County Health Department
Telephone: 760-932-5580

CUPA MONTEREY: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Number of Days to Update: 43
Last EDR Contact :11/21/2016

Source: Monterey County Health Department
Telephone: 831-796-1297

CUPA NEVADA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility list.

Date of Government Version: 07/25/2016
Number of Days to Update: 53
Last EDR Contact :10/31/2016

Source: Community Development Agency
Telephone: 530-265-1467

CUPA SAN LUIS OBISPO: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility List.

Date of Government Version: 08/18/2016
Number of Days to Update: 43
Last EDR Contact :11/16/2016

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596

CUPA SANTA BARBARA: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Number of Days to Update: 28
Last EDR Contact :11/16/2016

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167

CUPA SANTA CLARA: Cupa Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list

Date of Government Version: 08/17/2016
Number of Days to Update: 43
Last EDR Contact :11/16/2016

Source: Department of Environmental Health
Telephone: 408-918-1973

CUPA SANTA CRUZ: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility listing.

Date of Government Version: 08/17/2016
Number of Days to Update: 43
Last EDR Contact :11/16/2016

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761

CUPA SHASTA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility List.

Date of Government Version: 09/12/2016
Number of Days to Update: 29
Last EDR Contact :11/21/2016

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789

RECORD SOURCES AND CURRENCY

CUPA SONOMA: Cupa Facility List

Standard Environmental Record Source: Other Standard Environmental Records

Cupa Facility list

Date of Government Version: 09/27/2016
Number of Days to Update: 55
Last EDR Contact :09/26/2016

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174

CUPA TUOLUMNE: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

Cupa facility list

Date of Government Version: 08/12/2016
Number of Days to Update: 49
Last EDR Contact :10/24/2016

Source: Divison of Environmental Health
Telephone: 209-533-5633

CUPA YUBA: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

CUPA facility listing for Yuba County.

Date of Government Version: 08/03/2016
Number of Days to Update: 61
Last EDR Contact :10/31/2016

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523

DEED: Deed Restriction Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/06/2016
Number of Days to Update: 37
Last EDR Contact :09/07/2016

Source: DTSC and SWRCB
Telephone: 916-323-3400

DRYCLEANERS: Cleaner Facilities

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.25 Mile

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/02/2016
Number of Days to Update: 37
Last EDR Contact :09/02/2016

Source: Department of Toxic Substance Control
Telephone: 916-327-4498

EL SEGUNDO UST: City of El Segundo Underground Storage Tank

Standard Environmental Record Source: State and tribal registered storage tank lists

Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Number of Days to Update: 11
Last EDR Contact :10/17/2016

Source: City of El Segundo Fire Department
Telephone: 310-524-2236

EMI: Emissions Inventory Data

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Number of Days to Update: 31
Last EDR Contact :09/23/2016

Source: California Air Resources Board
Telephone: 916-322-2990

ENF: Enforcement Action Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/22/2016
Number of Days to Update: 42
Last EDR Contact :11/16/2016

Source: State Water Resoruces Control Board
Telephone: 916-445-9379

ENVIROSTOR: EnviroStor Database

Standard Environmental Record Source: State and tribal - equivalent CERCLIS
Search Distance: 0.333 Mile

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 08/01/2016
Number of Days to Update: 64
Last EDR Contact :11/01/2016

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

HAULERS: Registered Waste Tire Haulers Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Number of Days to Update: 49
Last EDR Contact :11/11/2016

Source: Integrated Waste Management Board
Telephone: 916-341-6422

HAZNET: Facility and Manifest Data

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2014
Source: California Environmental Protection Agency
Number of Days to Update: 58
Telephone: 916-255-1136
Last EDR Contact :10/12/2016

HIST CAL-SITES: Calsites Database

Standard Environmental Record Source: State and tribal - equivalent CERCLIS
Search Distance: 0.333 Mile

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Source: Department of Toxic Substance Control
Number of Days to Update: 21
Telephone: 916-323-3400
Last EDR Contact :02/23/2009

HIST CORTESE: Hazardous Waste & Substance Site List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Source: Department of Toxic Substances Control
Number of Days to Update: 76
Telephone: 916-323-3400
Last EDR Contact :01/22/2009

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Source: Santa Clara Valley Water District
Number of Days to Update: 22
Telephone: 408-265-2600
Last EDR Contact :03/23/2009

HIST UST: Hazardous Substance Storage Container Database

Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Source: State Water Resources Control Board
Number of Days to Update: 18
Telephone: 916-341-5851
Last EDR Contact :07/26/2001

HWP: EnviroStor Permitted Facilities Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/22/2016
Number of Days to Update: 43
Last EDR Contact :11/22/2016
Source: Department of Toxic Substances Control
Telephone: 916-323-3400

HWT: Registered Hazardous Waste Transporter Database

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/11/2016
Number of Days to Update: 36
Last EDR Contact :10/12/2016
Source: Department of Toxic Substances Control
Telephone: 916-440-7145

KERN CO. UST: Underground Storage Tank Sites & Tank Listing

Standard Environmental Record Source: State and tribal registered storage tank lists

Kern County Sites and Tanks Listing.

Date of Government Version: 08/04/2016
Number of Days to Update: 71
Last EDR Contact :11/07/2016
Source: Kern County Environment Health Services Department
Telephone: 661-862-8700

LA Co. Site Mitigation: Site Mitigation List

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Number of Days to Update: 68
Last EDR Contact :10/17/2016
Source: Community Health Services
Telephone: 323-890-7806

LDS: Land Disposal Sites Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Number of Days to Update: 31
Last EDR Contact :11/01/2016
Source: State Water Qualilty Control Board
Telephone: 866-480-1028

LIENS: Environmental Liens Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/25/2016
Number of Days to Update: 38
Source: Department of Toxic Substances Control
Telephone: 916-323-3400

Last EDR Contact :09/02/2016

LONG BEACH UST: City of Long Beach Underground Storage Tank

Standard Environmental Record Source: State and tribal registered storage tank lists

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Source: City of Long Beach Fire Department
Number of Days to Update: 34
Telephone: 562-570-2563
Last EDR Contact :10/24/2016

LOS ANGELES CO. HMS: HMS: Street Number List

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/05/2016
Source: Department of Public Works
Number of Days to Update: 37
Telephone: 626-458-3517
Last EDR Contact :11/07/2016

LOS ANGELES CO. LF: List of Solid Waste Facilities

Standard Environmental Record Source: State and tribal landfill / solid waste disposal

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/15/2016
Source: La County Department of Public Works
Number of Days to Update: 78
Telephone: 818-458-5185
Last EDR Contact :10/18/2016

LUST: Geotracker's Leaking Underground Fuel Tank Report

Standard Environmental Record Source: State and tribal leaking storage tank lists

Search Distance: 0.333 Mile

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Source: State Water Resources Control Board
Number of Days to Update: 31
Telephone: see region list
Last EDR Contact :11/01/2016

LUST REG 1: Active Toxic Site Investigation

Standard Environmental Record Source: State and tribal leaking storage tank lists

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Source: California Regional Water Quality Control Board North Coast (1)
Number of Days to Update: 29
Telephone: 707-570-3769
Last EDR Contact :08/01/2011

LUST REG 2: Fuel Leak List

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)

Number of Days to Update: 30
Telephone: 510-622-2433
Last EDR Contact :09/19/2011

LUST REG 3: Leaking Underground Storage Tank Database

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Source: California Regional Water Quality Control Board Central Coast Region (3)
Number of Days to Update: 14
Telephone: 805-542-4786
Last EDR Contact :07/18/2011

LUST REG 4: Underground Storage Tank Leak List

Standard Environmental Record Source: State and tribal leaking storage tank lists

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Source: California Regional Water Quality Control Board Los Angeles Region (4)
Number of Days to Update: 35
Telephone: 213-576-6710
Last EDR Contact :09/06/2011

LUST REG 5: Leaking Underground Storage Tank Database

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Source: California Regional Water Quality Control Board Central Valley Region (5)
Number of Days to Update: 9
Telephone: 916-464-4834
Last EDR Contact :07/01/2011

LUST REG 6L: Leaking Underground Storage Tank Case Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Source: California Regional Water Quality Control Board Lahontan Region (6)
Number of Days to Update: 27
Telephone: 530-542-5572
Last EDR Contact :09/12/2011

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Number of Days to Update: 22
Telephone: 760-241-7365
Last EDR Contact :09/12/2011

LUST REG 7: Leaking Underground Storage Tank Case Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Number of Days to Update: 27
Telephone: 760-776-8943
Last EDR Contact :08/01/2011

LUST REG 8: Leaking Underground Storage Tanks

Standard Environmental Record Source: State and tribal leaking storage tank lists

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Source: California Regional Water Quality Control Board Santa Ana Region (8)
Number of Days to Update: 41
Telephone: 909-782-4496
Last EDR Contact :08/15/2011

LUST REG 9: Leaking Underground Storage Tank Report

Standard Environmental Record Source: State and tribal leaking storage tank lists

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Source: California Regional Water Quality Control Board San Diego Region (9)
Number of Days to Update: 28
Telephone: 858-637-5595
Last EDR Contact :09/26/2011

LUST SANTA CLARA: LOP Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Source: Department of Environmental Health
Number of Days to Update: 13
Telephone: 408-918-3417
Last EDR Contact :08/24/2016

MARIN CO. UST: Underground Storage Tank Sites

Standard Environmental Record Source: State and tribal registered storage tank lists

Currently permitted USTs in Marin County.

Date of Government Version: 04/07/2016
Source: Public Works Department Waste Management
Number of Days to Update: 36
Telephone: 415-499-6647
Last EDR Contact :09/29/2016

MCS: Military Cleanup Sites Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Source: State Water Resources Control Board
Number of Days to Update: 31
Telephone: 866-480-1028
Last EDR Contact :11/01/2016

MED WASTE VENTURA: Medical Waste Program List

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 06/28/2016
Number of Days to Update: 67
Last EDR Contact :10/24/2016
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813

MINES: Mines Site Location Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Number of Days to Update: 30
Last EDR Contact :09/14/2016
Source: Department of Conservation
Telephone: 916-322-1080

MWMP: Medical Waste Management Program Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/06/2016
Number of Days to Update: 37
Last EDR Contact :09/07/2016
Source: Department of Public Health
Telephone: 916-558-1784

NAPA CO. LUST: Sites With Reported Contamination

Standard Environmental Record Source: State and tribal leaking storage tank lists

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Number of Days to Update: 63
Last EDR Contact :08/24/2016
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

NAPA CO. UST: Closed and Operating Underground Storage Tank Sites

Standard Environmental Record Source: State and tribal registered storage tank lists

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Number of Days to Update: 23
Last EDR Contact :08/24/2016
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

NOTIFY 65: Proposition 65 Records

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/10/2015
Number of Days to Update: 38
Last EDR Contact :09/19/2016
Source: State Water Resources Control Board
Telephone: 916-445-3846

RECORD SOURCES AND CURRENCY

NPDES: NPDES Permits Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/16/2016
Number of Days to Update: 36
Last EDR Contact :11/15/2016
Source: State Water Resources Control Board
Telephone: 916-445-9379

ORANGE CO. LUST: List of Underground Storage Tank Cleanups
Standard Environmental Record Source: State and tribal leaking storage tank lists
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/03/2016
Number of Days to Update: 53
Last EDR Contact :11/07/2016
Source: Health Care Agency
Telephone: 714-834-3446

ORANGE CO. UST: List of Underground Storage Tank Facilities
Standard Environmental Record Source: State and tribal registered storage tank lists
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/01/2016
Number of Days to Update: 63
Last EDR Contact :11/08/2016
Source: Health Care Agency
Telephone: 714-834-3446

Orange Co. Industrial Site: List of Industrial Site Cleanups
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Petroleum and non-petroleum spills.

Date of Government Version: 08/01/2016
Number of Days to Update: 51
Last EDR Contact :11/07/2016
Source: Health Care Agency
Telephone: 714-834-3446

PEST LIC: Pesticide Regulation Licenses Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/06/2016
Number of Days to Update: 37
Last EDR Contact :09/07/2016
Source: Department of Pesticide Regulation
Telephone: 916-445-4038

PLACER CO. MS: Master List of Facilities
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Number of Days to Update: 38
Source: Placer County Health and Human Services
Telephone: 530-745-2363

Last EDR Contact :09/02/2016

PROC: Certified Processors Database

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

A listing of certified processors.

Date of Government Version: 09/12/2016 Source: Department of Conservation

Number of Days to Update: 30 Telephone: 916-323-3836

Last EDR Contact :09/14/2016

RESPONSE: State Response Sites

Standard Environmental Record Source: State and tribal - equivalent NPL

Search Distance: 0.333 Mile

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 08/01/2016 Source: Department of Toxic Substances Control

Number of Days to Update: 64 Telephone: 916-323-3400

Last EDR Contact :11/01/2016

RIVERSIDE CO. LUST: Listing of Underground Tank Cleanup Sites

Standard Environmental Record Source: State and tribal leaking storage tank lists

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 06/13/2016 Source: Department of Environmental Health

Number of Days to Update: 81 Telephone: 951-358-5055

Last EDR Contact :09/19/2016

RIVERSIDE CO. UST: Underground Storage Tank Tank List

Standard Environmental Record Source: State and tribal registered storage tank lists

Underground storage tank sites located in Riverside county.

Date of Government Version: 07/13/2016 Source: Department of Environmental Health

Number of Days to Update: 21 Telephone: 951-358-5055

Last EDR Contact :09/19/2016

SAN DIEGO CO. HMMD: Hazardous Materials Management Division Database

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013 Source: Hazardous Materials Management Division

Number of Days to Update: 23 Telephone: 619-338-2268

Last EDR Contact :06/02/2016

SAN DIEGO CO. LF: Solid Waste Facilities

Standard Environmental Record Source: State and tribal landfill / solid waste disposal

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Number of Days to Update: 58
Last EDR Contact :11/16/2016

Source: Department of Health Services
Telephone: 619-338-2209

SAN DIEGO CO. SAM: Environmental Case Listing
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Number of Days to Update: 24
Last EDR Contact :09/02/2016

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371

SAN FRANCISCO CO. LUST: Local Oversite Facilities
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Number of Days to Update: 10
Last EDR Contact :11/07/2016

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920

SAN FRANCISCO CO. UST: Underground Storage Tank Information
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Number of Days to Update: 5
Last EDR Contact :11/16/2016

Source: Department of Public Health
Telephone: 415-252-3920

SAN JOSE HAZMAT: Hazardous Material Facilities
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/03/2016
Number of Days to Update: 60
Last EDR Contact :11/07/2016

Source: City of San Jose Fire Department
Telephone: 408-535-7694

SAN MATEO CO. LUST: Fuel Leak List
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/09/2016
Number of Days to Update: 57
Last EDR Contact :09/12/2016

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921

SCH: School Property Evaluation Program
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 08/01/2016
Source: Department of Toxic Substances Control
Number of Days to Update: 64
Telephone: 916-323-3400
Last EDR Contact :11/01/2016

SLIC: Statewide SLIC Cases

Standard Environmental Record Source: State and tribal leaking storage tank lists

Search Distance: 0.333 Mile

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/12/2016
Source: State Water Resources Control Board
Number of Days to Update: 31
Telephone: 866-480-1028
Last EDR Contact :11/01/2016

SLIC REG 1: Active Toxic Site Investigations

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Source: California Regional Water Quality Control Board, North Coast Region (1)
Number of Days to Update: 18
Telephone: 707-576-2220
Last EDR Contact :08/01/2011

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Number of Days to Update: 30
Telephone: 510-286-0457
Last EDR Contact :09/19/2011

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Source: California Regional Water Quality Control Board Central Coast Region (3)
Number of Days to Update: 28
Telephone: 805-549-3147
Last EDR Contact :07/18/2011

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Source: Region Water Quality Control Board Los Angeles Region (4)

Number of Days to Update: 47
Telephone: 213-576-6600
Last EDR Contact :07/01/2011

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Source: Regional Water Quality Control Board Central Valley Region (5)
Number of Days to Update: 16
Telephone: 916-464-3291
Last EDR Contact :09/12/2011

SLIC REG 6L: SLIC Sites

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Source: California Regional Water Quality Control Board, Lahontan Region
Number of Days to Update: 35
Telephone: 530-542-5574
Last EDR Contact :08/15/2011

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Source: Regional Water Quality Control Board, Victorville Branch
Number of Days to Update: 22
Telephone: 619-241-6583
Last EDR Contact :08/15/2011

SLIC REG 7: SLIC List

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Source: California Regional Quality Control Board, Colorado River Basin Region
Number of Days to Update: 36
Telephone: 760-346-7491
Last EDR Contact :08/01/2011

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Source: California Region Water Quality Control Board Santa Ana Region (8)
Number of Days to Update: 11
Telephone: 951-782-3298
Last EDR Contact :09/12/2011

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Source: California Regional Water Quality Control Board San Diego Region (9)
Number of Days to Update: 17
Telephone: 858-467-2980
Last EDR Contact :08/08/2011

SOLANO CO. LUST: Leaking Underground Storage Tanks
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/09/2016
Source: Solano County Department of Environmental Management
Number of Days to Update: 57
Telephone: 707-784-6770
Last EDR Contact :09/26/2016

SOLANO CO. UST: Underground Storage Tanks
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Solano county.

Date of Government Version: 09/26/2016
Source: Solano County Department of Environmental Management
Number of Days to Update: 19
Telephone: 707-784-6770
Last EDR Contact :09/26/2016

SONOMA CO. LUST: Leaking Underground Storage Tank Sites
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/01/2016
Source: Department of Health Services
Number of Days to Update: 44
Telephone: 707-565-6565
Last EDR Contact :09/26/2016

SUTTER CO. UST: Underground Storage Tanks
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/02/2016
Source: Sutter County Department of Agriculture
Number of Days to Update: 16
Telephone: 530-822-7500
Last EDR Contact :09/02/2016

SWEEPS UST: SWEEPS UST Listing
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Source: State Water Resources Control Board
Number of Days to Update: 35
Telephone: Not Reported
Last EDR Contact :06/03/2005

SWF/LF (SWIS): Solid Waste Information System
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Search Distance: 0.333 Mile

Active, Closed and Inactive Landfills.SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills.These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteriafor solid waste landfills or disposal sites.

Date of Government Version: 08/15/2016
Number of Days to Update: 50
Last EDR Contact :11/15/2016

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320

SWRCY: Recycler Database

Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Search Distance: 0.333 Mile

A listing of recycling facilities in California.

Date of Government Version: 09/12/2016
Number of Days to Update: 30
Last EDR Contact :09/14/2016

Source: Department of Conservation
Telephone: 916-323-3836

Sacramento Co. CS: Toxic Site Clean-Up List

Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/22/2016
Number of Days to Update: 45
Last EDR Contact :10/04/2016

Source: Sacramento County Environmental Management
Telephone: 916-875-8406

Sacramento Co. ML: Master Hazardous Materials Facility List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/02/2016
Number of Days to Update: 43
Last EDR Contact :10/04/2016

Source: Sacramento County Environmental Management
Telephone: 916-875-8406

San Bern. Co. Permit: Hazardous Material Permits

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 09/06/2016
Number of Days to Update: 42
Last EDR Contact :11/07/2016

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041

San Mateo Co. BI: Business Inventory

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Number of Days to Update: 15
Last EDR Contact :09/12/2016

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921

TORRANCE UST: City of Torrance Underground Storage Tank
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/23/2016
Number of Days to Update: 28
Last EDR Contact :10/07/2016

Source: City of Torrance Fire Department
Telephone: 310-618-2973

TOXIC PITS: Toxic Pits Cleanup Act Sites
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Number of Days to Update: 27
Last EDR Contact :01/26/2009

Source: State Water Resources Control Board
Telephone: 916-227-4364

UIC: UIC Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Number of Days to Update: 30
Last EDR Contact :09/14/2016

Source: Deaprtment of Conservation
Telephone: 916-445-2408

UST: Active UST Facilities
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Number of Days to Update: 30
Last EDR Contact :09/14/2016

Source: SWRCB
Telephone: 916-341-5851

UST MENDOCINO: Mendocino County UST Database
Standard Environmental Record Source: State and tribal registered storage tank lists
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2016
Number of Days to Update: 23
Last EDR Contact :09/12/2016

Source: Department of Public Health
Telephone: 707-463-4466

UST SAN JOAQUIN: San Joaquin Co. UST
Standard Environmental Record Source: State and tribal registered storage tank lists
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/21/2016
Number of Days to Update: 26
Last EDR Contact :09/19/2016

Source: Environmental Health Department
Telephone: Not Reported

VCP: Voluntary Cleanup Program Properties

Standard Environmental Record Source: State and tribal voluntary cleanup sites
Search Distance: 0.333 Mile

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 08/01/2016
Number of Days to Update: 64
Last EDR Contact :11/01/2016

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

VENTURA CO. BWT: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 06/28/2016
Number of Days to Update: 53
Last EDR Contact :10/24/2016

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813

VENTURA CO. LF: Inventory of Illegal Abandoned and Inactive Sites

Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Number of Days to Update: 49
Last EDR Contact :09/29/2016

Source: Environmental Health Division
Telephone: 805-654-2813

VENTURA CO. LUST: Listing of Underground Tank Cleanup Sites

Standard Environmental Record Source: State and tribal leaking storage tank lists
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Number of Days to Update: 37
Last EDR Contact :11/14/2016

Source: Environmental Health Division
Telephone: 805-654-2813

VENTURA CO. UST: Underground Tank Closed Sites List

Standard Environmental Record Source: State and tribal registered storage tank lists
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/29/2016
Number of Days to Update: 27
Last EDR Contact :09/14/2016

Source: Environmental Health Division
Telephone: 805-654-2813

WDS: Waste Discharge System

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Number of Days to Update: 9
Last EDR Contact :11/16/2016
Source: State Water Resources Control Board
Telephone: 916-341-5227

WIP: Well Investigation Program Case List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Number of Days to Update: 13
Last EDR Contact :09/23/2016
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726

WMUDS/SWAT: Waste Management Unit Database

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Number of Days to Update: 30
Last EDR Contact :11/07/2016
Source: State Water Resources Control Board
Telephone: 916-227-4448

YOLO CO. UST: Underground Storage Tank Comprehensive Facility Report

Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/30/2016
Number of Days to Update: 48
Last EDR Contact :11/14/2016
Source: Yolo County Department of Health
Telephone: 530-666-8646

2020 COR ACTION: 2020 Corrective Action Program List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Number of Days to Update: 6
Last EDR Contact :11/11/2016
Source: Environmental Protection Agency
Telephone: 703-308-4044

COAL ASH DOE: Steam-Electric Plant Operation Data

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Source: Department of Energy

Number of Days to Update: 76 Telephone: 202-586-8719
Last EDR Contact :09/09/2016

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014 Source: Environmental Protection Agency
Number of Days to Update: 40 Telephone: Not Reported
Last EDR Contact :09/06/2016

CONSENT: Superfund (CERCLA) Consent Decrees
Standard Environmental Record Source: Federal NPL
Search Distance: 0.333 Mile

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2016 Source: Department of Justice, Consent Decree Library
Number of Days to Update: 53 Telephone: Varies
Last EDR Contact :09/26/2016

CORRACTS: Corrective Action Report
Standard Environmental Record Source: Federal RCRA CORRACTS facilities list
Search Distance: 0.333 Mile

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/27/2016 Source: EPA
Number of Days to Update: 64 Telephone: 800-424-9346
Last EDR Contact :09/28/2016

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Search Distance: 0.333 Mile

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009 Source: EPA, Region 9
Number of Days to Update: 137 Telephone: 415-947-4219
Last EDR Contact :10/24/2016

DOCKET HWC: Hazardous Waste Compliance Docket Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016 Source: Environmental Protection Agency
Number of Days to Update: 91 Telephone: 202-564-0527
Last EDR Contact :08/24/2016

DOT OPS: Incident and Accident Data
Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Number of Days to Update: 42
Last EDR Contact :11/02/2016

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595

Delisted NPL: National Priority List Deletions

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/07/2016
Number of Days to Update: 10
Last EDR Contact :10/05/2016

Source: EPA
Telephone: Not Reported

ECHO: Enforcement & Compliance History Information

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/18/2016
Number of Days to Update: 31
Last EDR Contact :09/20/2016

Source: Environmental Protection Agency
Telephone: 202-564-2280

EPA WATCH LIST: EPA WATCH LIST

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Number of Days to Update: 88
Last EDR Contact :11/08/2016

Source: Environmental Protection Agency
Telephone: 617-520-3000

ERNS: Emergency Response Notification System

Standard Environmental Record Source: Federal ERNS list
Search Distance: Property

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Number of Days to Update: 43
Last EDR Contact :09/29/2016

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180

FEMA UST: Underground Storage Tank Listing

Standard Environmental Record Source: State and tribal registered storage tank lists

Search Distance: Property

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Source: FEMA
Number of Days to Update: 55
Telephone: 202-646-5797
Last EDR Contact :10/11/2016

FINDS: Facility Index System/Facility Registry System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Source: EPA
Number of Days to Update: 65
Telephone: Not Reported
Last EDR Contact :09/07/2016

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Number of Days to Update: 25
Telephone: 202-566-1667
Last EDR Contact :11/17/2016

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Standard Environmental Record Source: Other Standard Environmental Records

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Source: EPA
Number of Days to Update: 25
Telephone: 202-566-1667
Last EDR Contact :11/17/2016

FUDS: Formerly Used Defense Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Source: U.S. Army Corps of Engineers
Number of Days to Update: 97
Telephone: 202-528-4285
Last EDR Contact :09/09/2016

FUELS PROGRAM: EPA Fuels Program Registered Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2016
Number of Days to Update: 59
Last EDR Contact :11/22/2016
Source: EPA
Telephone: 800-385-6164

FUSRAP: Formerly Utilized Sites Remedial Action Program

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016
Number of Days to Update: 59
Last EDR Contact :11/08/2016
Source: Department of Energy
Telephone: 202-586-3559

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Number of Days to Update: 40
Last EDR Contact :12/17/2007
Source: Environmental Protection Agency
Telephone: 202-564-2501

HMIRS: Hazardous Materials Information Reporting System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/27/2016
Number of Days to Update: 87
Last EDR Contact :09/27/2016
Source: U.S. Department of Transportation
Telephone: 202-366-4555

ICIS: Integrated Compliance Information System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/27/2016
Number of Days to Update: 77
Last EDR Contact :10/11/2016
Source: Environmental Protection Agency
Telephone: 202-564-5088

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal leaking storage tank lists

RECORD SOURCES AND CURRENCY

Search Distance: 0.333 Mile

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Number of Days to Update: 67
Last EDR Contact :10/28/2016

Source: EPA Region 1
Telephone: 617-918-1313

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Number of Days to Update: 41
Last EDR Contact :10/28/2016

Source: EPA Region 10
Telephone: 206-553-2857

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Number of Days to Update: 35
Last EDR Contact :10/28/2016

Source: EPA Region 4
Telephone: 404-562-8677

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Number of Days to Update: 37
Last EDR Contact :10/28/2016

Source: EPA, Region 5
Telephone: 312-886-7439

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Number of Days to Update: 105
Last EDR Contact :10/28/2016

Source: EPA Region 6
Telephone: 214-665-6597

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015
Number of Days to Update: 112
Last EDR Contact :10/28/2016

Source: EPA Region 7
Telephone: 913-551-7003

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6271

Last EDR Contact :10/28/2016

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal leaking storage tank lists

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Source: Environmental Protection Agency
Number of Days to Update: 37
Telephone: 415-972-3372
Last EDR Contact :10/28/2016

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Source: Environmental Protection Agency
Number of Days to Update: 52
Telephone: 703-308-8245
Last EDR Contact :10/31/2016

INDIAN UST R1: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

Search Distance: Property

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Source: EPA, Region 1
Number of Days to Update: 67
Telephone: 617-918-1313
Last EDR Contact :10/28/2016

INDIAN UST R10: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Source: EPA Region 10
Number of Days to Update: 41
Telephone: 206-553-2857
Last EDR Contact :10/28/2016

INDIAN UST R4: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Source: EPA Region 4
Number of Days to Update: 35
Telephone: 404-562-9424
Last EDR Contact :10/28/2016

INDIAN UST R5: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Source: EPA Region 5

Number of Days to Update: 52 Telephone: 312-886-6136
Last EDR Contact :10/28/2016

INDIAN UST R6: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015 Source: EPA Region 6
Number of Days to Update: 120 Telephone: 214-665-7591
Last EDR Contact :10/28/2016

INDIAN UST R7: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014 Source: EPA Region 7
Number of Days to Update: 65 Telephone: 913-551-7003
Last EDR Contact :10/28/2016

INDIAN UST R8: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016 Source: EPA Region 8
Number of Days to Update: 119 Telephone: 303-312-6137
Last EDR Contact :10/28/2016

INDIAN UST R9: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016 Source: EPA Region 9
Number of Days to Update: 37 Telephone: 415-972-3368
Last EDR Contact :10/28/2016

INDIAN VCP R1: Voluntary Cleanup Priority Listing

Standard Environmental Record Source: State and tribal voluntary cleanup sites

Search Distance: Property

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015 Source: EPA, Region 1
Number of Days to Update: 142 Telephone: 617-918-1102
Last EDR Contact :09/26/2016

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

Standard Environmental Record Source: State and tribal voluntary cleanup sites

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008 Source: EPA, Region 7
Number of Days to Update: 27 Telephone: 913-551-7365

Last EDR Contact :04/20/2009

LEAD SMELTER 1: Lead Smelter Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of former lead smelter site locations.

Date of Government Version: 03/07/2016 Source: Environmental Protection Agency

Number of Days to Update: 148 Telephone: 703-603-8787

Last EDR Contact :10/20/2016

LEAD SMELTER 2: Lead Smelter Sites

Standard Environmental Record Source: Other Standard Environmental Records

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001 Source: American Journal of Public Health

Number of Days to Update: 36 Telephone: 703-305-6451

Last EDR Contact :12/02/2009

LIENS 2: CERCLA Lien Information

Standard Environmental Record Source: Federal CERCLIS

Search Distance: Property

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014 Source: Environmental Protection Agency

Number of Days to Update: 37 Telephone: 202-564-6023

Last EDR Contact :10/28/2016

LUCIS: Land Use Control Information System

Standard Environmental Record Source: Federal institutional controls / engineering controls registries

Search Distance: 0.333 Mile

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015 Source: Department of the Navy

Number of Days to Update: 13 Telephone: 843-820-7326

Last EDR Contact :11/18/2016

MLTS: Material Licensing Tracking System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016 Source: Nuclear Regulatory Commission

Number of Days to Update: 43 Telephone: 301-415-7169

Last EDR Contact :11/07/2016

NPL: National Priority List

Standard Environmental Record Source: Federal NPL

Search Distance: 0.333 Mile

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/07/2016 Source: EPA

Number of Days to Update: 10 Telephone: Not Reported

Last EDR Contact :10/05/2016

NPL Site Boundaries

Sources:

EPA"s Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-566-0690

EPA Region 1
Telephone: 617-918-1102

EPA Region 2
Telephone: 212-637-4293

EPA Region 3
Telephone: 215-814-5418

EPA Region 4
Telephone: 404-562-8681

EPA Region 5
Telephone: 312-353-1063

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6118

EPA Region 9
Telephone: 415-947-4579

EPA Region 10
Telephone: 206-553-4479

NPL LIENS: Federal Superfund Liens

Standard Environmental Record Source: Federal NPL

Search Distance: Property

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991 Source: EPA

Number of Days to Update: 56 Telephone: 202-564-4267

Last EDR Contact :08/15/2011

ODI: Open Dump Inventory

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Number of Days to Update: 39
Last EDR Contact :06/09/2004

Source: Environmental Protection Agency
Telephone: 800-424-9346

PADS: PCB Activity Database System

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Number of Days to Update: 127
Last EDR Contact :10/14/2016

Source: EPA
Telephone: 202-566-0500

PCB TRANSFORMER: PCB Transformer Registration Database

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Number of Days to Update: 83
Last EDR Contact :10/28/2016

Source: Environmental Protection Agency
Telephone: 202-566-0517

Proposed NPL: Proposed National Priority List Sites

Standard Environmental Record Source: Federal NPL
Search Distance: 0.333 Mile

A site that has been proposed for listing on the NationalPriorities List through the issuance of a proposed rule in the Federal Register.EPA then accepts public comments on the site, responds to the comments,and places on the NPL those sites that continue to meet therequirements for listing.

Date of Government Version: 03/07/2016
Number of Days to Update: 10
Last EDR Contact :10/05/2016

Source: EPA
Telephone: Not Reported

RAATS: RCRA Administrative Action Tracking System

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Number of Days to Update: 35
Last EDR Contact :06/02/2008

Source: EPA
Telephone: 202-564-4104

RADINFO: Radiation Information Database

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/03/2016
Number of Days to Update: 16
Last EDR Contact :10/05/2016

Source: Environmental Protection Agency
Telephone: 202-343-9775

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/21/2016
Number of Days to Update: 64
Last EDR Contact :09/28/2016

Source: Environmental Protection Agency
Telephone: 703-308-8895

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

Standard Environmental Record Source: Federal RCRA generators list

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016
Number of Days to Update: 64
Last EDR Contact :09/28/2016

Source: Environmental Protection Agency
Telephone: 703-308-8895

RCRA-LQG: RCRA - Large Quantity Generators

Standard Environmental Record Source: Federal RCRA generators list

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016
Number of Days to Update: 64
Last EDR Contact :09/28/2016

Source: Environmental Protection Agency
Telephone: 703-308-8895

RCRA-SQG: RCRA - Small Quantity Generators

Standard Environmental Record Source: Federal RCRA generators list

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/21/2016
Number of Days to Update: 64
Last EDR Contact :09/28/2016

Source: Environmental Protection Agency
Telephone: 703-308-8895

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

Standard Environmental Record Source: Federal RCRA TSD facilities list

Search Distance: 0.333 Mile

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/21/2016
Source: Environmental Protection Agency
Number of Days to Update: 64
Telephone: 703-308-8895
Last EDR Contact :09/28/2016

ROD: Records Of Decision

Standard Environmental Record Source: Federal NPL

Search Distance: 0.333 Mile

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Source: EPA
Number of Days to Update: 74
Telephone: 703-416-0223
Last EDR Contact :09/09/2016

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Source: Environmental Protection Agency
Number of Days to Update: 54
Telephone: 615-532-8599
Last EDR Contact :11/17/2016

SEMS: Superfund Enterprise Management System

Standard Environmental Record Source: Federal CERCLIS

Search Distance: 0.333 Mile

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/07/2016
Source: EPA
Number of Days to Update: 10
Telephone: 800-424-9346
Last EDR Contact :10/20/2016

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/07/2016 Source: EPA
Number of Days to Update: 10 Telephone: 800-424-9346
Last EDR Contact :10/20/2016

SSTS: Section 7 Tracking Systems

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009 Source: EPA
Number of Days to Update: 77 Telephone: 202-564-4203
Last EDR Contact :10/24/2016

TRIS: Toxic Chemical Release Inventory System

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014 Source: EPA
Number of Days to Update: 133 Telephone: 202-566-0250
Last EDR Contact :11/22/2016

TSCA: Toxic Substances Control Act

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012 Source: EPA
Number of Days to Update: 14 Telephone: 202-260-5521
Last EDR Contact :09/23/2016

UMTRA: Uranium Mill Tailings Sites

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010 Source: Department of Energy
Number of Days to Update: 146 Telephone: 505-845-0011

Last EDR Contact :09/09/2016

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 06/30/2016 Source: EPA

Number of Days to Update: 88 Telephone: 202-564-2496

Last EDR Contact :09/26/2016

US AIRS MINOR: Air Facility System Data

Standard Environmental Record Source: Other Standard Environmental Records

A listing of minor source facilities.

Date of Government Version: 06/30/2016 Source: EPA

Number of Days to Update: 88 Telephone: 202-564-2496

Last EDR Contact :09/26/2016

US BROWNFIELDS: A Listing of Brownfields Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/20/2016 Source: Environmental Protection Agency

Number of Days to Update: 51 Telephone: 202-566-2777

Last EDR Contact :09/21/2016

US CDL: Clandestine Drug Labs

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/30/2016 Source: Drug Enforcement Administration

Number of Days to Update: 17 Telephone: 202-307-1000

Last EDR Contact :08/31/2016

US ENG CONTROLS: Engineering Controls Sites List

Standard Environmental Record Source: Federal institutional controls / engineering controls registries

Search Distance: Property

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/09/2016
Number of Days to Update: 93
Last EDR Contact :08/31/2016

Source: Environmental Protection Agency
Telephone: 703-603-0695

US FIN ASSUR: Financial Assurance Information

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 07/12/2016
Number of Days to Update: 65
Last EDR Contact :11/16/2016

Source: Environmental Protection Agency
Telephone: 202-566-1917

US HIST CDL: National Clandestine Laboratory Register

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 08/31/2016
Number of Days to Update: 17
Last EDR Contact :08/31/2016

Source: Drug Enforcement Administration
Telephone: 202-307-1000

US INST CONTROL: Sites with Institutional Controls

Standard Environmental Record Source: Federal institutional controls / engineering controls registries

Search Distance: Property

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/09/2016
Number of Days to Update: 93
Last EDR Contact :08/31/2016

Source: Environmental Protection Agency
Telephone: 703-603-0695

US MINES: Mines Master Index File

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016
Number of Days to Update: 22
Last EDR Contact :09/01/2016

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

Standard Environmental Record Source: Other Standard Environmental Records

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Source: USGS
Number of Days to Update: 49
Telephone: 703-648-7709
Last EDR Contact :09/02/2016

US MINES 3: Active Mines & Mineral Plants Database Listing

Standard Environmental Record Source: Other Standard Environmental Records

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Source: USGS
Number of Days to Update: 97
Telephone: 703-648-7709
Last EDR Contact :09/02/2016

AOCONCERN: San Gabriel Valley Areas of Concern

Standard Environmental Record Source: State and tribal - equivalent CERCLIS

Search Distance: 0.333 Mile

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Source: EPA Region 9
Number of Days to Update: 206
Telephone: 415-972-3178
Last EDR Contact :09/19/2016

DOD: Department of Defense Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Source: USGS
Number of Days to Update: 62
Telephone: 888-275-8747
Last EDR Contact :10/14/2016

INDIAN RESERV: Indian Reservations

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Source: USGS
Number of Days to Update: 34
Telephone: 202-208-3710
Last EDR Contact :10/14/2016

PWS: Public Water System Data

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 12/17/2013
Source: EPA
Number of Days to Update: 279
Telephone: Not Reported

RECORD SOURCES AND CURRENCY

Last EDR Contact :08/29/2016

RECORD SOURCES AND CURRENCY

HISTORICAL USE RECORDS

RGA LF: Recovered Government Archive Solid Waste Facilities List

Standard Environmental Record Source: Exclusive Recovered Govt. Archives

Search Distance: Property

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: Not Reported
Number of Days to Update: 196
Last EDR Contact :06/01/2012

Source: Department of Resources Recycling and Recovery
Telephone: Not Reported

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

Standard Environmental Record Source: Exclusive Recovered Govt. Archives

Search Distance: Property

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: Not Reported
Number of Days to Update: 182
Last EDR Contact :06/01/2012

Source: State Water Resources Control Board
Telephone: Not Reported

EDR Hist Auto: EDR Exclusive Historic Gas Stations

Standard Environmental Record Source: Historical Gas Stations

Search Distance: 0.125 Mile

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: 02/20/2007
Number of Days to Update: 42
Last EDR Contact :02/21/2007

Source: EDR, Inc.
Telephone: Not Reported

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

Standard Environmental Record Source: Historical Dry Cleaners

Search Distance: 0.125 Mile

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: 02/20/2007
Number of Days to Update: 42
Last EDR Contact :02/21/2007

Source: EDR, Inc.
Telephone: Not Reported

EDR MGP: EDR Proprietary Manufactured Gas Plants

Standard Environmental Record Source: Former manufactured Gas Plants

Search Distance: 0.333 Mile

RECORD SOURCES AND CURRENCY

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: 08/28/2009
Number of Days to Update: 55
Last EDR Contact :11/30/2012

Source: EDR, Inc.
Telephone: Not Reported

RECORD SOURCES AND CURRENCY

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5' minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW® Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW® Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services. The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

STREET AND ADDRESS INFORMATION

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Appendix J

Noise Impacts Assessment Data

Dudek, December 2016

Noise Appendix - Field Data Sheets

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Field Noise Measurement Data

Record: 283	
Project Name	*University Village Merced*
Project #	*10049*
Observer(s)	*Christopher Barnobi*
Date	*2016-12-19*
autoemail	*cbarnobi@dudek.com*

Meteorological Conditions	
Temp (F)	*51*
Humidity % (R.H.)	*52*
Wind	*Calm*
Wind Speed (MPH)	*3*
Wind Direction	*West*
Sky	*Clear*

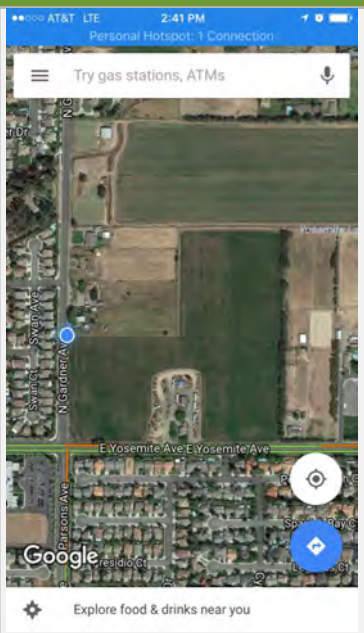
Instrument and Calibrator Information	
Instrument Name List	*(AUB) NL-62*
Instrument Name	*(AUB) NL-62*
Instrument Name Lookup Key	*(AUB) NL-62*
Manufacturer	*Rion*
Model	*NL-62*
Serial Number	*350815*
Calibration Date	*2/10/2016*
Calibrator Name	*(SAC) Rion NC-74*
Calibrator Name	*(SAC) Rion NC-74*
Calibrator Name Lookup Key	*(SAC) Rion NC-74*
Calibrator Manufacturer	*Rion*
Calibrator Model	*NC-74*
Calibrator Serial #	*34167529*
GPS Assistance Used	*No*
Pre-Test (dBA SPL)	*94*
Windscreen	*Yes*
Weighting?	*A-WTD*
Slow/Fast?	*Slow*

Recordings	
Record #	*12200003*
Site ID	*3570 N Garder Ave*
Site Location	*Latitude:37.333997, Longitude:-120.450883, Altitude:48.133241, Speed:0.200000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:2:36:53 PM PST*
Begin (Time)	*14:34:00*
End (Time)	*14:49:00*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Traffic*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

ZerionSoftware

Source Info and Traffic Counts	
Distance to Roadway (feet)	*22*
Distance to Roadway - Centerline/Edge of Pavement	*Centerline*
Roadway Type	*Hard paved*
Estimated Vehicle Speed (MPH)	*35*
Count Duration (Min)	*15*
Speeds Estimated by:	*Driving the Pace*
Posted Speed Limit Sign (MPH)	*35*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*23*
Buses	*1*
Number of Vehicles - Buses	*1*

Description / Photos	
Upload Google Maps Data	

ZerionSoftware

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Site Photos	
Photo	

Recordings	
Record #	*12200004*
Site ID	*Yosemite ave*
Site Location	*Latitude:37.332229, Longitude:-120.448268, Altitude:51.430176, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:2:56:21 PM PST*
Begin (Time)	*14:53:00*
End (Time)	*15:08:00*
Leq	*70*
Lmax	*83.7*
Other Lx?	*L90, L10*
L90	*48.4*
L10	*75.1*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Dog Barking, Distant Traffic*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

ZerionSoftware

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Source Info and Traffic Counts	
Distance to Roadway (feet)	*11*
Distance to Roadway - Centerline/Edge of Pavement	*Edge of Pavement*
Roadway Type	*Hard 3 lanes paved*
Estimated Vehicle Speed (MPH)	*35*
Count Duration (Min)	*15*
Speeds Estimated by:	*Driving the Pace*
Posted Speed Limit Sign (MPH)	*35*

Traffic Counts	
Counting Both Directions?	*Yes*
Autos	*1*
Number of Vehicles - Autos	*101*

Description / Photos	
Upload Google Maps Data	
Terrain	*Hard*

Site Photos

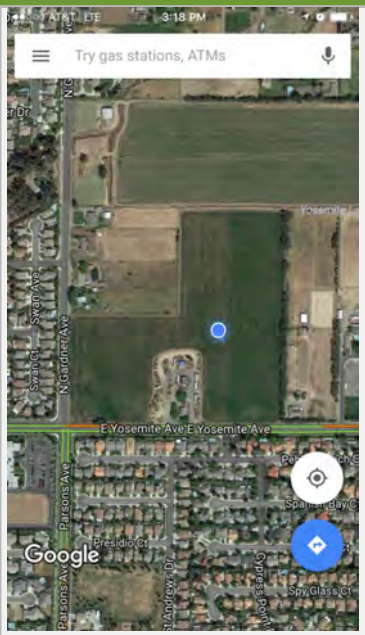
ZerionSoftware

Photo	



Recordings	
Record #	*12200005*
Site ID	*Center site*
Site Location	*Latitude:37.333720, Longitude:-120.447753, Altitude:48.649719, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:6.000000, Time:3:19:41 PM PST*
Begin (Time)	*15:16:00*
End (Time)	*15:21:00*
Leq	*43.4*
Lmax	*53.5*
Other Lx?	*L90, L10*
L90	*40.7*
L10	*44.9*
Other (Specify Metric)	
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Dog Barking, Distant Traffic*
Other Noise Sources Additional Description	*Center of site short term ambient measurement*
Is the same instrument and calibrator being used as previously notated?	*Yes*
Are the meteorological conditions the same as previously notated?	*Yes*

ZerionSoftware

Description / Photos	
Upload Google Maps Data	
Terrain	*Soft*

Site Photos	
Photo	

ZerionSoftware

Noise Appendix - RCNM Inputs/Outputs

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2020
Case Description: Demolition

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	150	0
Excavator	No	40		80.7	75	0
Excavator	No	40		80.7	75	0
Excavator	No	40		80.7	75	0
Dozer	No	40		81.7	75	0
Dozer	No	40		81.7	75	0
Dump Truck	No	40		76.5	75	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Concrete Saw	80	73
Excavator	77.2	73.2
Excavator	77.2	73.2
Excavator	77.2	73.2
Dozer	78.1	74.2
Dozer	78.1	74.2
Dump Truck	72.9	68.9
Total	80	81.6

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Acoustic Center	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	325	0
Excavator	No	40		80.7	325	0
Excavator	No	40		80.7	325	0
Excavator	No	40		80.7	325	0
Dozer	No	40		81.7	325	0
Dozer	No	40		81.7	325	0
Dump Truck	No	40		76.5	325	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		73.3	66.3
Excavator		64.5	60.5
Excavator		64.5	60.5
Excavator		64.5	60.5
Dozer		65.4	61.4
Dozer		65.4	61.4
Dump Truck		60.2	56.2
	Total	73.3	70.4

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2020
Case Description: Site Preparation

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	75	0
Backhoe	No	40		77.6	75	0
Backhoe	No	40		77.6	75	0
Backhoe	No	40		77.6	75	0
Dozer	No	40		81.7	75	0
Dozer	No	40		81.7	75	0
Dozer	No	40		81.7	75	0
Dump Truck	No	40		76.5	75	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Backhoe		74	70.1
Backhoe		74	70.1
Backhoe		74	70.1
Backhoe		74	70.1
Dozer		78.1	74.2
Dozer		78.1	74.2
Dozer		78.1	74.2
Dump Truck		72.9	68.9
	Total	78.1	81

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Acoustic Center	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	325	0
Backhoe	No	40		77.6	325	0
Backhoe	No	40		77.6	325	0
Backhoe	No	40		77.6	325	0
Dozer	No	40		81.7	325	0
Dozer	No	40		81.7	325	0
Dozer	No	40		81.7	325	0
Dump Truck	No	40		76.5	325	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Backhoe		61.3	57.3
Backhoe		61.3	57.3
Backhoe		61.3	57.3
Backhoe		61.3	57.3
Dozer		65.4	61.4
Dozer		65.4	61.4
Dozer		65.4	61.4
Dump Truck		60.2	56.2
	Total	65.4	68.3

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2020
Case Description: Grading

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	75	0
Backhoe	No	40		77.6	75	0
Excavator	No	40		80.7	75	0
Excavator	No	40		80.7	75	0
Dozer	No	40		81.7	75	0
Grader	No	40	85		75	0
Scraper	No	40		83.6	75	0
Scraper	No	40		83.6	75	0
Dump Truck	No	40		76.5	75	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Backhoe		74	70.1
Backhoe		74	70.1
Excavator		77.2	73.2
Excavator		77.2	73.2
Dozer		78.1	74.2
Grader		81.5	77.5
Scraper		80.1	76.1
Scraper		80.1	76.1
Dump Truck		72.9	68.9
	Total	81.5	83.7

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Acoustic Center	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	325	0
Backhoe	No	40		77.6	325	0
Excavator	No	40		80.7	325	0
Excavator	No	40		80.7	325	0
Dozer	No	40		81.7	325	0
Grader	No	40	85		325	0
Scraper	No	40		83.6	325	0
Scraper	No	40		83.6	325	0
Dump Truck	No	40		76.5	325	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Backhoe	61.3	57.3
Backhoe	61.3	57.3
Excavator	64.5	60.5
Excavator	64.5	60.5
Dozer	65.4	61.4
Grader	68.7	64.8
Scraper	67.3	63.3
Scraper	67.3	63.3
Dump Truck	60.2	56.2
Total	68.7	70.9

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2020
Case Description: Building Construction

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	75	0
Backhoe	No	40		77.6	75	0
Backhoe	No	40		77.6	75	0
Crane	No	16		80.6	75	0
Gradall	No	40		83.4	75	0
Gradall	No	40		83.4	75	0
Gradall	No	40		83.4	75	0
Generator	No	50		80.6	75	0
Welder / Torch	No	40		74	75	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Backhoe		74	70.1
Backhoe		74	70.1
Backhoe		74	70.1
Crane		77	69.1
Gradall		79.9	75.9
Gradall		79.9	75.9
Gradall		79.9	75.9
Generator		77.1	74.1
Welder / Torch		70.5	66.5
	Total	79.9	82.7

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Acoustic Center	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	325	0
Backhoe	No	40		77.6	325	0
Backhoe	No	40		77.6	325	0
Crane	No	16		80.6	325	0
Gradall	No	40		83.4	325	0
Gradall	No	40		83.4	325	0
Gradall	No	40		83.4	325	0
Generator	No	50		80.6	325	0
Welder / Torch	No	40		74	325	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Backhoe		61.3	57.3
Backhoe		61.3	57.3
Backhoe		61.3	57.3
Crane		64.3	56.3
Gradall		67.1	63.2
Gradall		67.1	63.2
Gradall		67.1	63.2
Generator		64.4	61.4
Welder / Torch		57.7	53.8
	Total	67.1	69.9

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2020
Case Description: Paving

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	75	0
Paver	No	50		77.2	75	0
Roller	No	20		80	75	0
Roller	No	20		80	75	0
Dump Truck	No	40		76.5	75	0
Dump Truck	No	40		76.5	75	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Paver		73.7	70.7
Paver		73.7	70.7
Roller		76.5	69.5
Roller		76.5	69.5
Dump Truck		72.9	68.9
Dump Truck		72.9	68.9
	Total	76.5	77.6

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Acoustic Center	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	325	0
Paver	No	50		77.2	325	0
Roller	No	20		80	325	0
Roller	No	20		80	325	0
Dump Truck	No	40		76.5	325	0
Dump Truck	No	40		76.5	325	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Paver		61	58
Paver		61	58
Roller		63.7	56.8
Roller		63.7	56.8
Dump Truck		60.2	56.2
Dump Truck		60.2	56.2
	Total	63.7	64.8

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/17/2020
Case Description: Architectural Coatings

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	75	0
Compressor (air)	No	40		77.7	75	0
Compressor (air)	No	40		77.7	75	0

Results

Equipment	Calculated (dBA) *Lmax	Leq
Compressor (air)	74.1	70.2
Compressor (air)	74.1	70.2
Compressor (air)	74.1	70.2
Total	74.1	74.9

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Acoustic Center	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	325	0
Compressor (air)	No	40		77.7	325	0
Compressor (air)	No	40		77.7	325	0

Results

Equipment	Calculated (dBA) *Lmax	Leq
Compressor (air)	61.4	57.4
Compressor (air)	61.4	57.4
Compressor (air)	61.4	57.4
Total	61.4	62.2

*Calculated Lmax is the Loudest value.

Noise Appendix - TNM Inputs/Outputs

Dudek
JVL
28 July 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: University Village Merced
RUN: Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Gardner Ave East Side	1	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
Gardner Ave West Side	2	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
Yosemite South Side	3	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
Yosemite North Side	4	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
M1	5	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
M2	6	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	6	0.0	0.0	0.0
All Impacted	3	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek 28 July 2020
JVL TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: University Village Merced
RUN: Existing

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Gardner Avenue Lane 1	12.0	North End	1	6.0	1,200.0	0.00				Average	
		point2	2	6.0	1,000.0	0.00				Average	
		point3	3	6.0	800.0	0.00				Average	
		point4	4	6.0	600.0	0.00				Average	
		point5	5	6.0	400.0	0.00				Average	
		point6	6	6.0	200.0	0.00				Average	
		point7	7	6.0	0.0	0.00				Average	
		point8	8	6.0	-200.0	0.00				Average	
		South End	9	6.0	-400.0	0.00					
Gardner Avenue Lane 2	12.0	Gardner N	10	18.0	1,200.0	0.00				Average	
		point11	11	18.0	1,000.0	0.00				Average	
		point12	12	18.0	800.0	0.00				Average	
		point13	13	18.0	600.0	0.00				Average	
		point14	14	18.0	400.0	0.00				Average	
		point15	15	18.0	200.0	0.00				Average	
		point16	16	18.0	0.0	0.00				Average	
		point17	17	18.0	-200.0	0.00				Average	
		Gardner S	18	18.0	-400.0	0.00					
Gardner Avenue Lane 3	12.0	South End	19	30.0	-400.0	0.00				Average	
		point20	20	30.0	-200.0	0.00				Average	
		point21	21	30.0	0.0	0.00				Average	
		point22	22	30.0	200.0	0.00				Average	
		point23	23	30.0	400.0	0.00				Average	
		point24	24	30.0	600.0	0.00				Average	
		point25	25	30.0	800.0	0.00				Average	

		point26	26	30.0	1,000.0	0.00				Average	
		North End	27	30.0	1,200.0	0.00					
Yosemite Ave Lane 1	12.0	West End	28	40.0	220.0	0.00				Average	
		point29	29	200.0	220.0	0.00				Average	
		point30	30	400.0	220.0	0.00				Average	
		point31	31	600.0	220.0	0.00				Average	
		point32	32	800.0	220.0	0.00				Average	
		point33	33	1,000.0	220.0	0.00				Average	
		East End `	34	1,200.0	220.0	0.00					
Yosemite Ave Lane 2	12.0	West End	35	40.0	232.0	0.00				Average	
		point36	36	200.0	232.0	0.00				Average	
		point37	37	400.0	232.0	0.00				Average	
		point38	38	600.0	232.0	0.00				Average	
		point39	39	800.0	232.0	0.00				Average	
		point40	40	1,000.0	232.0	0.00				Average	
		East End `	41	1,200.0	232.0	0.00					
Yosemite Ave Lane 3	12.0	East End `	42	1,200.0	244.0	0.00				Average	
		point43	43	1,000.0	244.0	0.00				Average	
		point44	44	800.0	244.0	0.00				Average	
		point45	45	600.0	244.0	0.00				Average	
		point46	46	400.0	244.0	0.00				Average	
		point47	47	200.0	244.0	0.00				Average	
		West End	48	40.0	244.0	0.00					

Dudek				**28 July 2020**								
JVL				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**University Village Merced**											
RUN:	**Existing**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Gardner Avenue Lane 1	North End Gai	1	132	40	0	0	0	0	1	40	0	0
	point2	2	132	40	0	0	0	0	1	40	0	0
	point3	3	132	40	0	0	0	0	1	40	0	0
	point4	4	132	40	0	0	0	0	1	40	0	0
	point5	5	132	40	0	0	0	0	1	40	0	0
	point6	6	132	40	0	0	0	0	1	40	0	0
	point7	7	132	40	0	0	0	0	1	40	0	0
	point8	8	132	40	0	0	0	0	1	40	0	0
	South End Ga	9										
Gardner Avenue Lane 2	Gardner North	10	132	40	0	0	0	0	1	40	0	0
	point11	11	132	40	0	0	0	0	1	40	0	0
	point12	12	132	40	0	0	0	0	1	40	0	0
	point13	13	132	40	0	0	0	0	1	40	0	0
	point14	14	132	40	0	0	0	0	1	40	0	0
	point15	15	132	40	0	0	0	0	1	40	0	0
	point16	16	132	40	0	0	0	0	1	40	0	0
	point17	17	132	40	0	0	0	0	1	40	0	0
	Gardner South	18										
Gardner Avenue Lane 3	South End Ga	19	264	40	0	0	0	0	1	40	0	0
	point20	20	264	40	0	0	0	0	1	40	0	0
	point21	21	264	40	0	0	0	0	1	40	0	0
	point22	22	264	40	0	0	0	0	1	40	0	0
	point23	23	264	40	0	0	0	0	1	40	0	0

	point24	24	264	40	0	0	0	0	1	40	0	0
	point25	25	264	40	0	0	0	0	1	40	0	0
	point26	26	264	40	0	0	0	0	1	40	0	0
	North End Gar	27										
Yosemite Ave Lane 1	West End Yos	28	232	43	0	0	0	0	3	0	0	0
	point29	29	232	43	0	0	0	0	0	0	0	0
	point30	30	232	43	0	0	0	0	0	0	0	0
	point31	31	232	43	0	0	0	0	0	0	0	0
	point32	32	232	43	0	0	0	0	0	0	0	0
	point33	33	232	43	0	0	0	0	0	0	0	0
	East End Yose	34										
Yosemite Ave Lane 2	West End Yos	35	232	43	0	0	0	0	0	0	0	0
	point36	36	232	43	0	0	0	0	0	0	0	0
	point37	37	232	43	0	0	0	0	0	0	0	0
	point38	38	232	43	0	0	0	0	0	0	0	0
	point39	39	232	43	0	0	0	0	0	0	0	0
	point40	40	232	43	0	0	0	0	0	0	0	0
	East End Yose	41										
Yosemite Ave Lane 3	East End Yose	42	465	43	0	0	0	0	0	0	0	0
	point43	43	465	43	0	0	0	0	0	0	0	0
	point44	44	465	43	0	0	0	0	0	0	0	0
	point45	45	465	43	0	0	0	0	0	0	0	0
	point46	46	465	43	0	0	0	0	0	0	0	0
	point47	47	465	43	0	0	0	0	0	0	0	0
	West End Yos	48										

Dudek 28 July 2020
JVL TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: University Village Merced
RUN: Existing

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Gardner Ave East Side	1	1	66.0	-300.0	0.00	4.92	0.00	66	10.0	8.0	Y
Gardner Ave West Side	2	1	-10.0	525.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite South Side	3	1	400.0	165.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite North Side	4	1	350.0	280.0	0.00	4.92	0.00	66	10.0	8.0	Y
M1	5	1	38.0	910.0	0.00	4.92	0.00	66	10.0	8.0	Y
M2	6	1	835.0	252.0	0.00	4.92	0.00	66	10.0	8.0	Y

Dudek
JVL
28 July 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: University Village Merced
RUN: Existing Plus Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Gardner Ave East Side	1	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
Gardner Ave West Side	2	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
Yosemite South Side	3	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
Yosemite North Side	4	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
M1	5	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
M2	6	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	6	0.0	0.0	0.0
All Impacted	3	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek 28 July 2020
JVL TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: University Village Merced
RUN: Existing Plus Project

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Gardner Avenue Lane 1	12.0	North End	1	6.0	1,200.0	0.00				Average	
		point2	2	6.0	1,000.0	0.00				Average	
		point3	3	6.0	800.0	0.00				Average	
		point4	4	6.0	600.0	0.00				Average	
		point5	5	6.0	400.0	0.00				Average	
		point6	6	6.0	200.0	0.00				Average	
		point7	7	6.0	0.0	0.00				Average	
		point8	8	6.0	-200.0	0.00				Average	
		South End	9	6.0	-400.0	0.00					
Gardner Avenue Lane 2	12.0	Gardner N	10	18.0	1,200.0	0.00				Average	
		point11	11	18.0	1,000.0	0.00				Average	
		point12	12	18.0	800.0	0.00				Average	
		point13	13	18.0	600.0	0.00				Average	
		point14	14	18.0	400.0	0.00				Average	
		point15	15	18.0	200.0	0.00				Average	
		point16	16	18.0	0.0	0.00				Average	
		point17	17	18.0	-200.0	0.00				Average	
		Gardner S	18	18.0	-400.0	0.00					
Gardner Avenue Lane 3	12.0	South End	19	30.0	-400.0	0.00				Average	
		point20	20	30.0	-200.0	0.00				Average	
		point21	21	30.0	0.0	0.00				Average	
		point22	22	30.0	200.0	0.00				Average	
		point23	23	30.0	400.0	0.00				Average	
		point24	24	30.0	600.0	0.00				Average	
		point25	25	30.0	800.0	0.00				Average	

		point26	26	30.0	1,000.0	0.00				Average	
		North End	27	30.0	1,200.0	0.00					
Yosemite Ave Lane 1	12.0	West End	28	40.0	220.0	0.00				Average	
		point29	29	200.0	220.0	0.00				Average	
		point30	30	400.0	220.0	0.00				Average	
		point31	31	600.0	220.0	0.00				Average	
		point32	32	800.0	220.0	0.00				Average	
		point33	33	1,000.0	220.0	0.00				Average	
		East End `	34	1,200.0	220.0	0.00					
Yosemite Ave Lane 2	12.0	West End	35	40.0	232.0	0.00				Average	
		point36	36	200.0	232.0	0.00				Average	
		point37	37	400.0	232.0	0.00				Average	
		point38	38	600.0	232.0	0.00				Average	
		point39	39	800.0	232.0	0.00				Average	
		point40	40	1,000.0	232.0	0.00				Average	
		East End `	41	1,200.0	232.0	0.00					
Yosemite Ave Lane 3	12.0	East End `	42	1,200.0	244.0	0.00				Average	
		point43	43	1,000.0	244.0	0.00				Average	
		point44	44	800.0	244.0	0.00				Average	
		point45	45	600.0	244.0	0.00				Average	
		point46	46	400.0	244.0	0.00				Average	
		point47	47	200.0	244.0	0.00				Average	
		West End	48	40.0	244.0	0.00					

Dudek 28 July 2020
JVL TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: University Village Merced
RUN: Existing Plus Project

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Gardner Avenue Lane 1	North End Gar	1	136	40	0	0	0	0	1	40	0	0
	point2	2	136	40	0	0	0	0	1	40	0	0
	point3	3	136	40	0	0	0	0	1	40	0	0
	point4	4	136	40	0	0	0	0	1	40	0	0
	point5	5	136	40	0	0	0	0	1	40	0	0
	point6	6	136	40	0	0	0	0	1	40	0	0
	point7	7	136	40	0	0	0	0	1	40	0	0
	point8	8	136	40	0	0	0	0	1	40	0	0
	South End Ga	9										
Gardner Avenue Lane 2	Gardner North	10	136	40	0	0	0	0	1	40	0	0
	point11	11	136	40	0	0	0	0	1	40	0	0
	point12	12	136	40	0	0	0	0	1	40	0	0
	point13	13	136	40	0	0	0	0	1	40	0	0
	point14	14	136	40	0	0	0	0	1	40	0	0
	point15	15	136	40	0	0	0	0	1	40	0	0
	point16	16	136	40	0	0	0	0	1	40	0	0
	point17	17	136	40	0	0	0	0	1	40	0	0
	Gardner South	18										
Gardner Avenue Lane 3	South End Ga	19	272	40	0	0	0	0	1	40	0	0
	point20	20	272	40	0	0	0	0	1	40	0	0
	point21	21	272	40	0	0	0	0	1	40	0	0
	point22	22	272	40	0	0	0	0	1	40	0	0
	point23	23	272	40	0	0	0	0	1	40	0	0

	point24	24	272	40	0	0	0	0	1	40	0	0
	point25	25	272	40	0	0	0	0	1	40	0	0
	point26	26	272	40	0	0	0	0	1	40	0	0
	North End Gar	27										
Yosemite Ave Lane 1	West End Yos	28	277	43	0	0	0	0	0	0	0	0
	point29	29	277	43	0	0	0	0	0	0	0	0
	point30	30	277	43	0	0	0	0	0	0	0	0
	point31	31	277	43	0	0	0	0	0	0	0	0
	point32	32	277	43	0	0	0	0	0	0	0	0
	point33	33	277	43	0	0	0	0	0	0	0	0
	East End Yose	34										
Yosemite Ave Lane 2	West End Yos	35	277	43	0	0	0	0	0	0	0	0
	point36	36	277	43	0	0	0	0	0	0	0	0
	point37	37	277	43	0	0	0	0	0	0	0	0
	point38	38	277	43	0	0	0	0	0	0	0	0
	point39	39	277	43	0	0	0	0	0	0	0	0
	point40	40	277	43	0	0	0	0	0	0	0	0
	East End Yose	41										
Yosemite Ave Lane 3	East End Yose	42	554	43	0	0	0	0	0	0	0	0
	point43	43	554	43	0	0	0	0	0	0	0	0
	point44	44	554	43	0	0	0	0	0	0	0	0
	point45	45	554	43	0	0	0	0	0	0	0	0
	point46	46	554	43	0	0	0	0	0	0	0	0
	point47	47	554	43	0	0	0	0	0	0	0	0
	West End Yos	48										

Dudek 28 July 2020
JVL TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030 Plus Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Gardner Ave East Side	1	1	66.0	-300.0	0.00	4.92	0.00	66	10.0	8.0	Y
Gardner Ave West Side	2	1	-10.0	525.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite South Side	3	1	400.0	165.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite North Side	4	1	350.0	280.0	0.00	4.92	0.00	66	10.0	8.0	Y
M1	5	1	38.0	910.0	0.00	4.92	0.00	66	10.0	8.0	Y
M2	6	1	835.0	252.0	0.00	4.92	0.00	66	10.0	8.0	Y

Dudek
JVL
28 July 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Gardner Ave East Side	1	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
Gardner Ave West Side	2	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
Yosemite South Side	3	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
Yosemite North Side	4	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
M1	5	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
M2	6	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	6	0.0	0.0	0.0
All Impacted	5	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek 28 July 2020
JVL TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Gardner Avenue Lane 1	12.0	North End	1	6.0	1,200.0	0.00				Average	
		point2	2	6.0	1,000.0	0.00				Average	
		point3	3	6.0	800.0	0.00				Average	
		point4	4	6.0	600.0	0.00				Average	
		point5	5	6.0	400.0	0.00				Average	
		point6	6	6.0	200.0	0.00				Average	
		point7	7	6.0	0.0	0.00				Average	
		point8	8	6.0	-200.0	0.00				Average	
		South End	9	6.0	-400.0	0.00					
Gardner Avenue Lane 2	12.0	Gardner N	10	18.0	1,200.0	0.00				Average	
		point11	11	18.0	1,000.0	0.00				Average	
		point12	12	18.0	800.0	0.00				Average	
		point13	13	18.0	600.0	0.00				Average	
		point14	14	18.0	400.0	0.00				Average	
		point15	15	18.0	200.0	0.00				Average	
		point16	16	18.0	0.0	0.00				Average	
		point17	17	18.0	-200.0	0.00				Average	
		Gardner S	18	18.0	-400.0	0.00					
Gardner Avenue Lane 3	12.0	South End	19	30.0	-400.0	0.00				Average	
		point20	20	30.0	-200.0	0.00				Average	
		point21	21	30.0	0.0	0.00				Average	
		point22	22	30.0	200.0	0.00				Average	
		point23	23	30.0	400.0	0.00				Average	
		point24	24	30.0	600.0	0.00				Average	
		point25	25	30.0	800.0	0.00				Average	

		point26	26	30.0	1,000.0	0.00				Average	
		North End	27	30.0	1,200.0	0.00					
Yosemite Ave Lane 1	12.0	West End	28	40.0	220.0	0.00				Average	
		point29	29	200.0	220.0	0.00				Average	
		point30	30	400.0	220.0	0.00				Average	
		point31	31	600.0	220.0	0.00				Average	
		point32	32	800.0	220.0	0.00				Average	
		point33	33	1,000.0	220.0	0.00				Average	
		East End `	34	1,200.0	220.0	0.00					
Yosemite Ave Lane 2	12.0	West End	35	40.0	232.0	0.00				Average	
		point36	36	200.0	232.0	0.00				Average	
		point37	37	400.0	232.0	0.00				Average	
		point38	38	600.0	232.0	0.00				Average	
		point39	39	800.0	232.0	0.00				Average	
		point40	40	1,000.0	232.0	0.00				Average	
		East End `	41	1,200.0	232.0	0.00					
Yosemite Ave Lane 3	12.0	East End `	42	1,200.0	244.0	0.00				Average	
		point43	43	1,000.0	244.0	0.00				Average	
		point44	44	800.0	244.0	0.00				Average	
		point45	45	600.0	244.0	0.00				Average	
		point46	46	400.0	244.0	0.00				Average	
		point47	47	200.0	244.0	0.00				Average	
		West End	48	40.0	244.0	0.00					

Dudek 28 July 2020
JVL TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Gardner Avenue Lane 1	North End Gar	1	288	40	0	0	0	0	1	40	0	0
	point2	2	288	40	0	0	0	0	1	40	0	0
	point3	3	288	40	0	0	0	0	1	40	0	0
	point4	4	288	40	0	0	0	0	1	40	0	0
	point5	5	288	40	0	0	0	0	1	40	0	0
	point6	6	288	40	0	0	0	0	1	40	0	0
	point7	7	288	40	0	0	0	0	1	40	0	0
	point8	8	288	40	0	0	0	0	1	40	0	0
	South End Ga	9										
Gardner Avenue Lane 2	Gardner North	10	288	40	0	0	0	0	1	40	0	0
	point11	11	288	40	0	0	0	0	1	40	0	0
	point12	12	288	40	0	0	0	0	1	40	0	0
	point13	13	288	40	0	0	0	0	1	40	0	0
	point14	14	288	40	0	0	0	0	1	40	0	0
	point15	15	288	40	0	0	0	0	1	40	0	0
	point16	16	288	40	0	0	0	0	1	40	0	0
	point17	17	288	40	0	0	0	0	1	40	0	0
	Gardner South	18										
Gardner Avenue Lane 3	South End Ga	19	576	40	0	0	0	0	1	40	0	0
	point20	20	576	40	0	0	0	0	1	40	0	0
	point21	21	576	40	0	0	0	0	1	40	0	0
	point22	22	576	40	0	0	0	0	1	40	0	0
	point23	23	576	40	0	0	0	0	1	40	0	0

	point24	24	576	40	0	0	0	0	1	40	0	0
	point25	25	576	40	0	0	0	0	1	40	0	0
	point26	26	576	40	0	0	0	0	1	40	0	0
	North End Gar	27										
Yosemite Ave Lane 1	West End Yos	28	371	43	0	0	0	0	0	0	0	0
	point29	29	371	43	0	0	0	0	0	0	0	0
	point30	30	371	43	0	0	0	0	0	0	0	0
	point31	31	371	43	0	0	0	0	0	0	0	0
	point32	32	371	43	0	0	0	0	0	0	0	0
	point33	33	371	43	0	0	0	0	0	0	0	0
	East End Yose	34										
Yosemite Ave Lane 2	West End Yos	35	371	43	0	0	0	0	0	0	0	0
	point36	36	371	43	0	0	0	0	0	0	0	0
	point37	37	371	43	0	0	0	0	0	0	0	0
	point38	38	371	43	0	0	0	0	0	0	0	0
	point39	39	371	43	0	0	0	0	0	0	0	0
	point40	40	371	43	0	0	0	0	0	0	0	0
	East End Yose	41										
Yosemite Ave Lane 3	East End Yose	42	743	43	0	0	0	0	0	0	0	0
	point43	43	743	43	0	0	0	0	0	0	0	0
	point44	44	743	43	0	0	0	0	0	0	0	0
	point45	45	743	43	0	0	0	0	0	0	0	0
	point46	46	743	43	0	0	0	0	0	0	0	0
	point47	47	743	43	0	0	0	0	0	0	0	0
	West End Yos	48										

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INPUT: RECEIVERS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Gardner Ave East Side	1	1	66.0	-300.0	0.00	4.92	0.00	66	10.0	8.0	Y
Gardner Ave West Side	2	1	-10.0	525.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite South Side	3	1	400.0	165.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite North Side	4	1	350.0	280.0	0.00	4.92	0.00	66	10.0	8.0	Y
M1	5	1	38.0	910.0	0.00	4.92	0.00	66	10.0	8.0	Y
M2	6	1	835.0	252.0	0.00	4.92	0.00	66	10.0	8.0	Y

Dudek
JVL

28 July 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030 Plus Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Gardner Ave East Side	1	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
Gardner Ave West Side	2	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
Yosemite South Side	3	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
Yosemite North Side	4	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
M1	5	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
M2	6	1	0.0	73.8	66	73.8	10	Snd Lvl	73.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	6	0.0	0.0	0.0
All Impacted	6	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

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INPUT: ROADWAYS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030 Plus Project

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Gardner Avenue Lane 1	12.0	North End	1	6.0	1,200.0	0.00				Average	
		point2	2	6.0	1,000.0	0.00				Average	
		point3	3	6.0	800.0	0.00				Average	
		point4	4	6.0	600.0	0.00				Average	
		point5	5	6.0	400.0	0.00				Average	
		point6	6	6.0	200.0	0.00				Average	
		point7	7	6.0	0.0	0.00				Average	
		point8	8	6.0	-200.0	0.00				Average	
		South End	9	6.0	-400.0	0.00					
Gardner Avenue Lane 2	12.0	Gardner N	10	18.0	1,200.0	0.00				Average	
		point11	11	18.0	1,000.0	0.00				Average	
		point12	12	18.0	800.0	0.00				Average	
		point13	13	18.0	600.0	0.00				Average	
		point14	14	18.0	400.0	0.00				Average	
		point15	15	18.0	200.0	0.00				Average	
		point16	16	18.0	0.0	0.00				Average	
		point17	17	18.0	-200.0	0.00				Average	
		Gardner S	18	18.0	-400.0	0.00					
Gardner Avenue Lane 3	12.0	South End	19	30.0	-400.0	0.00				Average	
		point20	20	30.0	-200.0	0.00				Average	
		point21	21	30.0	0.0	0.00				Average	
		point22	22	30.0	200.0	0.00				Average	
		point23	23	30.0	400.0	0.00				Average	
		point24	24	30.0	600.0	0.00				Average	
		point25	25	30.0	800.0	0.00				Average	

		point26	26	30.0	1,000.0	0.00				Average	
		North End	27	30.0	1,200.0	0.00					
Yosemite Ave Lane 1	12.0	West End	28	40.0	220.0	0.00				Average	
		point29	29	200.0	220.0	0.00				Average	
		point30	30	400.0	220.0	0.00				Average	
		point31	31	600.0	220.0	0.00				Average	
		point32	32	800.0	220.0	0.00				Average	
		point33	33	1,000.0	220.0	0.00				Average	
		East End `	34	1,200.0	220.0	0.00					
Yosemite Ave Lane 2	12.0	West End	35	40.0	232.0	0.00				Average	
		point36	36	200.0	232.0	0.00				Average	
		point37	37	400.0	232.0	0.00				Average	
		point38	38	600.0	232.0	0.00				Average	
		point39	39	800.0	232.0	0.00				Average	
		point40	40	1,000.0	232.0	0.00				Average	
		East End `	41	1,200.0	232.0	0.00					
Yosemite Ave Lane 3	12.0	East End `	42	1,200.0	244.0	0.00				Average	
		point43	43	1,000.0	244.0	0.00				Average	
		point44	44	800.0	244.0	0.00				Average	
		point45	45	600.0	244.0	0.00				Average	
		point46	46	400.0	244.0	0.00				Average	
		point47	47	200.0	244.0	0.00				Average	
		West End	48	40.0	244.0	0.00					

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INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030 Plus Project

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Gardner Avenue Lane 1	North End Gar	1	292	40	0	0	0	0	1	40	0	0
	point2	2	292	40	0	0	0	0	1	40	0	0
	point3	3	292	40	0	0	0	0	1	40	0	0
	point4	4	292	40	0	0	0	0	1	40	0	0
	point5	5	292	40	0	0	0	0	1	40	0	0
	point6	6	292	40	0	0	0	0	1	40	0	0
	point7	7	292	40	0	0	0	0	1	40	0	0
	point8	8	292	40	0	0	0	0	1	40	0	0
	South End Ga	9										
Gardner Avenue Lane 2	Gardner North	10	292	40	0	0	0	0	1	40	0	0
	point11	11	292	40	0	0	0	0	1	40	0	0
	point12	12	292	40	0	0	0	0	1	40	0	0
	point13	13	292	40	0	0	0	0	1	40	0	0
	point14	14	292	40	0	0	0	0	1	40	0	0
	point15	15	292	40	0	0	0	0	1	40	0	0
	point16	16	292	40	0	0	0	0	1	40	0	0
	point17	17	292	40	0	0	0	0	1	40	0	0
	Gardner South	18										
Gardner Avenue Lane 3	South End Ga	19	584	40	0	0	0	0	1	40	0	0
	point20	20	584	40	0	0	0	0	1	40	0	0
	point21	21	584	40	0	0	0	0	1	40	0	0
	point22	22	584	40	0	0	0	0	1	40	0	0
	point23	23	584	40	0	0	0	0	1	40	0	0

	point24	24	584	40	0	0	0	0	1	40	0	0
	point25	25	584	40	0	0	0	0	1	40	0	0
	point26	26	584	40	0	0	0	0	1	40	0	0
	North End Gar	27										
Yosemite Ave Lane 1	West End Yos	28	416	43	0	0	0	0	0	0	0	0
	point29	29	416	43	0	0	0	0	0	0	0	0
	point30	30	416	43	0	0	0	0	0	0	0	0
	point31	31	416	43	0	0	0	0	0	0	0	0
	point32	32	416	43	0	0	0	0	0	0	0	0
	point33	33	416	43	0	0	0	0	0	0	0	0
	East End Yose	34										
Yosemite Ave Lane 2	West End Yos	35	416	43	0	0	0	0	0	0	0	0
	point36	36	416	43	0	0	0	0	0	0	0	0
	point37	37	416	43	0	0	0	0	0	0	0	0
	point38	38	416	43	0	0	0	0	0	0	0	0
	point39	39	416	43	0	0	0	0	0	0	0	0
	point40	40	416	43	0	0	0	0	0	0	0	0
	East End Yose	41										
Yosemite Ave Lane 3	East End Yose	42	832	43	0	0	0	0	0	0	0	0
	point43	43	832	43	0	0	0	0	0	0	0	0
	point44	44	832	43	0	0	0	0	0	0	0	0
	point45	45	832	43	0	0	0	0	0	0	0	0
	point46	46	832	43	0	0	0	0	0	0	0	0
	point47	47	832	43	0	0	0	0	0	0	0	0
	West End Yos	48										

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INPUT: RECEIVERS
PROJECT/CONTRACT: University Village Merced
RUN: Year 2030 Plus Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Gardner Ave East Side	1	1	66.0	-300.0	0.00	4.92	0.00	66	10.0	8.0	Y
Gardner Ave West Side	2	1	-10.0	525.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite South Side	3	1	400.0	165.0	0.00	4.92	0.00	66	10.0	8.0	Y
Yosemite North Side	4	1	350.0	280.0	0.00	4.92	0.00	66	10.0	8.0	Y
M1	5	1	38.0	910.0	0.00	4.92	0.00	66	10.0	8.0	Y
M2	6	1	835.0	252.0	0.00	4.92	0.00	66	10.0	8.0	Y

Noise Appendix - On-Site Noise Model Results



Operational Noise Level Contour Map

Appendix K

Sewer Master Plan

Stantec, December 2016

City of Merced
Sewer Master Plan

Draft



Prepared for:
City of Merced

Prepared by:
Stantec Consulting Services Inc.

October 28, 2016

FINAL DRAFT

Sign-off Sheet

This document entitled City of Merced Sewer Master Plan was prepared by Stantec Consulting Services Inc. ("Stantec") for the City of Merced (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____
(signature)

Brett LaPlante, P.E.

Reviewed by _____
(signature)

Dave Price, P.E.

FINAL DRAFT

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1.0 INTRODUCTION AND BACKGROUND

The City of Merced (the City) recently retained Stantec to update their Sewer Master Plan (Master Plan). This Master Plan addresses wastewater collection system capacity, identifies necessary improvements to eliminate system deficiencies and provides a plan for locating and sizing trunk sewers to service areas within the existing City Limits, as well as the balance of areas within the Specific Urban Development Plan (SUDP) boundary contained in the City of Merced Vision 2030 General Plan (Vision 2030 General Plan).

The previous planning document, the *City of Merced Sewer Master Plan* (ECO:LOGIC Engineering, January 2007, Draft) was developed in part to update the servicing plan for what has been termed South Merced (the portion of the City located south of Bear Creek), as well as consider options for servicing North Merced, including the new UC Merced Campus. The draft 2007 Master Plan was prepared in the context of servicing the Merced Vision 2015 General Plan, which included a SUDP boundary and land use assumptions which differ from those in the Vision 2030 General Plan.

Prior to the draft 2007 Master Plan, the City had developed separate sewer servicing plans for North and South Merced. The *City of Merced North Merced Sewer Master Plan* was prepared by ECO:LOGIC Engineering in 2002, while the previous master plan for South Merced was completed in 1982. These Plans were never formally adopted by the City Council and became working documents for City staff to revise as development assumptions changed over time.

1.1 PURPOSE

City objectives for the current Master Plan include:

1. Provide an update of the evaluation of options for servicing areas within the Vision 2030 General Plan SUDP;
2. Re-assess the capacity of the existing trunks within the city limits and the SUDP;
3. Provide recommendations for projects that would fulfill the City's desire to service lands within the SUDP;
4. Revisit the assessment from the 2002 North Merced Sewer Master Plan of options for servicing that area with satellite treatment plants and reusing effluent;
5. Provide recommendations for upsizing existing trunk sewers, or other means to address deficiencies identified as part of the assessment of the collection system capacity.

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6. Prepare a list of capital improvement projects to address existing system deficiencies as well as projects that would be needed to serve the SUDP, including planning-level cost estimates.

This Master Plan document addresses the following subjects:

- Existing Collection System
- Flow Estimates
- System Evaluation Criteria and Methodology
- Satellite Treatment Options
- Results and Recommendations

1.2 STUDY AREA

The current master planning effort considered a number of alternatives for servicing the SUDP, including alternatives for maximizing the remaining capacity in existing trunk sewers and serving areas of growth using satellite treatment plants and reusing effluent.

The SUDP is a growth boundary which sets the physical extent of new development for the City. The Vision 2030 General Plan includes policies which dictate how new development may occur as well as defining approved land uses within the SUDP. The Vision 2030 General Plan SUDP boundary and land uses as well as information for land uses within the Campus Community were provided to Stantec by the City. This information forms the basis for the analyses described in this Master Plan.

The City Limits and SUDP boundary are shown in **Figure 1-1**.

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N

0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
'G' ST
W BELLEVUE RD
E BELLEVUE RD
E CARDELLA RD
LAKE RD
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
W OLIVE DR
E OLIVE DR
99
BEAR CREEK
'R' ST
E SANTA FE DR
KIBBY RD
140
WEST AVE
MERCED MUNICIPAL AIRPORT
E CHILDS RD
E GERARD AVE
S THORNTON RD
S G ST
E MISSION AVE
HARTLEY SLOUGH
GOVE RD
MILES CREEK
OWENS CREEK
REILLY RD
W REILLY RD
CITY OF MERCED WWTF

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- CREEKS

2.0 EXISTING WASTEWATER COLLECTION SYSTEM

2.1 INTRODUCTION

This chapter describes the City's existing wastewater collection system. The results of the capacity analysis performed to support development of this Master Plan are presented in Chapter 6. Historically, the City has considered their collection system to consist of two primary sewer sub-basins: 1) the northern portion which includes all infrastructure north of Bear Creek, and 2) the southern portion consisting of all infrastructure south of Bear Creek.

This chapter is divided into the following sections:

- Description of Existing Trunk Sewer System
- Existing Wastewater Flows
- Land Use Data
- GIS Data
- Previous System Investigations

2.2 DESCRIPTION OF EXISTING TRUNK SEWER SYSTEM

Wastewater generated within the City is collected in a series of pipelines which the City owns, operates, and maintains. The system includes over 400 miles of gravity sewers ranging in size from 6 to 48 inches in diameter. **Figure 2-1** depicts the existing trunk sewer system. The City's system is described frequently in this document in terms of two major geographical boundaries (North Merced and South Merced) delineated by Bear Creek, which runs roughly east to west through the City.

The only major pumping facility within the system is the Highway 59 pump station. Several smaller pump stations serve smaller areas within the City (such as individual subdivisions). These are not considered part of the sewer trunk system; therefore, these smaller pump stations were not evaluated as part of this Master Plan update.

The existing City sewer trunk system consists of three primary branches which convey flows from three distinct sewer sub-sheds. These include:

1. The 48-inch trunk sewer "Interceptor". The Interceptor dates from the 1980s and replaced a pump station and portions of the West Avenue Trunk. The Interceptor conveys flow from the northern portion of the City's system.

2. The West Avenue Trunk serving the southwestern portion of the City.

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3. The Gerard Trunk serving the southern portion of the City system, east of the West Avenue Trunk sewer shed. The Gerard Trunk intersects with the West Avenue Trunk and continues as a 42-inch gravity trunk to the City's WWTF.

The three major trunks as well as other significant features of the City's sewer system are illustrated in **Figure 2-1**. There are three different creeks flowing through the City which drive the configuration of the City's trunk sewer system. In particular, Black Rascal and Bear Creeks flow from east to west across the extent of the City and the SUDP. To the extent possible, the City has constructed sewers that allow gravity flow at creek crossing locations. This minimizes the number of pump stations that would otherwise be required in the system, thereby reducing operation and maintenance costs.

In addition to the main trunks of the City's domestic sewer system, a portion of the Western Industrial Area located west of Highway 59, north-east of Highway 99, between Bear and Black Rascal Creeks is also served by a dedicated 14-inch force main originally constructed for use by a single user (the City refers to this as the "old Ragu line"). This conveyance runs south, all the way to the City's WWTF. This line is not currently in use and was not modeled as part of this master planning effort. A separate assessment of the dedicated industrial line was included in a document entitled *Merced WWTF Industrial Waste Acceptance Evaluation* (Stantec, May 2014). This dedicated line is reserved by the City for potential future "wet" industries which may wish to locate within the Western Industrial Area.

The Western Industrial Area is served via a collector which drains east along Cooper Avenue to a trunk in Highway 59. This trunk in Highway 59 conveys flow from the Western Industrial Area, the Highway 59 pump station, and the trunk in West Olive Avenue, south to the City's 48-inch Interceptor. These features are all shown in **Figure 2-1**.

2.3 EXISTING WASTEWATER FLOWS

Wastewater sources in the City of Merced include residential customers, commercial users, industrial users and public uses (such as City administrative offices and public service facilities, libraries, parks, schools and airports). A majority of the wastewater generated within the service area originates from residential customers.

Infiltration and inflow also contribute to the volume of wastewater that makes its way into the collection system. Infiltration and inflow (I/I) enters the collection system through different mechanisms. Infiltration enters the collection system from subsurface sources such as defective pipes, pipe joints, connections or leaky manholes. Infiltration can occur during periods of wet weather when soil becomes saturated and shallow groundwater becomes elevated or during dry weather if local conditions are such that groundwater is sufficiently high. Inflow is a term used to describe non-wastewater sources which are more direct connections, such as leaky manhole lids which allow storm runoff to enter the collection system, roof gutters or yard drains

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which are inappropriately connected to sewer service clean outs or directly to sewer mains. Inflow is most often associated with wet weather conditions.

Like most communities in the Central Valley, sewer flows into the City's wastewater treatment facility (WWTF) have steadily reduced over the last decade, caused apparently by a combination of water conservation due to the regional drought and reduced occupancy resulting from the housing crisis which occurred in the latter portion of the preceding decade. California's unprecedented drought, mandated water reductions, as well as more water efficient fixtures installed in homes have been shown to decrease both potable water usage and wastewater generation. For example, the average day annual wastewater flows into the WWTP were reported in April of 2005 (Preliminary Design Report TM 1, April 15, 2005, ECO:LOGIC Engineering) to be approximately 8.1 Mgal/d. In 2010 average flows were reported to be approximately 7.1 Mgal/d.

The recent lack of significant storms under saturated conditions also tends to cause any recent peak wet weather flow data to trend lower than what may be observed in wetter years. As a result, this master plan uses wastewater generation rates for different land uses established in the mid-2000s (discussed below), updated based on input from the City Planning Department and applies them to current land use data for projected flows.

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APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
'G' ST
W BELLEVUE RD
E BELLEVUE RD
UC MERCED CAMPUS
BELLEVUE PUMP STATION
PS
G STREET TRUNK
E CARDELLA RD
LAKE RD
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
HIGHWAY 59 PUMP STATION
W OLIVE DR
E OLIVE DR
99
WESTERN INDUSTRIAL PARK
48-INCH INTERCEPTOR
BEAR CREEK
E SANTA FE DR
R' ST
G' ST
KIBBY RD
DEDICATED HIGH STRENGTH/HIGH VOLUME INDUSTRIAL WASTE LINE
WEST AVE TRUNK
WEST AVE
140
MERCED MUNICIPAL AIRPORT
E CHILDS RD
S THORNTON RD
E GERARD AVE
GERARD TRUNK
48-INCH INTERCEPTOR
E MISSION AVE
HARTLEY SLOUGH
MILES CREEK
GOVE RD
59
99
W REILLY RD
REILLY RD
OWENS CREEK
CITY OF MERCED WWTF

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PROPERTIES DEVELOPED SINCE THE 2007 MASTER PLAN or CURRENTLY DEVELOPING
- WESTERN INDUSTRIAL PARK
- CREEKS

EXISTING SEWER SYSTEM

- PS LIFT STATIONS
- <8" DIAMETER
- 10" - 12"
- 14" - 18"
- 21" - 30"
- 33" - 39"
- 42" - 48"
- EXISTING SEWERSHEDS

City of Merced
Sewer Master Plan

Figure 2-1
Existing Wastewater Collection System

2.4 LAND USE DATA

The existing land uses within the City's current sewer service area are shown in **Figure 2-2**. **Table 2-1** summarizes the land uses within the existing service area. The existing annual average flow, as reported at the WWTF, from the existing service area (based on data from February 2013 through February 2014) is 7.35 Mgal/d.

Table 2-1 Land Uses within the Existing City Sewer Service Area

Land Use	Area (acres) [a]
Public	**1231.1**
Open Space - Park Recreation	352.0
Public / General Use	368.9
School	510.1
Commercial	**2,150.9**
Business Park	40.0
Commercial Office	270.3
General Commercial	349.1
Manufacturing / Industrial	843.1
Neighborhood Commercial	126.0
Regional Community Commercial	360.9
Thoroughfare Commercial	161.4
Residential	**6,315.5**
High Density Residential	92.2
High to Medium Density Residential	570.9
Low Density Residential	4,908.8
Low to Medium Density Residential	609.1
Mobile Home Park Residential	76.4
Residential Reserve	4.4
Rural Residential	3.2
Village Residential	50.5
Total	**9,697.4**

(a) Gross acreage is reported here.

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N

0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
'G' ST
W BELLEVUE RD
E BELLEVUE RD
UC MERCED CAMPUS
E CARDELLA RD
LAKE RD
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
W OLIVE DR
E OLIVE DR
99
WESTERN INDUSTRIAL PARK
BEAR CREEK
E SANTA FE DR
'R' ST
KIBBY RD
140
WEST AVE
MERCED MUNICIPAL AIRPORT
S THORNTON RD
E CHILDS RD
E GERARD AVE
E MISSION AVE
HARTLEY SLOUGH
MILES CREEK
GOVE RD
W REILLY RD
CITY OF MERCED WWTF
OWENS CREEK

LEGEND

EXISTING CITY LIMITS
MERCED VISION 2030 GP SUDP BOUNDARY
CREEKS

EXISTING SYSTEM LAND USE

- Business Park
- Commercial Office
- General Commercial
- High Density Residential
- High to Medium Density Residential
- Low Density Residential
- Low to Medium Density Residential
- Manufacturing / Industrial
- Mobile Home Park Residential
- Neighborhood Commercial
- Open Sace - Park Recreation
- Public / General Use
- Regional Community Commercial
- Residential Reserve
- Rural Residential
- School
- Thoroughfare Commercial
- Village Residential

2.5 GIS DATA

Sewer system and land use data were provided to Stantec by the City in GIS format. Sewer system data included the following information:

- Pipe and manhole locations
- Pump station locations
- Manhole rim and invert elevations (limited)
- Pipe lengths and slopes

Where information was missing (such as specific manhole rim and invert elevations), data was supplemented from atlas maps of the City's system, as-built drawings and interpolation of existing data.

2.6 RELATIONSHIP TO 2002 NORTH MERCED SEWER MASTER PLAN, DRAFT 2007 SEWER MASTER PLAN AND MODEL

Servicing options for the North Merced area were considered in the 2002 North Merced Sewer Master Plan. The conclusions of those planning level analyses were carried over in the draft 2007 Master Plan, primarily the concept of the need for significant additional trunk sewer facilities to convey wastewater from areas of growth within North Merced to the WWTF located southwest of the City, as illustrated in **Figures 2-1** and **2-2**.

Prior to development of the draft 2007 Master Plan, a flow monitoring study was conducted. The purpose of this flow monitoring effort was to determine the level of non-wastewater flows (I/I) which are contributed by different portions of the system. This information was then used to calibrate the sewer model developed at that time. Calibration of the model allows the flows in particular segments of the system to be simulated such that they more accurately reflect existing conditions providing a higher level of confidence in the results. Although reductions in wastewater flows have been noted, as discussed in Section 2.3, for the purposes of this Master Plan, the results of the 2007 flow monitoring study were determined to be sufficient, reasonable and the most accurate data available to establish "reasonable" spatial flow distribution for level of service evaluation, therefore no new flow monitoring or re-calibration was conducted as part of this update.

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3.0 FLOW ESTIMATES

3.1 PURPOSE

The purpose of this chapter is to correlate land use data with wastewater flow data and project average and peak wastewater flows for future development. The information presented here was used to model existing system performance, size interim system improvements as well as those needed to serve build-out of the SUDP.

Average sanitary flows were estimated by multiplying residential population, commercial or industrial acreage, as well as public use acreages (such as schools) by unit flow generation factors. Peak flows were estimated by applying a peaking factor to the average flows, as described in more detail in this chapter.

This chapter is divided into the following sections:

- Average Flow Estimates
- Land Uses and Flow Estimates for Future Planning
- Peak Flow Estimates
- Flow Estimation for Known Future Development

3.2 LAND USES AND FLOW ESTIMATES FOR FUTURE PLANNING

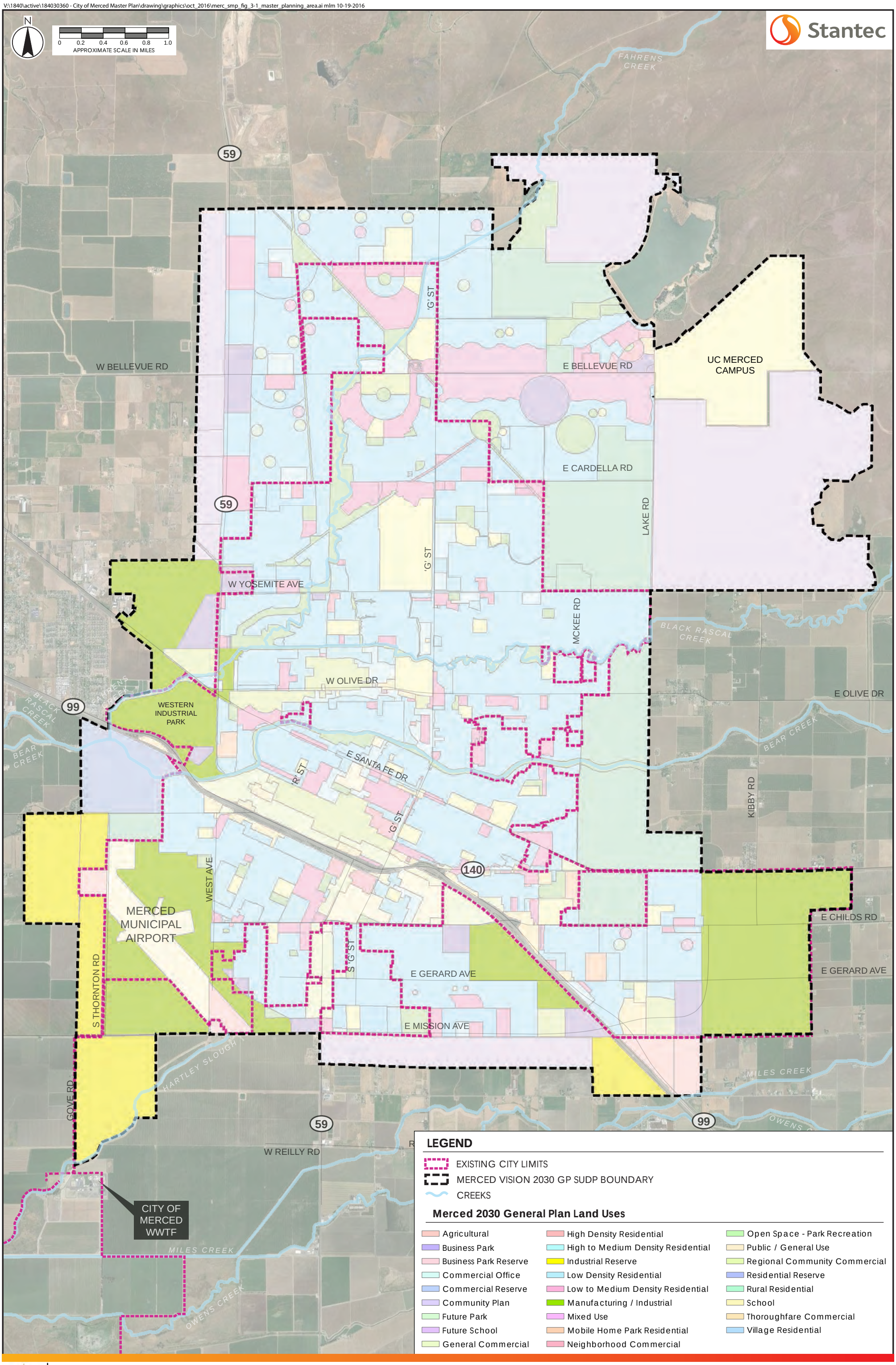
Land uses from the *Merced Vision 2030 General Plan* – January 2012 (General Plan) and supplemental information provided by the City were used in projecting wastewater flows for build-out of the City Limits and the SUDP. The land use mapping applicable to this Master Plan (the Planning Area) is presented in **Figure 3-1**.

For undeveloped parcels within the Planning Area, land uses were assigned per the General Plan. In specific cases, approved land uses were used for specific developments identified by City staff as either currently under construction or expected to develop in the near future. In particular, the City has identified approved developments on their "Tentative Subdivision Activity Map" for which specific counts of dwelling units were provided. In these locations the dwelling unit densities from the Tentative Subdivision Activity Map were used.

The density factors (units/acre) for Residential land uses were based upon assumed densities listed in **Table 3-1**. The resulting unit counts were then used to estimate future wastewater flow from residential areas using per unit flow factors discussed later in this chapter.

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City of Merced
Sewer Master Plan

Figure 3-1
Master Planning Area

Table 3-1 General Plan Residential Density Definitions

Residential Land Use	General Plan Residential Density (units/acre) [a]	Residential Density Used in this Study (units/acre) [a]	Residential Density Used in the 2007 MP (units/acre)
Rural	1.0 to 3.0	2	2
Low Density	2.0 to 6.0	4.5	6
Low-Medium Density	6.1 to 12.0	8.5	9
High-Medium Density	12.1 to 24.0	18	18
High Density	24.1 to 36.0	28	30
Mobile Home Park	6.0 to 10.0	8	8
Village Core Residential	7.0 to 30.0	12	12
Residential Reserve	2.0 to 6.0	4.5	6
Community Plan	-	4.5 [b]	[c]

(a) A "unit" is defined as one housing unit with an average of 3.02 persons. The *Merced Vision 2030 General Plan*, January 2012 (General Plan) defines the average residential density within the City's SUDP as 3.02 persons/housing unit.

(b) City Staff indicated that for Community Plan land use the Master Plan was to assume 4.5 units/acre consistent with the density assumption utilized for the Residential Reserve land use.

(c) The draft 2007 Master Plan included a number of specific development plans that were removed from the final General Plan. City staff indicated it was it appropriate to utilize the Tentative Subdivision Activity Map which they provided to Stantec for this purpose (Reference: e-mails and discussions August 2016).

3.3 AVERAGE FLOW ESTIMATES

The estimation of wastewater flows for planning purposes is based on the unit factors established in the draft 2007 Master Plan. After meeting with City engineering and planning staff, some of those factors were modified. The unit factors used in this Master Plan are presented in **Table 3-2** along with the factors used in the draft 2007 Master Plan for comparison purposes. The per capita wastewater generation used in the previous Master Plan remains unchanged.

Table 3-2 Recommended Wastewater Unit Factors

Land Use Definitions	Recommended Land Use Unit Flow	Previous 2007 MP Unit Flow	Units [a]
Commercial			
General Commercial	1,500	1,500	gpd/acre
Business Park	1,500	1,500	gpd/acre
Business Park Reserve	1,500	1,500	gpd/acre
Commercial Office	1,500	1,500	gpd/acre
Thoroughfare Commercial	1,500	1,500	gpd/acre

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Land Use Definitions	Recommended Land Use Unit Flow	Previous 2007 MP Unit Flow	Units [a]
Commercial			
Regional Community Commercial	1,500	1,500	gpd/acre
Commercial Reserve	1,500	1,500	gpd/acre
Industrial			
Manufacturing/Industrial	2,000	2,000	gpd/acre
Industrial Reserve	2,000	2,000	gpd/acre
Schools/Public Use			
Schools			
Elementary/Middle schools	25	25	gpd/student
High school	50	50	gpd/student
Future School			
Elementary/Middle schools	25	25	gal/student
High school	50	50	gal/student
Public General Use	1,500	1,500	gpd/acre
Open Space			
Agricultural	0	0	gpd/acre
Open Space – Park Recreation	0	0	gpd/acre
Future Park[b]	0	0	gpd/acre
Residential [c]			
If number of dwelling units (DU) IS NOT known:			
Rural Residential	513	513	gpd/acre
Low Density Residential	1,155	1,540	gpd/acre
Low to Medium Density Residential	2,182	2,310	gpd/acre
High to Medium Density Residential	4,621	4,621	gpd/acre
High Density Residential	7,188	7,701	gpd/acre
Mobile Home Park Residential	2,054	2,054	gpd/acre
Village Residential	3,080	3,080	gpd/acre
Residential Reserve	1,155	1,540	gpd/acre
If number of dwelling units IS known:			
All Residential Categories	257	257	gpd/DU

(a) gpd/acre = gallons per day per acre

(b) For the purposes of this Master Plan, while there will be restrooms available and connected to all parks, the actual contribution to the system on a per acre basis from these facilities is negligible. These areas have been included and considered in the analysis of existing and future capacity needs.

(c) Unit flows based on residential densities and an occupancy rate of 3.02 as discussed in Chapter 3 from the Merced Vision 2030 General Plan, and a per capita flow of 85 gallons per capita per day (gpcd).

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3.3.1 Future Schools

Unit flow factors from **Table 3-1** were used as the basis for determining contribution of school sites to the wastewater collection system. Since the values listed are based upon number of students, the estimated number of students attending the schools needed to be determined. The following breakdown lists the assumptions used to arrive upon the school contribution.

- It was assumed that an even distribution of students across all grades (i.e. approximately 2/3rd of students attend Elementary and Middle School, 1/3rd attend High School). Averaging out 25gpd/student (Elementary and Middle School) and 50gpd/student (High School) leads to approximately 33.3 gpd/student for schools.
- Based upon the 2010 census, the current population demographics for the City of Merced indicates approximately 31% of the population are under the age of 18. It was assumed that this distribution will not change as growth occurs.
- There is estimated to be growth of approximately 155,000 people through build-out of the SUDP, not including UC Merced or the UC Campus Community located to the south of the university. This results in approximately 48,000 K through 12 students using the 31% factor.
- The Merced GP 2030 Vision Plan adds approximately 435 acres of land for schools and future schools, which means there will be approximately 113 students per acre.
- The above assumptions result in approximately 3,765 gpd / acre for school and future school generation.

3.3.2 UC Merced

Future flow estimated for UC Merced and the Campus Community were obtained from the UC Merced and University Community Project Environmental Impact Report (*UC Merced and University Community Project, Draft EIS/EIR, November 2008 and Final EIS/EIR*, March 2009). **Table 3-3** summarizes the generation rates listed within the report. The wastewater flows from UC Merced and the Campus Community are identified separately because the methodology and statistical measures used in the March 2009 EIS/EIR to quantify flow differ from those for the City's SUDP as presented in this Master Plan.

Table 3-3 UC Merced and Campus Community Wastewater Generation Rates [a]

	Average DWF (Mgal/d)	Peak WWF [b] (Mgal/d)
UC Merced	1.13	2.54
Campus Community North	0.92	2.07
Campus Community South	1.04	2.34

(a) Excerpted from Table 2.0-8, *UC Merced and University Community Project Final EIS/EIR*, March 2009.
(b) A peaking factor of 2.25 has been accepted for UC Merced wastewater generation planning.

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3.3.3 Bellevue Ranch

Future flow estimated for the Bellevue Ranch area was obtained from the Bancroft Drive Interim Sanitary Sewer Lift Station Design Study (January 2004). **Table 3-4** summarizes the generation rates listed within the report. An interim 14-inch forcemain has been designed to pump a peak flow of 1.95 MGD to the G Street Trunk. Once the capacity of the interim forcemain is exceeded, a permanent 16-inch forcemain (already installed) will be used to convey all flow from Bellevue Ranch to the R Street trunk line. The force main to G Street would be abandoned at the time the connection is made to R Street.

Table 3-4 Bellevue Ranch Wastewater Generation Rates [a]

	Average DWF (Mgal/d)	Peak WWF (Mgal/d)
Bellevue Ranch East Phases 1 and 2	0.378	0.747
Bellevue Ranch East Phases 3 and 4 (24% of total flow)	1.020	0.511
Bellevue Ranch West Phases 1 and 2	0.508	0.968
Total Flow	**1.131**	**2.226 (1.950) [b]**

(a) Excerpted from Section 2, *Bancroft Drive Interim Sanitary Sewer Lift station Design Study, January 2004*.

(b) A maximum of 1.950 Mgal/d will be conveyed to G Street Trunk. Once exceeded and all flow is diverted, it is estimated that 2.226 Mgal/d will be conveyed R Street Trunk.

3.4 PEAK FLOW ESTIMATES

Precipitation events in January and April of 2006 produced flows at the WWTF that were approximately 2.3 times the average dry weather flow at that time. For this Master Plan update, WWTF influent flow data since 2006 was reviewed by City staff who determined that peak wet weather flows have remained at 2.3 times average dry weather flows (or less).

3.4.1 Peaking Factor Formulas

The City utilizes the following equation to determine peak flows for sizing pipes and pump stations, although this methodology has never been officially adopted:

$$Q_p = 1.75 * Q_a^{7/8}$$

Where:

Q_p = peak flow, Mgal/d

Q_a = average flow, Mgal/d

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Prior to the storm events of January and April 2006, this peaking factor provided reasonably conservative peak flows for planning purposes. The validity of this formula was verified through flow monitoring conducted in the winter of 2002/03 and August 2003 (*City of Merced August Flow Monitoring Report*, ECO:LOGIC Engineering, October 2003). As has been noted in previous reports, the only rain events which occurred during the flow monitoring that took place in 2002/2003 had return frequencies of 1 year or less.

The one location where flow has been estimated in this Master Plan using the formula above ($Q_p = 1.75*Q_a^{7/8}$) is the Bellevue Ranch development. The report entitled *Sanitary Sewer Study Chalk Hill Drive, Bellevue Ranch* (October 2003, GC Wallace) presents the above formula as the basis for flow estimates and design within Bellevue Ranch, as does the *Preliminary Interim Sanitary Sewer Lift Station Design Study, Bellevue Ranch* (January 2004, GC Wallace).

Since the January and April 2006 rainfall events ranged in frequency from 13 to 190 years, these storm events were considered to provide a conservative basis for a new peaking factor formula. The original peaking factor formula was adjusted to provide a minimum peaking factor (level of protection) of 2.3, dependent on generated average flow

3.4.2 Application of Peaking Factor – Build-out Flow Estimates

For each build-out area, unless there was more specific, approved information from a planned development provided by the City that deviated from the General Plan land uses, a peaking factor of 2.3 was applied to the average wastewater flow generation estimates.

Table 3-5 summarizes land use areas, population estimates and resulting wastewater flow generation data used in assessing collection system capacity needs which are discussed further in Chapters 4 and 5. Should the SUDP develop to full build-out as described in the Vision 2030 General Plan, the ultimate flows are estimated to be as presented in **Table 3-5**, including flows contributed from existing services.

Table 3-5 Summary of Acreages and Estimated Wastewater Flows at General Plan 2030 Full Build-out

Land Use	Total Area (ac)	Total EDUs	Total Population	DWF (Mgal/d)	PWWF (Mgal/d)	I&I (Mgal/d)
Commercial	2,883	16,848	-	4.3	9.9	5.6
Industrial	4,072	31,723	-	8.1	18.7	10.6
School	842	12,356	-	3.2	7.3	4.1
Rural Residential	2,303	4,603	13,901	1.2	2.7	1.5
Low Density Residential	8,699	39,142	118,208	10.1	23.1	13.1
Low to Medium Density Residential	1,172	9,959	30,075	2.6	5.9	3.3

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Land Use	Total Area (ac)	Total EDUs	Total Population	DWF (Mgal/d)	PWWF (Mgal/d)	I&I (Mgal/d)
High to Medium Density Residential	826	14,869	44,903	3.8	8.8	5.0
High Density Residential	124	3,482	10,515	0.9	2.1	1.2
Mobile Home Park	80	636	1,921	0.2	0.4	0.2
Village Core Residential	444	5,323	16,076	1.4	3.1	1.8
Residential Reserve	360	1,621	4,896	0.4	1.0	0.5
Community Plan	1,617	7,278	21,978	1.9	4.3	2.4
Mixed Use	447	5,324	16,078	1.4	3.1	1.8
Other (c)	1,948	-	-	-	-	-
Sub-Total	**25,818**	**153,164**	**278,552**	**39.3**	**90.4**	**51.1**
UC Merced (a)	815			1.13	2.54	1.41
Campus Community (a)	1,951	13,585	41,026	1.96	4.41	2.45
Sub-total	**2,766**	**13,585**	**41,026**	**3.09**	**6.95**	**3.86**
Grand Total (b)	**28,584**	**166,749**	**319,578**	**42.4**	**97.4**	**55.0**

(a) Population and flows for UC Merced and the Campus Community are excerpted from Table 2.0-8, *UC Merced and University Community Project Draft EIS/EIR, November 2008 and Final EIS/EIR*, March 2009. A peaking factor of 2.25 has been accepted for UC Merced wastewater generation planning. UC Merced flows additional to existing flows.

(b) Flows presented are unattenuated sum totals. Actual flows seen at the WWTF would be expected to differ due to attenuation in the collection system.

(c) Land uses characterized as other include "Agricultural", "Future Park", "Open Space – Park Recreation", and "Public / General Use"

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4.0 HYDRAULIC MODEL

4.1 PURPOSE

The purpose of this chapter is to outline details of the sewer collection system model construction and the scenarios analyzed.

This chapter is divided into the following sections:

- Modeling Software
- Model Inputs
- Model Validation
- Modeled Scenarios

4.2 MODELING SOFTWARE

Dynamic computer models are generally considered one of the most sophisticated means to assess sewer system capacity. For this study, Innovyze's *InfoWorks CS (version 15.0.2.28007)* software was used to analyze the City's sewer system prior to a recent upgrade to *InfoWorks ICM (version 6.5.5.13016)*. The *InfoWorks* software was used in 2007 to develop the model which Stantec has updated as part of the current master planning study.

4.3 MODEL INPUTS

The first step in constructing a collection system hydraulic model is to input the existing structural components of the system. These include:

- Pipes
- Manholes
- Pump stations (in this case, the Highway 59 pump station)

Other inputs include:

- Sub-catchments (land use and water generation)
- Rainfall data and/or design storm(s)

These components are described in greater detail in the sections which follow.

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4.3.1 Pipes and Manholes

The model used to evaluate existing and future capacity needs was constructed using pipes in the existing trunk system that are 8-inches in diameter, and greater. **Figure 4-1** illustrates the pipes which were modeled in the existing collection system.

4.3.2 Highway 59 Pump Station

There is one major pump station in the City's existing wastewater collection system, which is referred to as the Highway 59 Pump Station. The station is shown on **Figure 4-1** and is located next to Highway 59 just north of Black Rascal Creek. The station is equipped with three (two duty, one standby) 2.200 gpm centrifugal pumps.

4.3.3 Subcatchments

Subcatchments are geographic areas within each flow monitoring basin (as defined in Chapter 2) that represent a composite of land uses such as residential, commercial, industrial, public, or school land uses. A population (as defined in Chapter 2) is associated with each catchment to represent a per capita flow rate based on the residential land use within the catchment. Commercial, industrial, school and public land use flows were calculated separately based on acreage and selected unit flows (gpd/acre). These flow projections were then imported into the computer model of the collection system to simulate both existing and future flow conditions.

4.3.4 Design Storm

To predict system performance and assess needed and available capacity in the wastewater collection system computational models, such as the *InfoWorks* software used for the system analysis for the City of Merced, relies on synthetic/simulated rainfall conditions. The synthetic/simulated rainfall selected and used to assess system capacity is typically referred to as the design storm. The design storm selected for many central valley systems has a 10-year return period.

In the case of the City of Merced's model, which was last updated in 2007, two storms which occurred in January and April of 2006 were considered. These events resulted in the highest wastewater flows recorded at the City's wastewater treatment facility (WWTF) up to that time. The assessment of the collection system performed in 2006/2007 relied upon a peaking factor of 2.3 times average flow. This is consistent with the peak flows seen at the WWTF during the January and April 2006 storm events. During the assessment of the City system conducted for this Master Plan update, more recent WWTF flows were evaluated and it was confirmed that 2.3 remains a reliable, conservative predictor of peak flow in the system relative to average flow. Therefore, this peaking factor was used in the collection system assessment conducted and presented in this Master Plan as opposed to a specific design storm.

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0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
'G' ST
W BELLEVUE RD
E BELLEVUE RD
UC MERCED CAMPUS
G STREET TRUNK
BELLEVUE PUMP STATION
PS
E CARDELLA RD
LAKE RD
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
HIGHWAY 59 PUMP STATION
W OLIVE DR
E OLIVE DR
99
WESTERN INDUSTRIAL PARK
BEAR CREEK
E SANTA FE DR
R' ST
G' ST
KIBBY RD
DEDICATED HIGH STRENGTH/HIGH VOLUME INDUSTRIAL WASTE LINE
WEST AVE TRUNK
WEST AVE
140
MERCED MUNICIPAL AIRPORT
E CHILDS RD
S THORNTON RD
E GERARD AVE
48-INCH INTERCEPTOR
GERARD TRUNK
E MISSION AVE
HARTLEY SLOUGH
MILES CREEK
GOVE RD
REILLY RD
W REILLY RD
OWENS CREEK
CITY OF MERCED WWTF

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PROPERTIES DEVELOPED SINCE THE 2007 MASTER PLAN or CURRENTLY DEVELOPING
- WESTERN INDUSTRIAL PARK
- CREEKS
- MODELED SEWER SYSTEM

EXISTING SEWER SYSTEM

- PS LIFT STATIONS
- <8" DIAMETER
- 10" - 12"
- 14" - 18"
- 21" - 30"
- 33" - 39"
- 42" - 48"
- EXISTING SEWERSHEDS

City of Merced
Sewer Master Plan

Figure 4-1
Modeled Sewer System

4.4 MODEL CALIBRATION

The model used for this evaluation was constructed and calibrated as part of the draft 2007 Master Plan process. Calibration (or validation) of the wastewater collection system computer model for both wet and dry weather conditions is necessary to ensure the accuracy of predicted flows are acceptable. In the case of the City's model, the version calibrated with the draft 2007 Master Plan effort was used. Due to the fact the model had been calibrated previously and was shown to produce acceptable results, the City decided not to revisit the calibration step with this Master Plan update. The previous dry weather calibration was conducted using flow monitoring data from selected locations within the collection system that was gathered at that time and flow data from the City WWTF influent flow meter. The model was also calibrated for wet weather conditions, at that time, to a peak flow of 2.3 times the average flow at the WWTF.

Note that the sewer diameters, slopes, and inverts were input in the model as part of the 2007 master planning process, and have not been confirmed or validated as part of this study. It is understood that some of the slopes and inverts where initially based upon record drawing information. It is recommended that prior to conducting any system improvements (see Chapter 5 for Master Plan recommendations), that the elevations of these sewers be confirmed, the sewer model updated and relevant simulations exercised (re-run) as appropriate. The City may wish to conduct limited surveying as part of any confirmation effort.

4.5 MODEL SCENARIOS SIMULATED

The computer model was used for analysis of a number of different scenarios:

- Existing system conditions – evaluation of capacity within the existing system with only existing connections producing wastewater flow
- Interim conditions – these are conditions defined by City staff which represent development that is expected to occur prior to construction of significant new trunk sewers either in the north or south Merced areas (presentation of results is limited to identifying the remaining capacity within existing trunk sewers)
- Build out of the SOI – Pipe size and slopes for future trunk sewers and pump stations were identified to serve the entire study area, as defined in Chapter 3 of this Master Plan report

4.5.1 Recommended Level of Service Evaluation Criteria

Level of service (LOS) criteria used to assess capacity of sewers include:

- the extent of surcharging in the manholes,
- minimum and maximum pipeline velocities, and
- pipe capacity.

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4.5.1.1 Surcharging Criteria

Surcharging in a manhole is defined as the distance between the rim elevation and the hydraulic grade line (HGL). The manhole is considered to be surcharged when the HGL exceeds the pipe crown.

For surcharging in existing manholes, there are two deficiency criteria for this analysis:

1. When the rim elevation is less than or equal to 8-feet above the pipe crown:
    a. No surcharging is allowed.
2. When the rim elevation is more than 8-feet above the pipe crown:
    a. A pipeline is hydraulically deficient if there is less than 8-feet of freeboard or the surcharging is equal to or greater than 1-foot above the pipe crown.

For new improvements to the City's trunk system, no hydraulic surcharging is allowed in manholes.

4.5.1.2 Velocity

Gravity sewer shall allow a minimum flow velocity of 2.5 ft/s and a maximum of 7 ft/s. All sewers that have a velocity outside of these criteria shall be identified.

Force mains shall allow a minimum flow velocity of 2 ft/s and a maximum of 7 ft/s. All force mains that have a velocity outside of these criteria shall be identified.

4.5.1.3 Pipe Capacity

Sewer pipes shall conform to the following capacity criteria under design storm conditions, where d = depth of flow and D = pipe diameter.

- d/D shall be a maximum of 70% for pipe less than or equal to 24 inch
- d/D shall be a maximum of 100% for pipe greater than 24 inch

4.5.2 Existing System Simulation

Areas within the City's service area which were not previously (during development of the draft 2007 Master Plan) connected, but which have since developed and now contribute to the wastewater flows conveyed by the collection system were identified with assistance from City staff. These areas were added to the existing model and predicted flows checked against WWTF influent flow records.

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The existing system simulation relied upon system configurations and data from the previously developed model. The evaluation of the existing system simulation produced results which are presented in Chapter 5 of this Master Plan report. Those results include identification of:

- Sewers which are not predicted to have capacity issues.
- Sewers that are predicted to surcharge due to downstream conditions, though have sufficient freeboard to meet the City's Level of Service (LOS) criteria.
- Sewers that are predicted to surcharge due to insufficient capacity though have sufficient freeboard to meet the City's LOS criteria.
- Sewers that are predicted to surcharge to an extent such that they do not meet the City's LOS criteria, and are resultant from downstream conditions and insufficient capacity, respectively.

The existing sewer collection system and service area extents are illustrated above in **Figure 4-1**. Among other things, Chapter 3 summarizes the land uses within the existing City service area assumed to contribute wastewater flow in the existing scenario. Results of this simulation are presented in Chapter 5 of this Master Plan report.

4.5.3 Interim Condition System Simulation

Similar to the existing system simulation, the results of the interim condition and SUDP build-out simulations identify predicted deficiencies in the existing collection system. However, the interim condition simulation does not include recommended system improvements for the reason that the simulation is intended to guide the City and development community as to the potential limits of the existing system to convey flow from "entitled" properties before new, large diameter trunk sewers can be constructed.

The findings of previous analyses (2002 North Merced Master Plan and draft 2007 Master Plan) indicate that investment in the existing system should be relatively limited, as the full build-out of the SUDP cannot be accommodated through those pipelines without major investments expected to cost significantly more than construction of new parallel trunks which would "bypass" the existing collection system.

The interim capacity scenario assesses the impacts upon existing sewers of areas that are considered likely to develop prior to construction of new trunk sewers. These areas are defined by the North Merced Sewer Assessment District (NMSAD). The analysis of the interim condition also includes those properties identified by the City on the Tentative Subdivision Activity Map (TSAM). The NMSAD was established in the 1980's (unknown) to finance construction of trunk sewers to serve areas within the boundary of the District, the majority of which is located north of Bear Creek. In addition to the NMSAD and TSAM parcels, the interim condition also assumed full

FINAL DRAFT

build-out of the UC Merced campus as excerpted from the *UC Merced and University Community Project Draft EIS/EIR,* November 2008 and *Final EIS/EIR*, March 2009.

Figure 4-2 identifies the parcels which were added to those contributing to the existing system in order to estimate flows for the interim condition simulation. The acreages and estimated wastewater flows generated from the entitled parcels are summarized in **Table 4-1.**

The interim condition simulation does not anticipate any future trunk sewers, meaning that is was exercised in order to identify deficiencies in and remaining capacity available in the existing system trunk sewers if all of the areas identified in **Figure 4-2** were to develop. Results of this simulation are presented in Chapter 5 of this Master Plan report.

Table 4-1 Summary of Acreages and Estimated Wastewater Flows from Entitled Developments

Contributing Area	Total Area (ac)	Total EDUs	Total Population	DWF (Mgal/d)	PWWF (Mgal/d)	I&I (Mgal/d)
G Street Entitlements	642		14,163	1.2	2.8	1.6
R Street Entitlements	1,169		21,201	1.8	4.1	2.3
Highway 59 Entitlements	318		7,472	0.6	1.5	0.8
Highway 59 Pump Station Entitlements	543		10,879	0.9	2.1	1.2
42-inch Interceptor Entitlements	13		377	0.03	0.07	0.04
UC Merced	815			1.13	2.54	1.41
Sub-total [(a)]	**3,500**		**54,092**	**5.7**	**13.1**	**7.4**

(a) Flows reported within the table are total flows at buildout, and make no distinction between future development and developments already partially constructed.

4.5.4 SUDP Build-out System Simulation

The SUDP build-out simulation considered the area identified within the Vision 2030 General Plan SUDP. It also includes the current build-out (ultimate) development density for the UC Merced campus and the adjacent Campus Community. **Figure 4-3** illustrates the extent of the build-out service area for this simulation.

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APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
W BELLEVUE RD
'G' ST
E BELLEVUE RD
UC MERCED CAMPUS
G STREET TRUNK
BELLEVUE PUMP STATION
PS
E CARDELLA RD
LAKE RD
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
HIGHWAY 59 PUMP STATION
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E MISSION AVE
HARTLEY SLOUGH
MILES CREEK
GOVE RD
REILLY RD
W REILLY RD
OWENS CREEK
CITY OF MERCED WWTF

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- ENTITLED PARCELS NORTH MERCED
- CREEKS
- MODELED SEWER SYSTEM

EXISTING SEWER SYSTEM

- PS LIFT STATIONS
- <8" DIAMETER
- 10" - 12"
- 14" - 18"
- 21" - 30"
- 33" - 39"
- 42" - 48"
- EXISTING SEWERSHEDS

City of Merced
Sewer Master Plan

Figure 4-2
Interim Condition System Extents

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APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
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W BELLEVUE RD
'G' ST
E BELLEVUE RD
UC MERCED CAMPUS
G STREET TRUNK
BELLEVUE PUMP STATION
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E CARDELLA RD
LAKE RD
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MCKEE RD
BLACK RASCAL CREEK
HIGHWAY 59 PUMP STATION
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99
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E MISSION AVE
HARTLEY SLOUGH
MILES CREEK
GOVE RD
REILLY RD
W REILLY RD
OWENS CREEK
CITY OF MERCED WWTF

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- ENTITLED PARCELS NORTH MERCED
- SUDP BUILDOUT SEWERSHED
- CREEKS
- FUTURE GROWTH SYSTEM

EXISTING SEWER SYSTEM

- PS LIFT STATIONS
- <8" DIAMETER
- 10" - 12"
- 14" - 18"
- 21" - 30"
- 33" - 39"
- 42" - 48"
- EXISTING SEWERSHEDS

City of Merced
Sewer Master Plan

Figure 4-3
Sewer Service Area Future Growth System

Table 4-1 summarizes the land uses and densities assumed to contribute wastewater flow in the SUDP build-out scenario. Unlike the existing service area and interim development condition simulations, for the SUDP build-out scenario, several alternative servicing options were considered. Some included all of the future areas identified in **Figure 4-3** and listed in **Table 4-2**, while others assumed certain areas did not contribute wastewater flow in the future. Still other simulations considered the timing of development within certain areas relative to construction of new, future trunk sewers. For example, one scenario considered the impact of participation by the Campus Community in new, future trunk sewers in a similar time frame as the balance of the UC Merced campus and the Vision 2030 SUDP, while another scenario considered the impact of the Campus Community participating in separate trunk sewers that would be planned and designed (separately) after trunks were planned and designed to serve the UC Merced Campus and the balance of the Vision 2030 SUDP.

The SUDP build-out scenarios which the City considers relevant to this Master Plan are described in more detail, along with the results of those simulations, in Chapter 5 of this report.

Table 4-2 Summary of Acreages and Estimated Wastewater Flows Under Existing Conditions and for SUDP Build-out Scenario

Land Use	Total Area (ac)	Total EDUs	Total Population	DWF (Mgal/d)	PWWF (Mgal/d)	I&I (Mgal/d)
Commercial	1,443	8,433	N/A	2.2	5.0	2.8
Industrial	3,217	25,068	N/A	6.4	14.8	8.4
School	313	4,593	N/A	1.2	2.7	1.5
Rural Residential	2,299	4,594	13,874	1.2	2.7	1.5
Low Density Residential	3,134	14,100	42,583	3.6	8.3	4.7
Low Medium Density Residential	340	2,890	8,729	0.7	1.7	1.0
High Medium Density Residential	159	2,864	8,649	0.7	1.7	1.0
High Density Residential	32	902	2,725	0.2	0.5	0.3
Mobile Home Park	3	25	75	0.01	0.02	0.01
Village Core Residential	304	3,643	11,002	0.9	2.2	1.2
Residential Reserve	356	1,602	4,837	0.4	0.9	0.5
Community Plan	1,620	7,291	22,018	1.9	4.3	2.4
Mixed Use	394	4,703	14,202	1.2	2.8	1.6
Other [b]	1,149	-	N/A	-	5.0	2.8
Campus Community [a]	1,951	13,585	41,026	2.0	4.41	2.45
Sub-Total	**16,715**	**94,293**	**169,720**	**22.7**	**52.1**	**29.4**

(a) Population and flows for UC Merced and the Campus Community are excerpted from Table 2.0-8, *UC Merced and University Community Project Draft EIS/EIR, November 2008 and Final EIS/EIR, March 2009*. A peaking factor of 2.25 has been accepted for UC Merced wastewater generation planning.

(b) Land uses characterized as other include "Agricultural", "Future Park", "Open Space – Park Recreation", and "Public / General Use".

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5.0 SATELLITE TREATMENT FEASIBILITY ANALYSIS

5.1 INTRODUCTION

The purpose of this chapter is to evaluate the feasibility of servicing the North Merced area using satellite treatment facilities under the future flow scenarios presented in Chapter 4. It is recommended to provide an updated Treatment Facilities Plan, to provide comprehensive evaluation of satellite treatment and analysis of required City WWTF (centralized treatment) improvements.

For the purposes of this Sewer Master Plan update, the future servicing scenarios described in Chapter 4 are used to compare the option of satellite treatment, assuming the City continues to provide wastewater treatment at the existing WWTF site for existing users (at a minimum).

For each of the scenarios considered, an evaluation has been conducted to determine the potential incremental costs and cost savings of conveying a portion of North Merced flows to satellite reclamation facilities. This comparison of centralized treatment (expanding the City's existing WWTF) to the use of satellite facilities is developed for each flow scenario when significant collection system improvements can be avoided.

The cost estimates provided in this chapter are conceptual in nature and intended primarily for alternative comparison purposes. Satellite facility evaluation criteria is established below.

5.2 SATELLITE FACILITY EVALUATION CRITERIA

This satellite facility evaluation does not include a comprehensive evaluation of alternate treatment and disposal options, which is better suited for a Treatment Facilities Plan. Under an updated Treatment Facilities Plan, a detailed evaluation of the required improvements needed to increase the capacity at the existing centralized treatment plant can be done cohesively with the analysis of a satellite treatment option with alternative levels of treatment and solids handling for various disposal alternatives, as well as phasing and permitting requirements of new facilities.

It is assumed that the satellite facility will not be limited by disposal capacity or reclamation demand. This includes the assumption that such a facility can and would be permitted by the Regional Water Board. If satellite treatment appears viable for portions of North Merced, a detailed reclamation study would be required to more accurately assess the reclamation feasibility within North Merced, as no estimate of available recycled water demand has been determined in this Master Plan.

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The evaluation which follows assumes that the level of treatment required at a satellite facility will be similar to the City's centralized WWTF because the apparent most cost effective option is a new facility that would (for purposes of simplifying the alternatives comparison) have a seasonal effluent discharge to Fahrens Creek when dilution is high, while effluent would be reclaimed on nearby lands (not specified in this analsyis) during the remainder of the year. Note that seasonal discharge into Fahrens Creek will be complicated to permit, as this goes against the Regional Board's policy favoring centralized treatment. The Regional Board's stated policy preference (Res. No. R5-2009-0028) is for wastewater regionalization, and is supported by the State Water Board Division of Financial Assistance's recent offer(s) of principal forgiveness and extended term financing for regional projects. If it is determined that surface water discharge from the satellite plant is not viable, the satellite plant will require year-round storage with summertime reclamation (as percolation is likely not permissible due to groundwater degradation concerns). This evaluation provides a cost estimate for a new disinfected tertiary facility that achieves the level of treatment necessary to meet anticipated surface water discharge requirements and produce recycled water of sufficient quality to allow Title 22 unrestricted reuse with BOD and TSS levels less than 10 mg/l and total Coliform levels less than 2.2 MPN/100mL.

Four important factors must be considered to determine the feasibility of satellite treatment and are presented in more detail below:

1. Collection system improvement costs or savings.
2. Treatment, disposal/reclamation, and storage construction costs (satellite versus central)
3. Wastewater system operation and maintenance costs.
4. Offsetting costs/credits for potable and non-potable water.

5.3 SATELLITE SYSTEM FLOWS

Future sewer system layouts and satellite plant sites evaluated and compared in this chapter will accommodate build-out flows from within the City's SUDP. A key assumption of this evaluation is that the existing City sewer service area, and some of the "entitled" communities detailed in the Chapter 4 Interim Condition scenario, will flow to the City's central WWTF, to fully utilize remaining capacity in the existing collection system. Because the existing collection system is estimated to be capable of conveying about 4 Mgal/d of additional peak wet weather flow, all the remaining flow from the Interim Condition scenario, in excess of the existing collection system capacity, will be sent to a satellite plant. The interim peak flow sent to the satellite facility is therefore estimated to be approximately 4.26 Mgal/d PWWF (0.82 Mgal/d from the North Western side of the entitled communities and 7.43 Mgal/d from the Northeastern side). If approximately 4.0 Mgal/d of that flow can sent through the existing collection system, as described above, the associated average dry weather flow is estimated be about 3.23 Mgal/d, ADWF.

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In addition to accepting some of the entitled communities wastewater (3.23 Mgal/d ADWF), the satellite treatment facility will accommodate North Merced SUDP Build-Out future flow rates of approximately 11.0 Mgal/d ADWF (25.3 Mgal/d PWWF). The plant will be built in incremental phases to correspond to, as yet to be determined development timing. Phasing the satellite plant is possible, to accommodate staged growth and should be considered in detail in a separate Treatment Facilities Plan.

This Master Plan assumes that the City will maximize utilizations of existing sewer capacity in the existing collection system without incurring significant costs for additional conveyance improvements. All flows beyond that capacity will be sent to the satellite plant. While plant phasing is expected to take place in 3.5 Mgal/d incremental expansions, beyond the collection system capacity, this feasibility analysis is based on comparing ultimate build-out scenarios.

5.4 SATELLITE SEWER LAYOUTS

The sewer layouts for different flow scenarios anticipated by the City are presented in Chapter 4. The City's primary objective is to maximize the existing system capacity first and identify cost effective modifications to the system to accommodate additional flow where practical. Design criteria used to assist in sizing and locating future sewer systems are also described in Chapter 4. The only modification to the previously described sewer system is that the northeast and northwestern side of the SUDP will now flow to the satellite facility in this alternatives analysis (reducing the pipe and pump station sizing in the southwest build-out trunk).

Construction cost for comparison of scenarios are based on an Engineering New Record 20 Cities Construction Cost Index (ENRCCI) of 10,435, corresponding to October 2016 price levels. A contingency factor of 30 percent is added to base costs to reflect planning uncertainties.

5.4.1 Existing System Scenario

The existing system scenario described in Chapter 4 is not evaluated in terms of servicing with satellite treatment plant facilities. The existing system has certain deficiencies which are discussed in greater detail in Chapter 6 of this Master Plan. Those deficiencies are limited and the improvements necessary to address those are not considered significant enough to warrant consideration of satellite treatment as an option to those hydraulic upgrades. In addition, the City's WWTF has sufficient capacity to receive and treat the wastewater generated from the existing system.

5.4.2 Interim Condition System Scenario

The additional dry weather flow contribution from the build-out of the UC Merced campus and the entitled properties identified in Section 4.5.3 of this Master Plan is estimated to be approximately 3.6 Mgal/d. The corresponding peak flow is approximately 8.26 Mgal/d. The collection system and WWTF appears to have capacity to handle the additional (approximate)

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4 Mgal/d from the Interim Condition scenario, but loading should be calculated and capacity assessed in a separate Treatment Facilities Plan to identify with a greater degree of certainty whether the treatment plant can handle the additional flows and loads without significant upgrades. Therefore, the option of constructing satellite treatment facilities to serve the approximately 4.26 Mgal/d flows beyond the existing system capacity for these entitled areas (which includes build-out of the UC Merced campus) is considered below.

5.4.3 SUDP Build-out System Scenario

This flow scenario accommodates flow from build-out of the SUDP, but only the portion in North Merced is assumed to be serviced by the satellite plant. The total ADWF generated from the North Merced SUDP in excess of that estimated from the Interim Condition scenario is approximately 11 Mgal/d. The corresponding peak flow contribution is approximately 25.3 Mgal/d. As discussed in prior master planning documents and in Chapter 6, the existing collection system cannot accommodate the flows estimated to be generated from build-out of the SUDP. With a new satellite plant located in close proximity to northern SUDP communities, there is a potential cost savings in trunk sewer improvements, as long, large diameter trunks would not be required to convey flow to the City's WWTF.

As shown in **Figure 5-1**, the collection system improvements necessary to service North Merced with a satellite treatment plant removes the need for about 2-miles of 54-inch pipe, eliminates a pump station, and replaces 3.3-miles of 60-inch pipe all of which are identified as necessary to serve North Merced SUDP build-out (See Chapter 6, Figure 6-10) with 12- to 24-inch pipes. Resulting in a cost of $36.1M to service the North Merced SUDP (or a $53.1M savings compared to the preferred alternative presented in **Table 6-4**). This cost savings is carried through the feasibility analysis presented below.

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APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
'G' ST
W BELLEVUE RD
E BELLEVUE RD
UC MERCED CAMPUS
Bellevue-1: 24 in ø
Bellevue-1A: 27 in ø
1827-1: 24 in ø
G STREET TRUNK
POTENTIAL 3W
DISCHARGE PIPE
PROPOSED SATELLITE WWTP LOCATION
E CARDELLA RD
W.F: 48 in ø
W.E: 42 in ø
W.D: 42 in ø
PS
W.C: 27 in ø
W.B: 24 in ø
W.A: 24 in ø
LAKE RD
21 in ø
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
HIGHWAY 59 PUMP STATION
W OLIVE DR
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99
WESTERN INDUSTRIAL PARK
BEAR CREEK
E SANTA FE DR
'R' ST
'G' ST
KIBBY RD
DEDICATED HIGH STRENGTH/HIGH VOLUME INDUSTRIAL WASTE LINE
30 in ø
WEST AVE TRUNK
WEST AVE
140
E.D: 18 in ø
E CHILDS RD
MERCED MUNICIPAL AIRPORT
W.J: 12-14 in ø
S THORNTON RD
'G' ST
E GERARD AVE
E.E: 21 in ø
48-INCH INTERCEPTOR
GERARD TRUNK
E MISSION AVE
E.H: 36 in ø
E.G: 36 in ø
E.F: 27 in ø
COVE RD
W.J: 16-24 in ø
HARTLEY SLOUGH
E.I: 36 in ø
MILES CREEK
59
99
REILLY RD
W REILLY RD
OWENS CREEK
E.J: 36 in ø
E.K: 36 in ø
E.L: 36 in ø
E.M: 36 in ø
CITY OF MERCED WWTF

LEGEND

- FORCEMAINS
- PS LIFT STATIONS
- PROPOSED UPGRADES
- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- SATELLITE WWTP
- SATELLITE WWTP DISCHARGE
- POTENTIAL 3W
- NORTHERN SUDP
- SUDP BUILDOUT SEWERSHED
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM
- CREEKS

5.5 SATELLITE TREATMENT PLANT EVALUATION

The following sections evaluate the feasibility of using satellite treatment facilities in North Merced in lieu of conveyance and treatment to the City's WWTF. The location, size, and costs associated with satellite treatment are detailed below.

5.5.1 Potential Satellite Facility Locations

The most remote locations of the SUDP will be routed to the satellite facility because it is the farthest from the existing WWTF. To be cost effective, satellite facilities will need to be located in an area where the wastewater is both generated and reclaimed. Since the UC Merced Campus has considered the use of reclaimed water, a plant effluent piping will need to discharge into the Campus. This was discussed in the 2002 North Merced Master Plan. Based on the location of potential service and reclamation areas, the location that appears best suited for a potential satellite treatment plant is the area southwest of Lake Yosemite, on the intersection of a main sewer trunk near Cardella Road, between the UC Merced campus and the western corner of the SUDP (see **Figure 5-1**). Locating the satellite facility within the SUDP would require some adjustment to land uses identified in the City's 2030 Vision General Plan because most of the area has specific plans for development or is designated as residential or commercial land use. Consistency with the General Plan is an important consideration and alterations to the Plan may be difficult to accomplish.

Any satellite facility designed to serve North Merced SUDP build-out is assumed to require investment in the equivalent conveyance capacity as the system required for the WWTF, as shown in **Figure 5-1** and described in Section 5.4.

5.5.2 Satellite Facility Sizing

As stated previously, the Merced collection system can accommodate approximately 4.0 Mgal/d of additional flow from the North Merced area with limited modifications and improvements to the existing collection system. Satellite facilities could be sized to treat flows beyond 4.0 Mgal/d to maximize utilization of the existing collection system without incurring significant costs for additional conveyance improvements. This results in an ultimate satellite facility size of 14.25 Mgal/d ADWF (3.23 Mgal/d from currently entitled communities and 11.0 Mgal/d from the unentitled portion of the North Merced SUDP). Although phasing of plant construction is expected to take place in 3.5 Mgal/d incremental expansions, this report is not analyzing the anticipated rate of growth within the City. As such, the costs presented below are based on ultimate build-out of 14.25 Mgal/d (which will have benefits of economies of scale that will not exist with incremental phasing, but is a reasonable approximation for this level of analysis and appropriate for comparison with the collection system improvements recommended to serve SUDP build-out, as described in Chapter 6).

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5.5.3 Satellite Facility Impact on Existing WWTF Expansion

Constructing a satellite treatment plant could also offset the need for future expansion of the existing WWTF, which directly corresponds to the flow treated at the satellite facility. The existing Merced WWTF capacity is 12 Mgal/d ADWF and will continue to expand in in 4 Mgal/d increments to accommodate South Merced SUDP build-out, with ultimate accommodation of up to 20 Mgal/d ADWF capacity (anything beyond 20 Mgal/d requires additional planning). To determine the true impact on WWTF capacity and future flow, it is recommended to prepare a separate Treatment Facilities Plan.

It is important to note that the type of satellite facilities constructed (i.e. zero discharge, seasonal discharge or hybrid/scalping facility) will impact the the centralized City WWTF and collection system in different ways. By observation, the hybrid scalping facility has been removed from the analysis because it does not decrease the needed collection system or centralized WWTF improvements required to handle the increased flow from the SUDP peak wet weather capacity. This is because a scalping plant is intended to use treated effluent (recycled water) in real-time to meet irrigation demands. In the wet season, when irrigation is lowest, all flow would need to be conveyed to the WWTF, which is the same time period during which peak wet weather flows are expected to occur. This alternative does not save the costs associated with collection system conveyance to the WWTF and is therefore cost prohibitive without additional incentives.

For the present worth analysis, it is assumed that an equal amount of flow capacity savings at the existing WWTF would result from a zero discharge or seasonal surface discharge satellite treatment plant construction because either of these alternatives will eliminate the need to convey wastewater to the WWTF during the wet season. The estimated capital costs to expand the existing WWTF in-kind is based on a unit cost of approximately $10/gpd (gallon per day capacity). This estimate was developed from the 2011 Wastewater Treatment Facility Expansion Final Design Report, by Stantec Consulting, escalated to October 2016 ENR.

5.5.4 Satellite Facility Construction Costs

A capital cost estimate is developed below for the two viable types of satellite treatment facilities (zero discharge and seasonal discharge facility). As described in Section 5.2, both facilities (zero discharge and seasonal discharge) will likely require the same level of treatment for unrestricted reuse, assuming full “Title 22” standards, to reclaim the wastewater during the dry season. The facilities differ only in how treated effluent is handled during the wet weather season. The zero discharge facility stores treated wastewater effluent during the wet weather season, when irrigation demand is met by precipitation events. The seasonal discharge facility discharges treated wastewater effluent to the closest surface water body during wet weather season, when dilution in the creek is high. Due to the excessive costs (far beyond the seasonal discharge facility) and land intensive requirements, which encroaches on either agricultural land outside the current City SUDP boundary or would require modification of the land uses in the North Merced SUDP, a zero seasonal discharge facility will not be evaluated as part of the present worth analysis.

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For planning and cost comparison purposes, it is assumed that disinfected tertiary treatment (i.e. "unrestricted Title 22") will provide sufficient treatment to allow seasonal surface water discharge. Additional evaluation would eventually be needed to determine with certainty the level of treatment required. Prior to considering this alternative in greater detail, the City should consult the Regional Water Board to see if such a discharge is likely to be permitted given the proximity to the existing, permitted, WWTF.

While there would be beneficial economies of scale to install a satellite plant that can handle all the future flows (14.25 Mgal/d plant), the cost burden to the initial users would be unnecessarily cumbersome and unlikely to occur without phasing the plant. However, to make a fair comparison of overall project costs, the costs presented below are based on build-out (as the collection system improvements with either option should be constructed to accommodate build-out flows. Construction of collection system capacity in gravity systems is not typically cost effectively phased.) **Table 5-1** summarizes the estimated satellite plant construction costs, based on recently constructed facilities of similar size and level of treatment.

Table 5-1 Satellite Treatment Plant Facility Capital Cost Estimates [a]

Item	Cost, $M
WWTP	150,000,000
Land Purchase	16,000,000
Permitting	1,000,000
Land Use Change	1,000,000
Creek Discharge Pipe	2,500,000
3W Discharge Pipe	4,900,000
Subtotal	***175,400,000***
Contingency (30%)	52,600,000
Engineering (30%	52,600,000
TOTAL	**280,600,000**

(a) ENRCCI (20 cities average) = 10,435.
(b) Collection system costs are presented below.

5.5.5 Satellite Treatment Operation and Maintenance (O&M) Costs

As noted by reliable sources, including research by the WaterReuse Foundation, the operation and maintenance costs of satellite treatment is higher than operating a single centralized facility. Due to the high level nature of this feasibility study, O&M costs will be derived as being equivalent to 6-percent of treatment plant construction costs and 3-percent of collection system construction costs. A present worth cost analysis comparing costs for constructing a satellite facility versus modifying and expanding the existing collection system can be evaluated in a separate Facilities Plan.

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Because the cost to construct a satellite treatment plant (presented in Section 5.5.4) is nearly double the price of upgrading the centralized treatment plant (depending on facility size and type, as presented in Section 5.5.3), the operation and maintenance costs will only exasperate the disparity between centralized and satellite plant costs. **Table 5-2** presents the preliminary O&M costs for the various options.

Table 5-2 Operation and Maintenance Costs [a]

Facility Location	Annual O&M: Facility, $M	30-year lifecycle cost(c), $M
Satellite	14.6	286.6
Central	13.2	259.5

(a) O&M assumed to be 6% of WWTP and 3% of collection system construction costs (excluding engineering).

(b) 3% annual inflation per year.

5.5.6 Present Worth Analysis, Satellite System

The life cycle costs associated with constructing a satellite facility versus expanding the centralized treatment plant are presented in **Table 5-3** below.

Table 5-3 Present Worth Costs for Satellite System [a]

Item	Satellite WWTP, $M	Central WWTF, $M
Collection System [b]	$36.1	$89.3
Treatment and Disposal	$280.6	$224.0
30-yr O&M	$286.5	$259.5
TOTAL	**$603.2**	**$572.8**

(a) Including engineering and contingency.

(b) South (east) Merced SUDP not included because the cost is the same regardless of satellite installation.

5.5.7 Potable/Non-Potable Water Offsets

The results of the present worth analysis indicate that there are additional costs associated with satellite treatment. However, the analysis did not consider the cost/benefit of offsetting potable and non-potable water supplies or water related projects. The cost of water typically drives the demand for water reclamation projects. The cost of water increases when potable water becomes scarce, due to natural or manmade causes (drought or increased demand due to growth). Many water reclamation facilities are located in Southern California and the San Francisco Bay Area because the cost of water is relatively expensive.

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The City of Merced currently benefits from the use of reclaimed water (and biosolids) at their land application area, south of the WWTF, where the City grows and sells crops to local farmers. If a satellite facility is installed, the benefit of the reclaimed water use would be to the local users and not directly to offset the City's treatment plant costs. In the best case scenario, the City could sell the reclaimed water to local users, but this would still only directly offset the cost they spend to grow crops with water they will now need to purchase from Merced Irrigation District.

Even a most generous analysis that assumes the economies of scale for installation of a larger facility, still does not provide enough incentive to install a satellite plant.

5.6 SUMMARY

The following conclusions are drawn from the foregoing analysis:

- The existing Merced sewer system can be expanded to handle an additional 4 Mgal/d from the Interim Condition System Scenario with all the remaining North Merced SUDP and entitled properties flowing to a satellite treatment plant. Improvements are discussed in the following chapter.
- Construction of satellite treatment facilities is not cost effective compared to current costs for water for flows from the SUDP.
- In order to pursue the satellite treatment facility option further, an additional study is needed to confirm whether demand for recycled water is sufficient to handle the plant described herein.
- A separate Treatment Facilities Plan is recommended to provide a comprehensive evaluation of satellite treatment and to include an analysis of the required centralized treatment plant improvements.

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6.0 MODEL RESULTS AND RECOMMENDATIONS

6.1 PURPOSE

This chapter summarizes and presents the results of the three general model simulations described in Chapter 4:

- Existing system simulation
- Interim condition system simulation
- SUDP build-out system simulation

In addition to the simulation results, where appropriate, additional detail is provided of the various simulations, including development timing and relevant alternative trunk alignments that were considered.

This chapter is divided into the following sections:

- Existing System Deficiencies
- Capital Improvement Projects
  - Existing Trunk System
  - Interim Capacity Needs
  - Long Term System Needs
- Cost Estimates

6.2 EXISTING SYSTEM DEFICIENCIES

The existing system was modeled to evaluate the extent of hydraulic deficiencies during peak flows. Current peak wet weather flows in the system, as predicted by the hydraulic model (updated with new developments which have occurred since the draft 2007 Master Plan analyses were conducted, as described in Section 4.5.2), are approximately 23.4 Mgal/d. As a frame of reference, peak flows into the WWTF have been measured around 14 Mgal/d in recent years. As described previously, the existing system is assessed using a synthetic 10-year, 24-hour design storm which does not precisely match historical rain event patterns or conditions and California's drought has made validation of peak flow estimates more difficult.

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As a general note, the model currently assumes that I/I enters the collection system at a uniform rate across the entirety of the South Merced basins. This may or may not be an accurate assumption. Without additional site specific observation/monitoring within the system, it is not possible to pinpoint sources of I/I. It is recommended that City staff monitor areas of the system which are predicted to experience surcharge or otherwise are capacity deficient based on the level of service criteria established for this model in Chapter 4 of this Master Plan Report.

It is important to point out that if sources of I/I can be pinpointed, the City can diagnose the nature of the I/I and make necessary repairs. It is also possible that the I/I within the South Merced basin could be re-distributed in the model based on field observations and scenarios re-simulated with results which could affect recommendations for upsizing, or otherwise addressing capacity deficiencies in the existing collection system. It should be further noted, however, that a wet weather peaking factor of 2.3, as is estimated for Merced, is not considered excessive.

In general, new developments will not be added to existing sewers that are showing surcharging above the City's level of service criteria. As mentioned previously, however, the City will likely want to complete studies of the deficient sewers prior to validate these model predictions. For example, if the City's electronic mapping indicates slope of a particular sewer sufficient to predict surcharging in the model, but the actual conditions in the field differ enough to eliminate this concern, the City would want to confirm this prior to expending funds to upsize or parallel deficient sections, or to make final determinations as to the advisability of allowing additional development (flow) into the collection system in these areas.

6.2.1 South Merced

Figure 6-1 shows areas within the existing wastewater collection system in South Merced that are predicted to have hydraulic limitations based on analysis using the Innovyze model to simulate existing peak flow conditions.

While the hydraulic model identifies several locations with hydraulic restrictions, the most significant deficiencies occur in the major collectors along Canal Street and R Street. **Figure 6-2** shows the HGL profile along Canal Street and **Figure 6-3** shows the HGL profile along R Street. Due to the level of service criterion that no surcharging is allowed to occur in sewers with depths less than 8 feet, these two reaches are considered deficient.

It should be noted that while both locations of surcharging fail the Level of Service criterion, the surcharging located along Canal Street is of greater magnitude than along R Street. It is predicted that the surcharging along Canal Street will reach a peak surcharge of 1.8 feet above pipe crown (located at W Main Street and Canal Street). The peak surcharge along R Street trunk is predicted to be 0.3 feet (located at W 16th Street and T Street).

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N

0 300 600 900 1200 1500
APPROXIMATE SCALE IN FEET

Stantec

R STREET TRUNK

WEST AVE TRUNK

CANAL STREET TRUNK

GERARD TRUNK

V ST
20TH ST
M ST
18TH ST
O ST
CANAL ST
MAIN ST
MARTIN LUTHER KING JR WAY
HWY 99
13TH ST
15TH ST
21ST ST
SOUTH BEAR CREEK DR
27TH ST
PARSONS AVE
SANTA FE AVE
GLEN AVE
R ST
8TH ST
WEST AVE
2ND ST
CHILDS AVE
G ST
B ST
MOTEL DR
MERCED AVE
CONE AVE
GERARD AVE

LEGEND

- IDENTIFIED HYDRAULIC BOTTLENECKS
- MODELED SEWER SYSTEM
- EXISTING SEWER SYSTEM

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City of Merced
Sewer Master Plan

Figure 6-1
Results of Capacity Assessment of Existing Trunk Sewers in South Merced

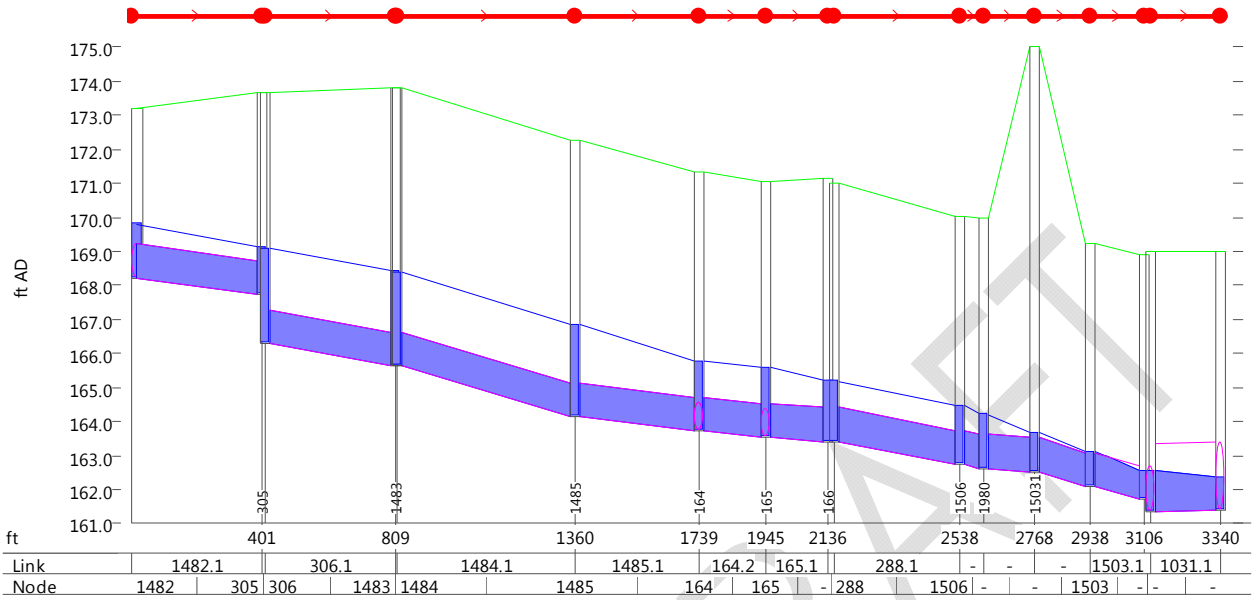


Figure 6-2 HGL Profile Along Canal Street Identifying Level of Service Failure

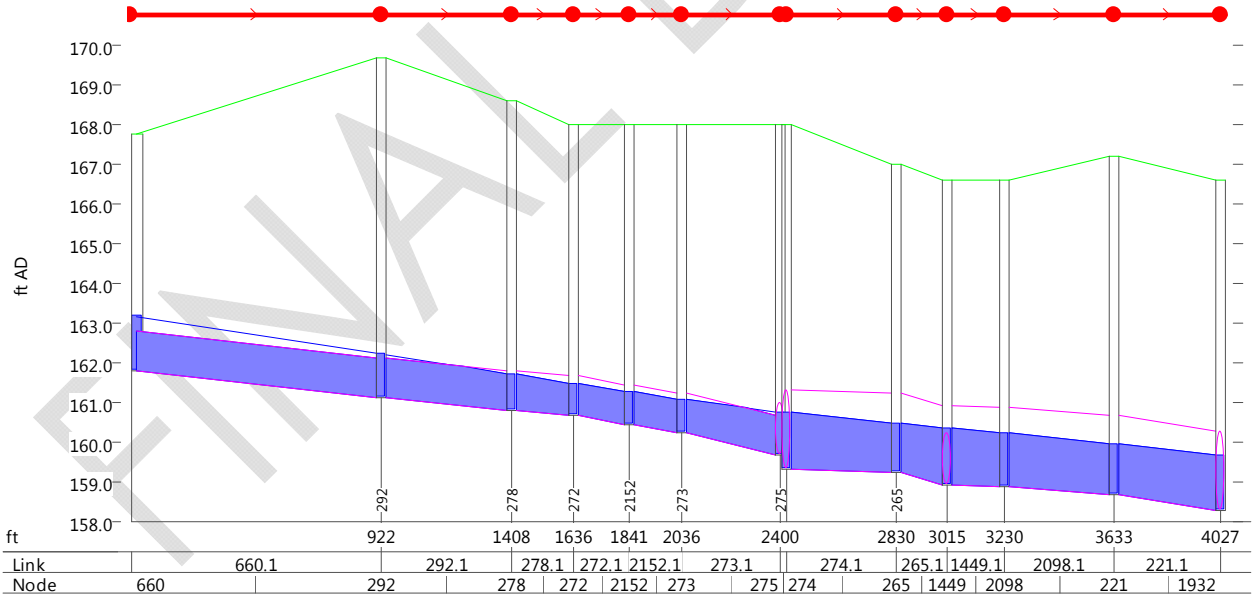


Figure 6-3 HGL Profile Along R Street Identifying Level of Service Failure

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6.2.2 North Merced

Figure 6-4 shows areas within the existing wastewater collection system in North Merced that are predicted to have hydraulic limitations based on analysis using the Innovyze model to simulate existing peak flow conditions. The hydraulic model identified two primary locations of Level of Service failures within the North Merced sewer system:

- 1042 feet of 21-inch diameter sewer along W Olive Avenue from R Street to Meadows Avenue. The sewer is predicted to have minor surcharge (<0.1 feet).
- 1900 feet of 24-inch diameter sewer and 400 feet of 21-inch diameter sewer along Highway 59, from W Olive Avenue (discharge of the Highway 59 Pump Station) to approximately 600 feet north of Holiday Mobile Est. The surcharging is predicted to be approximately 1.1 feet above crown of pipe, resulting in approximately 5.2 feet of freeboard. The only connection to the trunk sewer at this location is from the Western Industrial area (12-inch sewer). Based upon the GIS information available, it appears that this LOS failure will not result in any residential surcharging.

6.2.3 Interim Condition System Results

A variation of the existing system evaluation was simulated, as described in Section 4.5.3. This simulation includes those properties entitled to develop, largely within the North Merced area (north of Bear Creek). The results of the simulation are presented in **Figure 6-5**.

The primary difference between the Existing System and Interim Condition System results is reflective of the greater number of sections shown to be deficient or at capacity in **Figure 6-5** when compared with **Figure 6-4**.

Segments of the Yosemite Avenue trunk are predicted be at or over capacity when the projects entitled to connect to that facility are built. Similarly, portions of the G Street trunk north of Black Rascal Creek and the 42-inch Interceptor along Devonwood Drive and Austin Avenue are predicted to be at or over capacity.

Of particular note, the portion of the Highway 59 trunk downstream of the pump station located north of Fehren's Creek is predicted to be over capacity along the entire length of the alignment southward to the intersection with the 42-inch Interceptor. In addition, the 42-inch Interceptor itself is surcharged a significant distance downstream of the intersection with the Highway 59 trunk. The impacts to the 42-inch Interceptor are technically within the level of service criteria established in Chapter 4 of this Master Plan, as the surcharging which is predicted to occur is greater than 8 feet below the various manhole rim elevations as this sewer alignment approaches the City's WWTF to the south.

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N

0 300 600 900 1200 1500
APPROXIMATE SCALE IN FEET

Stantec

HIGHWAY 59 PUMP STATION

G STREET TRUNK

21-INCH SEWER

24-INCH SEWER TO 48-INCH INTERCEPTOR

21-INCH SEWER, 400 LINEAR FEET

48-INCH INTERCEPTOR

21-INCH SEWER

HWY 59

SAN JOSE AVE

M ST

G STREET

R STREET

AUSTIN AVE

PARK AVE

OLEANDER AVE

MONTANA AVE

PARSONS AVE

JOERG AVE

YOSEMITE AVE

DONNA DR

BUENA VISTA DR

BUENA VISTA DR

LOUGHBOROUGH DR

EL PORTAL DR

EL PORTAL DR

COLUMBIA AVE

BROOKDALE DR

OLIVEWOOD DR

OLIVE AVE

DEVONWOOD DR

ALEXANDER AVE

NORTH BEAR CREEK DR

25TH ST

23RD ST

26TH ST

V ST

LEGEND

- FORCEMAINS
- PS LIFT STATIONS
- IDENTIFIED HYDRAULIC BOTTLENECKS
- MODELED SEWER SYSTEM
- EXISTING SEWER SYSTEM

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City of Merced
Sewer Master Plan

Figure 6-4
Results of Capacity Assessment of Existing Trunk Sewers in North Merced

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N

0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
'G' ST
W BELLEVUE RD
E BELLEVUE RD
UC MERCED CAMPUS
G STREET TRUNK
BELLEVUE PUMP STATION
PS
E CARDELLA RD
LAKE RD
W YOSEMITE AVE
MCKEE RD
BLACK RASCAL CREEK
HIGHWAY 59 PUMP STATION
W OLIVE DR
E OLIVE DR
99
WESTERN INDUSTRIAL PARK
BEAR CREEK
'R' ST
E SANTA FE DR
KIBBY RD
WEST AVE TRUNK
140
MERCED MUNICIPAL AIRPORT
S THORNTON RD
E CHILDS RD
E GERARD AVE
48-INCH INTERCEPTOR
GERARD TRUNK
E MISSION AVE
HARTLEY SLOUGH
GOVE RD
MILES CREEK
W REILLY RD
REILLY RD
OWENS CREEK
CITY OF MERCED WWTF

LEGEND

- FORCEMAINS
- LIFT STATIONS (PS)
- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM
- CREEKS

EXISTING SYSTEM INTERIM CAPACITY

- OVER CAPACITY
- < 2.5 MGD
- 2.5 - 5.0 MGD
- 5.0 - 10.0 MGD
- >10.0 MGD

6.3 CAPITAL IMPROVEMENT PROJECTS

This section describes the improvements which are recommended to address existing deficiencies in the trunk sewer system as well as suggested improvements to serve the interim and long-term system needs.

6.3.1 Existing Trunk System

The draft 2007 Master Plan described the age and condition of the Gerard Avenue Trunk and portions of the West Avenue Trunk as essentially poor. These are critical trunks in the existing collection system and will allow for interim servicing for some future connections. It is advised that the City consider the recommendations made in the draft 2007 Master Plan with regards to pipe rehabilitation.

In addition to the Gerard and West Avenue Trunk CMP segments, there are other capacity-related deficiencies in the South Merced system which should be addressed either with projects to increase capacity to allow the system to more sufficiently serve the existing areas served, or with projects to upsize or parallel pipes to serve interim conditions (the latter is discussed in more detail Section 5.3.2). The segments of trunk sewer identified as deficient in terms of capacity to serve existing flows are identified in **Figures 6-1** and **6-4**.

These trunks are summarized in **Table 6-1** along with the suggested diameter of replacement pipe necessary to mitigate the various capacity deficiencies.

Table 6-1 Recommended Sewer Upgrades for Existing System Under Existing Conditions [a]

Location	Total Sewer Length [feet]	Existing Sewer Diameter [inch]	Required Sewer Diameter [inch]
Canal Street	3,510	12-inch	15-inch
R Street	2,400	12-inch	15-inch
W Olive Avenue	1,040	21-inch	24-inch
Highway-59	2,300	24-inch	[b]

(a) Surveying and flow monitoring studies should be completed to validate model results prior to budgeting for these upgrades.

(b) The City is not currently intending to upsize or provide any capacity via parallel trunks or other upgrades to the Highway 59 Trunk.

6.3.2 Interim Condition System Needs

Results of system modeling suggest that the existing wastewater collection system is not sized sufficiently to provide capacity for flows to serve the entitled projects first identified in Section 4.5.3 of this report. By extension, the existing system does not have sufficient capacity to serve

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build-out of the City's SUDP. To serve these areas will require construction of several large trunk sewers. Financing, planning and designing large trunk sewers to serve these areas will take time. This means that large portions of the land outside the limits of the existing collection system service area will not be able to rely on these new large trunk sewers to serve their needs. Of particular concern are those areas which are entitled to develop, as discussed in Section 4.5.3.

This section outlines interim approaches to serving entitled development via existing collection system infrastructure with limited new facilities and system upgrades.

South Merced

There are two primary trunks serving the existing development in the South Merced area. These include the Gerard Avenue and West Avenue trunks, which were discussed previously in Section 5.3 in relation to their condition.

For the Interim Condition, the West Avenue trunk appears to be able to provide approximately 4 Mgal/d of additional capacity beyond existing demands. As mentioned previously, significant portions of this trunk were recommended for rehabilitation in the draft 2007 Master Plan. Serving areas north of Bear Creek via the West Avenue trunk would require a new pump station and force main. A similar pump station is discussed in greater detail in Section 5.3.3 (Long Term System Needs) and is recommended to be constructed as part of a new large-diameter trunk system to be constructed further to the west to serve the North Merced area. As a result, it is recommended that the rehabilitated West Avenue trunk be reserved to serve areas south of Bear Creek in the Interim Condition.

The Gerard Avenue Trunk is in the process of being rehabilitated. The section from West Avenue to Tyler Road has been completed to date. Flow monitoring prior to 2007 indicated elevated flows into this sewer. Although rehabilitation of the Gerard Avenue trunk may reduce I/I in this portion of the system, the benefit of that improvement cannot currently be quantified. As a result, the recommended Interim Condition approach assumes a limited service shed for the Gerard Avenue trunk. The area of potential additional service is limited to areas east and north of the trunk.

North Merced

Significant remaining capacity to serve the area north of Bear Creek on an interim basis is limited to the G Street trunk and Highway 59 trunk and pump station. The interim options for utilizing these sewers prior to construction of a new trunk crossing Bear Creek are described in more detail in the sections below. Aside from the G Street and Highway 59 sewers, the only trunk sewer of any significance north of Bear Creek is the trunk connecting the UC Merced Campus to the G Street trunk. This trunk is known as the Bellevue trunk as the sewer alignment runs along Bellevue Avenue.

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Bellevue Trunk

The Bellevue sewer trunk is sized and was constructed to convey wastewater flows from the UC Merced campus at full build-out. The trunk has capacity to convey approximately 6.5 Mgal/d of wastewater. The plan for expanded enrollment at UC Merced is laid out in their Long Range Development Plan (2009). The enrollment at UC Merced during the 2014/15 school year was over 6,000 students. The Long Range Development Plan (LRDP) projects that enrollment will be approximately 10,000 students in 2020 and 25,000 in 2030. This type of planning gives the City some assurance that capacity exists in and will remain available in the Bellevue trunk over the near term.

G Street Trunk

The G Street sewer trunk has capacity to convey a total of approximately 4.14 Mgal/d of wastewater.

The available capacity in the G Street trunk and the commitment of capacity to parcels which previously contributed to the North Merced sewer assessment which funded, among other facilities, the G Street trunk, is not sufficient to convey flow from the entitled properties expected to utilize this facility. **Figure 6-5** illustrates the limitations in the G Street Trunk and the approximate locations. These capacity limitations suggest the City should begin to plan, fund, design and put into place new trunk sewers to serve the areas north of Bear Creek. This Master Plan represents the first step, albeit it a continuation of the draft 2007 Master Plan, toward describing and planning additional wastewater conveyance capacity for the North Merced area. **Figure 6-6** illustrates the approximate current available capacity (in EDUs; 257 gpd/EDU times a peaking factor of 2.3, as described in Chapter 3, or 591.1 gpd/EDU) in the G Street trunk.

As shown in **Figure 6-6**, part of the interim plan for serving the North Merced area includes extending the Bellevue trunk west to the Highway 59 trunk at R Street. As discussed in the draft 2007 Master Plan, entitled developments to the west of Fahren's Creek which move forward prior to construction of new large trunk sewers are anticipated to use the Highway 59 pump station and trunk.

Highway 59 Trunk and Pump Station

Figure 6-7 shows the approximate capacity remaining in the Highway 59 trunk and pump station. The current capacity of the pump station is 3.17Mgal/d (5,360 EDUs) with a remaining, unused capacity of approximately 2.52 Mgal/d (4,260 EDUs). The pump station is designed to allow a capacity expansion up to 6.34 Mgal/d (10,720 EDUs). If the City wished to realize the full, expanded capacity of the Highway 59 pump station, in addition to new pumps, the following would also need to be implemented:

1. A second, parallel force main may need to be installed from the pump station across Black Rascal Creek.

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2. The trunk just downstream of the pump station force main discharge South of W Olive Avenue was identified in the prior two Master Plans as limiting capacity in the Highway 59 trunk system. To realize the full extent of the existing capacity (3.17 Mgal/d) in the pump station a 24 -inch parallel gravity relief line (approximately 4,300 linear feet) would need to be installed. In order to accommodate flow from an expanded Highway 59 pump station (6.34 Mgal/d), the parallel relief line would need to be a minimum of 30-inch in diameter. This assumes the sub-sheds draining to the existing gravity line or from the G Street trunk do not contribute additional flows, otherwise this could require a pipe larger than 24 inches in diameter.

3. In addition, a portion of the Highway 59 trunk north of the pump station (along Yosemite Avenue) has a limiting capacity of 5.3 Mgal/d (see **Figure 6-6**). Any flow in excess of 5.3 Mgal/d needs to be introduced to the trunk downstream of this limiting segment, upstream of the Highway 59 pump station, or a parallel sewer installed.

4. Furthermore, the main, common trunk (the 48-inch Interceptor) to which the G Street and Highway 59 trunks drain south of Bear Creek is limited in capacity to approximately 8,500 additional EDUs. If remaining capacity in the G Street trunk is maximized (5,600 additional EDUs), the 48-inch Interceptor would only be able to accept an additional 2,900 EDUs from the Highway 59 pump station and from the other shed areas draining to it. This EDU count is less than the remaining additional capacity of the Highway 59 pump station (4,260 EDUs or 2.52 Mgal/d) and much less than the additional capacity of an expanded Highway 59 pump station (9,600 EDUs; 5.69 Mgal/d). In order to accommodate the additional 9.600 EDUs an expanded Highway 59 pump station could serve, the full capacity of the G Street trunk and build-out of the other contributing sewersheds, the 48-inch Interceptor would need to be upsized to 54-inch diameter or a 30-inch diameter relief sewer installed parallel to the Interceptor. It is assumed that no upsizing or paralleling of the 48-inch Interceptor would be undertaken due to the length of the upsizing/paralleling required (~14,000 l.f.).

The extent of the upgrades required to fully realize the potential capacity in the Highway 59 trunk system is the primary reason it is recommended the excess capacity in the G Street sewer be utilized first. As mentioned in bullet 4, above, the complexity of expanding gravity sewer capacity south of W. Olive is problematic due to the number of existing utilities, which include two separate sewer trunks (48-inch Interceptor and the West Trunk). As such, the assumption is currently that the Highway 59 trunk has no additional (remaining) capacity.

It is understood that the City would prefer not to construct the 24-inch relief sewer parallel to the Highway 59 trunk , instead focusing on utilizing the remaining capacity in the G Street trunk and planning the future large diameter future trunk sewers described in Section 5.3.3, which follows.

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N

0 400 800 1200 1600 2000
APPROXIMATE SCALE IN FEET

Stantec

BELLEVUE RD

G ST

G STREET TRUNK
HYDRAULIC CAPACITY - 4.14 Mgal/D
EXISTING FLOWS - 0.85 Mgal/D
PROJECTED INTERIM FLOWS - 4.07 Mgal/D

PERMANENT CONNECTION TO OCCUR WHEN BELLEVUE RANCH EXCEEDS 1.95 MGD, PEAK DISCHARGE 2.23 MGD

PS

TEMPORARY CONNECTION NOT TO EXCEED PEAK DISCHARGE 1.95 MGD WHEN 16" FORCEMAIN BECOMES ACTIVE, 14" FORCEMAIN DECOMMISSIONED

LAKE RD

GARDNER AVE

GARDNER RD

BELCHER AVE

SAN JOSE AVE

M ST

R ST

DONNA DR

BLACK RASCAL TRUNK
HYDRAULIC CAPACITY - 6.37 Mgal/D
EXISTING FLOWS - 3.75 Mgal/D
PROJECTED INTERIM FLOWS - 6.69 Mgal/D

BUENA VISTA DR

BUENA VISTA DR

HWY 59

YOSEMITE AVE

YOSEMITE AVE

JOERG AVE

EL PORTAL DR

COLUMBIA AVE

PARSONS AVE

BROOKDALE DR

BROOKDALE DR

LOUGHBOROUGH DR

HWY 59 PUMP STATION
SEE FIGURE 6-7

PS

WESTERN INDUSTRIAL PARK

W OLIVE AVE

OLIVEWOOD DR

E OLIVE AVE

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- FORCEMAINS
- PS LIFT STATIONS
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM

EXISTING SYSTEM RESIDUAL CAPACITY

- OVER CAPACITY
- < 2.5 MGD
- 2.5 - 5.0 MGD
- 5.0 - 10.0 MGD
- >10.0 MGD

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Figure 6-6
Capacity Remaining – G Street Trunk Under Interim Conditions

N

0 400 800 1200 1600 2000
APPROXIMATE SCALE IN FEET

Stantec

BELLEVUE PUMP STATION
PEAK DISCHARGE 2.23 MGD

G STREET TRUNK
SEE FIGURE 6-6

HWY 59 PUMP STATION
HYDRAULIC CAPACITY
3.17 Mgal/D (3.17 Mgal/D Upgraded)
EXISTING FLOWS
0.65 Mgal/D
PROJECTED INTERIM FLOWS
2.85 Mgal/D

INDUSTRIAL PARK COLLECTOR
EXISTING FLOWS 0.21 Mgal/D

21-INCH SEWER,
400 LINEAR FEET

EXISTING 24-INCH GRAVITY SEWER
CONVEYING HWY 59 PUMP STATION,
G STREET TRUNK, WESTERN INDUSTRIAL
AREA COLLECTOR AND SURROUNDING AREAS
REMAINING CAPACITY: OVER CAPACITY

DEDICATED HIGH
STRENGTH/HIGH VOLUME
INDUSTRIAL WASTE LINE

42-INCH INTERCEPTOR

BELCHER AVE
WESTERN
INDUSTRIAL PARK
ASHBY RD
HWY 59
SAN JOSE AVE
M ST
R ST
G STREET
GARDNER AVE
GARDNER RD
LAKE RD
YOSEMITE AVE
YOSEMITE
DONNA DR
BUENA VISTA DR
BUENA VISTA DR
LOUGHBOROUGH DR
EL PORTAL DR
JOERG AVE
COLUMBIA AVE
BROOKDALE DR
BROOKDALE DR
PARSONS AVE
W OLIVE AVE
OLIVEWOOD DR
E OLIVE AVE
DEVONWOOD DR
AUSTIN AVE
MEADOWS AVE
PARK AVE
OLEANDER AVE
ALEXANDER AVE
MCKEE RD
NORTH BEAR CREEK DR
MONTANA AVE
PARSONS AVE
26TH ST
20TH ST
18TH ST
27TH ST
V ST
CANAL ST

LEGEND

- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- FORCEMAINS
- LIFT STATIONS
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM

EXISTING SYSTEM RESIDUAL CAPACITY

- OVER CAPACITY
- < 2.5 MGD
- 2.5 - 5.0 MGD
- 5.0 - 10.0 MGD
- >10.0 MGD

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6.3.3 Long-Term System Needs

Due to the capacity limitations of the existing wastewater collection system, large trunk sewers must be constructed to accommodate future development within the SUDP. This is similar to conclusions presented in previous master planning documents. Alignments for these trunk sewers were determined based on conversations with City Public Works and Planning staff.

In addition to these conversations internal to the Master Plan team, City staff also discussed these alignments with representatives of UC Merced, the Campus Community and other stakeholders within the SUDP including representatives of at least some of the entitled properties located in the North Merced area. The process of selecting the alignments discussed here involved evaluating a number of alternative configurations of pump stations, force mains and gravity sewers. The list of options was reduced to two primary alternatives. The primary difference between the two alternatives is the assumption of when Campus Community connects to the system. During Master Plan development there was some uncertainty as to when the Campus Community may connect, and the second alternative provides an option for the Campus Community to connect at a later date. These two alternatives are described, generally below (precise alignments will be determined at a later date):

1. This alternative would serve the entire SUDP at current build-out flow estimates (with density assumptions as described in Chapter 3). Servicing the North Merced area would occur via a large new trunk starting in the vicinity of the intersection of Cardella Road and Lake Road, running east to west along Cardella Road, then south along Thornton Road to a pump station just north of Black Rascal Creek. A force main discharging from the new pump station north of Sante Fe Drive would extend to just south of CA 140, then transition to a new 60-inch gravity trunk from that point south to the WWTF. Additionally, flow from the existing Highway 59 Pump Station would be diverted to the new pump station along Thornton Road, eliminating the long-term need to upgrade the existing forcemain and sewer along Highway 59 south of W Olive Avenue (one reason the City prefers not to invest in improvements in the pump station forcemain and downstream gravity trunk system). Servicing in South Merced would be via a new trunk running east to west along E. Mission Avenue which would intersect with a new trunk sewer running north to south west of Highway 59. This trunk would then turn west on Reilly Road and continue westward to the WWTF. Alternative 1 is depicted in **Figure 6-8**.

2. Under the second alternative, the Campus Community is assumed to develop at a later date which would preclude participation in the new Cardella and Thornton trunks described in Alternative 1. The Campus Community would beserved in Alternative 2 by a trunk line to the south from this special development area instead of to the west (the Cardella trunk) as shown in Alternative 1. Due to the uncertainty of when their share of the financing would be available under this scenario, a dedicated trunk would be constructed parallel to the new Alternative 1 South Merced trunk running along Mission which would be sized according to estimates of flow from the balance of the SUDP south

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of Bear Creek, and consistent with the sizing described in Alternative 1 for this trunk. A trunk would be extended from the southern Campus Community boundary to along the proposed Campus Parkway road alignment and back into the City's SUDP where it would connect with the new east-west trunk parallel to the trunk in E. Mission Avenue. **Figure 6-9** illustrates Alternative 2.

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N

0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
W BELLEVUE RD
E BELLEVUE RD
'G' ST
UC MERCED CAMPUS
Bellevue-1:1.124 in ø
Bellevue-1A:2.27 in ø
1B:2.24 in ø
G STREET TRUNK
E CARDELLA RD
W.G: 54 in ø
W.F: 48 in ø
W.E: 42 in ø
W.D: 42 in ø
W.C: 27 in ø
W.B: 24 in ø
W.A: 24 in ø
PS
59
LAKE RD
W.H: 54 in ø
'G' ST
W YOSEMITE AVE
21 in ø
PS
HIGHWAY 59 PUMP STATION
PS
MCKEE RD
BLACK RASCAL CREEK
W OLIVE DR
E OLIVE DR
99
BLACK RASCAL CREEK
FAHRENS CREEK
WESTERN INDUSTRIAL PARK
BEAR CREEK
E SANTA FE DR
R ST
G ST
KIBBY RD
DEDICATED HIGH STRENGTH/HIGH VOLUME INDUSTRIAL WASTE LINE
30 in ø
PS
WEST AVE TRUNK
WESTSIDE AVE
140
E.D: 18 in ø
MERCED MUNICIPAL AIRPORT
W.I: 60 in ø
S THORNTON RD
S G ST
E CHILDS RD
E.E: 21 in ø
E GERARD AVE
E GERARD AVE
48-INCH INTERCEPTOR
30 in ø
GERARD TRUNK
E.H: 36 in ø
E MISSION AVE
E.G: 36 in ø
E.F: 27 in ø
HARTLEY SLOUGH
MILES CREEK
W.J: 66 in ø
GOVE RD
E.I: 36 in ø
59
99
OWENS CREEK
E.J: 36 in ø
W REILLY RD
REILLY RD
E.K: 36 in ø
E.L: 36 in ø
E.M: 36 in ø
CITY OF MERCED WWTF
MILES CREEK
OWENS CREEK

LEGEND

- FORCEMAINS
- PS LIFT STATIONS
- PROPOSED UPGRADES
- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- SUDP BUILDOUT SEWERSHED
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM
- CREEKS

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N

0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK

59

W BELLEVUE RD

E BELLEVUE RD

'G' ST

UC MERCED CAMPUS

Bellevue-1A:2: 27 in ø

Bellevue-1:1: 24 in ø

18721.2:24 in ø

G STREET TRUNK

E CARDELLA RD

W.G: 48 in ø

W.F: 48 in ø

W.E: 42 in ø

W.D: 36 in ø

W.C: 18 in ø

LAKE RD

W.H: 48 in ø

W YOSEMITE AVE

Yosemite-6:1: 21 in ø

MCKEE RD

E.A_UC: 27 in ø

HIGHWAY 59 PUMP STATION

BLACK RASCAL CREEK

W OLIVE DR

E OLIVE DR

99

WESTERN INDUSTRIAL PARK

BEAR CREEK

E.B_UC: 27 in ø

E SANTA FE DR

'R' ST

'G' ST

KIBBY RD

DEDICATED HIGH STRENGTH/HIGH VOLUME INDUSTRIAL WASTE LINE

30 in ø

WEST AVE TRUNK

W.I: 54 in ø

WEST AVE

140

E.D: 18 in ø

E.D_UC: 30 in ø

MERCED MUNICIPAL AIRPORT

S THORNTON RD

S 'G' ST

E CHILDS RD

E.E: 21 in ø

E.E_UC: 30 in ø

E GERARD AVE

48-INCH INTERCEPTOR

GERARD TRUNK

18271.2:36 in ø

E.H: 36 in ø

E.H_UC: 30 in ø

E MISSION AVE

E.G: 36 in ø

E.G_UC: 30 in ø

E.F: 27 in ø

E.F_UC: 30 in ø

HARTLEY SLOUGH

MILES CREEK

GOVE RD

W.J: 54 in ø

E.I: 36 in ø

E.I_UC: 30 in ø

59

99

OWENS CREEK

E.K: 36 in ø

E.K_UC: 30 in ø

E.J: 36 in ø

E.J_UC: 30 in ø

W REILLY RD

REILLY RD

E.L: 36 in ø

E.L_UC: 30 in ø

E.M: 36 in ø

E.M_UC: 30 in ø

CITY OF MERCED WWTF

MILES CREEK

OWENS CREEK

LEGEND

- FORCEMAINS
- LIFT STATIONS (PS)
- PROPOSED UPGRADES
- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- SUDP BUILDOUT SEWERSHED
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM
- CREEKS

The City has selected Alternative 1 as the preferred Master Plan trunk alignment alternative. In addition to the facilities identified in the discussion above, and on **Figure 6-10**, further details of the new facilities proposed are provided in the following paragraphs.

As discussed, the servicing of North Merced would primary be provided by new gravity sewer along Cardella Avenue and Thornton Road, with a pump station to convey flows from Sante Fe Drive to south of CA 140. A breakdown of the required new gravity sewer is provided in **Table 6-2**.

Table 6-2 Required Gravity Sewer for North Merced – Preferred Alternative 1

Sewer Location	Sewer Diameter [inch]	Sewer Length [ft]	Upstream Rim Elev. [ft]	Upstream Invert Elev. [ft]	Downstream Rim Elev. [ft]	Downstream Invert Elev. [ft]
Cardella Road / Lake Road	24	5260	196.1	189.0	203.0	182.0
Cardella Road / Gardner Avenue	27	5270	203.0	182.0	181.3	171.6
Cardella Road / G Street	42	7660	181.3	171.6	177.7	159.6
Cardella Road / New Connection from Bellevue	48	2510	177.7	159.6	174.1	156.5
Cardella Road / CA 59	54	5370	174.1	156.5	172.1	151.0
Thornton Road / Cardella Road	54	6180	172.1	151.0	170	145.1
CA 59 / Yosemite Avenue	21	5400	167.3	145.4	170	142
Bellevue Road	24	3800	182	175	182.1	172.1
Bellevue Road	27	5290	182.1	172.1	177.7	159.6
Bellevue Road / G Street[(a)]	24	5270	185.6	175.8	181.3	171.6
Thornton Road / CA-140	60	20980	160	150.5	147	135

(a) New 24-inch sewer in parallel to existing 30-inch sewer.

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N

0 0.2 0.4 0.6 0.8 1.0
APPROXIMATE SCALE IN MILES

Stantec

FAHRENS CREEK
59
W BELLEVUE RD
E BELLEVUE RD
'G' ST
UC MERCED CAMPUS
Bellevue-1: 1124 in ø
Bellevue-1A: 27 in ø
1827-1: 24 in ø
G STREET TRUNK
E CARDELLA RD
W.G: 54 in ø
W.F: 48 in ø
W.E: 42 in ø
W.D: 42 in ø
PS
W.C: 27 in ø
W.B: 24 in ø
W.A: 24 in ø
59
LAKE RD
W.H: 54 in ø
'G' ST
W YOSEMITE AVE
21 in ø
PS
HIGHWAY 59 PUMP STATION
PS
MCKEE RD
BLACK RASCAL CREEK
W OLIVE DR
E OLIVE DR
99
FAHRENS CREEK
BLACK RASCAL CREEK
WESTERN INDUSTRIAL PARK
BEAR CREEK
BEAR CREEK
E SANTA FE DR
'R' ST
'G' ST
KIBBY RD
DEDICATED HIGH STRENGTH/HIGH VOLUME INDUSTRIAL WASTE LINE
30 in ø
PS
WEST AVE TRUNK
WEST AVE
140
E.D: 18 in ø
MERCED MUNICIPAL AIRPORT
S 'G' ST
E CHILDS RD
W.I: 60 in ø
E.E: 21 in ø
E GERARD AVE
E GERARD AVE
S THORNTON RD
48-INCH INTERCEPTOR
30 in ø
GERARD TRUNK
E MISSION AVE
E.H: 36 in ø
E.G: 36 in ø
E.F: 27 in ø
HARTLEY SLOUGH
MILES CREEK
W.J: 60 in ø
E.I: 36 in ø
GOVE RD
59
99
OWENS CREEK
E.J: 36 in ø
W REILLY RD
REILLY RD
E.K: 36 in ø
E.L: 36 in ø
E.M: 36 in ø
CITY OF MERCED WWTF
MILES CREEK
OWENS CREEK

LEGEND

- FORCEMAINS
- PS LIFT STATIONS
- PROPOSED UPGRADES
- EXISTING CITY LIMITS
- MERCED VISION 2030 GP SUDP BOUNDARY
- PARCELS IDENTIFIED IN EITHER NMSD OR TSAM
- SUDP BUILDOUT SEWERSHED
- EXISTING SEWERSHEDS
- EXISTING SEWER SYSTEM
- CREEKS

The servicing of South Merced would primarily be provided by new gravity sewer along Mission Avenue. A breakdown of the required new gravity sewer is provided in **Table 6-3.**

Table 6-3 Required Gravity Sewer for South Merced – Preferred Alternative 1

Sewer Location	Sewer Diameter [inch]	Sewer Length [ft]	Upstream Rim Elev. [ft]	Upstream Invert Elev. [ft]	Downstream Rim Elev. [ft]	Downstream Invert Elev. [ft]
CA 140 / End of Baker Drive	18	2180	190	175.7	194	174.6
Kibby Road / CA 140	21	7940	194	174.6	191	170.6
Mission Avenue / Miles Road	27	7160	191	170.6	180	165.6
Mission Avenue / Doppler Road	36	16640	180	165.6	170.1	153.9
Dickenson Ferry Road to WWTF	36	15032	170.1	153	147	134

6.4 CAPITAL COST ESTIMATES

Planning level opinions of probable cost for major trunk lines and pump stations have been developed. These planning level estimates include construction costs, a 30% contingency for unforeseen conditions, and a 20% allowance for design, construction management and contract administration. These costs have been estimated using a current ENR Construction Cost Index (ENRCCI) of 10435 (October 2016).

The growth rate of development within the City and the UC Merced campus will dictate the time horizon for build-out of the ultimate service area. However, it is possible this time horizon may be 50 years or more. As a result, the City may elect to phase all or a portion of the new large trunk sewers in North and South Merced which is beyond the scope of the analysis and discussion presented in this Master Plan. The City intends to work through possible options with the stakeholders in North and South Merced in order to come up with a detailed phasing plan for development of the new trunk sewers.

6.4.1 Capital Costs to Serve SUDP

Table 6-4 summarizes opinions of probable cost for serving build-out of the SUDP. These build-out projections are based on the density assumptions presented in Chapter 3. The infrastructure components are based on the discussion in Section 5.3.2 for the Interim Capacity Phasing plan and on Alternative 1 presented in Section 5.3.3 serving ultimate build-out. As mentioned in Section 6.3.3, the preferred long-term sewerage servicing plan could be (and likely would be)

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phased. This Master Plan does not attempt to identify the exact manner in which that phasing would occur. This phasing discussion is to be addressed in a separate document to be developed by the City in cooperation with affected stakeholders.

In addition to these costs, interim improvements to the Highway 59/G Street and 48-inch Interceptor system identified in Section 6.3.2 should also be factored into the City's plans, including identifying necessary revenue streams to fund those improvements.

Table 6-4 Opinion of Probable Cost – SUDP Servicing

Service Area	Construction Cost [a]	Engineering, CM, Admin (20%)	Contingency (30%)	Total Project Costs (rounded)
North Merced (West Trunk)	$58,520,000	$11,704,000	$17,556,000	$87,780,000
South Merced (East Trunk)	$24,400,000	$4,880,000	$7,320,000	$36,600,000

(a) The current servicing plan calls for a pump station on the west side of the City. This cost estimate assumes both a 24-inch and 36 inch diameter force main (anticipating some phasing) approximately 1.8 miles in length will be constructed. ENR CCI = 10435, October 2016.

6.4.2 Repair and Replacement Costs

Table 6-5 summarizes opinions of probable cost for addressing existing system deficiencies identified in Section 5.2. The improvement projects identified in **Tables 6-4** and **6-5** do not include repair and replacement (R&R) of City facilities. A robust R&R program is a key element of any properly managed public infrastructure system. The City's R&R program for the sewer utility includes an annual expenditure for the replacement of older, aging infrastructure. To replace all of the facilities in the City's sewer enterprise would require a significant sum of money. The annual R&R allocation is intended to reduce the impact of repairing and replacing critical portions of the City's sewer collection system by stretching them out over time.

As a result, to ensure the elements of these systems which are in place today remain in service for perpetuity, the City has elected to fund their R&R program sufficiently to allow replacement of all collection system mechanical components (valves, pumps and appurtenances) on a schedule which is consistent with industry standard expectations for service life. The City is budgeting for replacement of all pipelines assuming an 80 year service life. Pump stations are assumed to have 20 year service life for mechanical components (i.e. pumps and emergency power generation), with wet wells and control buildings assumed to have 80 year service lives.

At this time, the City is planning to budget $300,000 annually for repair and replacement of system assets. Prioritization of R&R projects will be done within the typical five-year CIP timeframe, updated accordingly, but the City also recognizes that unforeseen incidents may require adjustments in the specific projects identified in any particular year.

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The five year CIP for the City is summarized in **Table 6-6**. Where possible, the City has attempted to include R&R components in the improvement projects identified previously in **Tables 6-4** and **6-5** where they overlap and it makes sense to do so.

Table 6-5 Opinion of Probable Cost – Addressing Existing System Deficiencies [(a)]

Scenario	Construction Cost	Engineering, CM, Admin (20%)	Contingency (30%)	Total Project Costs (rounded)
Address Existing Deficiencies	$2,390,000	$480,000	$720,000	$3,580,000

(a) Planning level costs assume replacement of pipelines. Costs for pipe bursting may be lower.

Table 6-6 Five Year CIP Budget for City of Merced Sewer Collection System [(a)]

System Component	Fiscal Year 2016/17	Fiscal Year 2017/18	Fiscal Year 2018/19	Fiscal Year 2019/20	Fiscal Year 2020/21
Address Existing Deficiencies	$250,000	$350,000	$350,000	$500,000	$500,000
Repair & Replacement Program	$300,000	$300,000	$300,000	$300,000	$300,000
Total Annual Cost	**$550,000**	**$650,000**	**$650,000**	**$800,000**	**$800,000**

(a) All costs include allowance for Engineering, Construction Management (CM) and Administration of 20% and a project Contingency of 30% of Construction cost.

(b) All annual costs are presented in October 2016 dollars

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APPENDICES

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Appendix A DETAILED COST BREAKDOWN

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Appendix L

Water Supply Assessment

QK, July 2021

WATER SUPPLY ASSESSMENT

CITY OF MERCED

THE CROSSINGS
MIXED-USE DEVELOPMENT



JULY 2021

WATER SUPPLY ASSESSMENT

THE CROSSINGS
MIXED-USE DEVELOPMENT

Prepared for:

City of Merced
2222 M Street
Merced, CA 95340
Contact Person: Ken Elwin, Director of Public Works
Phone: (209) 385-6800

Consultant:

2816 Park Avenue
Merced, CA 95348
Contact: Garth A. Pecchenino, PE, PLS
Phone: (559) 733-0440
Fax: (559) 733-7821

July 2021

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Project #160188/6.1

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SECTION 1 - INTRODUCTION

1.1 - General

Senate Bill 610 (Chapter 643, Statutes of 2001) and Senate Bill 221 (Chapter 642, Statutes of 2001) amended State law, effective January 1, 2002, improves the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 are companion measures that seek to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to city and county decisionmakers prior to approval of specified large development projects. Both statues also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Both measures recognize local control and decision making regarding the availability of water for projects and the approval of projects.

Under SB 610, water assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in Water Code 10912[a]) subject to the California Environmental Quality Act (CEQA). Under SB 221, approval by a city or county of such developments requires an affirmative written verification of sufficient water supply (see Appendix A). However, not every project that is subject to the requirements of SB 610 would also require the mandatory water verification of SB 221. Conversely, not every project that is subject to the requirements of SB 221 would also require the environmental document to contain an SB 610 water assessment.

The Merced Groundwater Subbasin Groundwater Sustainability Plan (SGMA) was adopted in January of 2020 (see Appendix E for the Executive Summary of the Plan). The Plan has deferred consideration and adoption of constraints on urban area water usage until an unspecified date in Plan implementation. It is assumed that such constraints on urban groundwater usage may be imposed. However, the analyses in this water supply assessment will err on the side of caution; they will continue to be based on existing estimated and projected flows.

1.2 - Project Location

The Project is a proposed plan for the development of 28.6 acres near the University of California, Merced to be annexed to the City for development approval and Project implementation.

The location of the Project is depicted on Figures 1-1 and 1-2.

1.3 - Project Description

The Project's proposed land uses are depicted on Figure 1-3. Table 1-1 summarizes the proposed land use categories, numbers of proposed residential units and estimated related population. The land uses include 540 residential units, 111,000 square feet of mixed-use

structures (66,000 square feet of retail and 45,000 square feet of residential), a stormwater retention basin, 1,136 parking spaces, and a clubhouse.

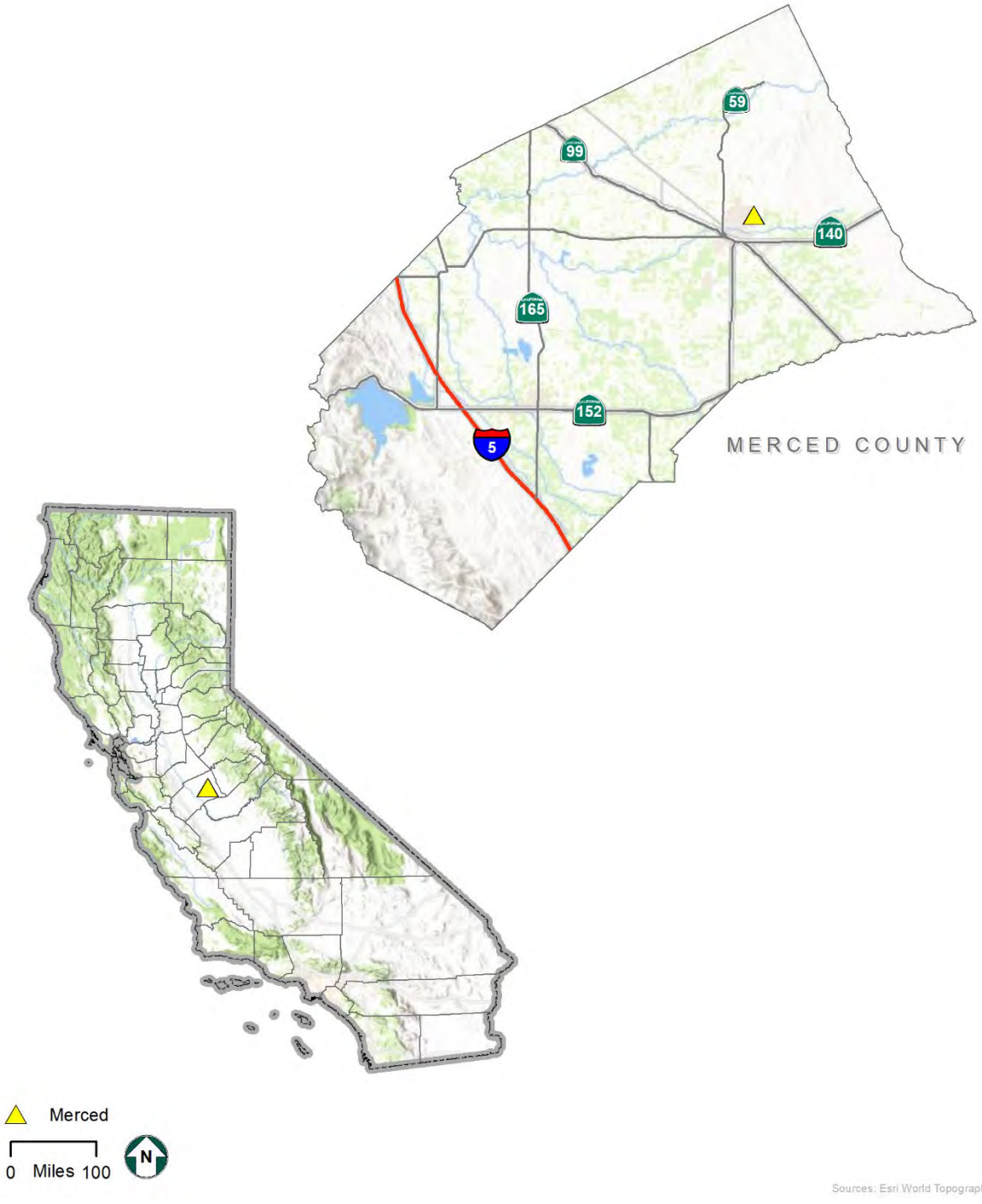


Figure 1-1
Project Location - Regional



Figure 1-2
Project Location in Merced



Figure 1-3
Project Site Plan

Table 1-1
Project Land Uses

Proposed Buildings	Square Footage
Residential	
20 Multi-story Buildings	26,015/bldg.
(540 residential units)	520,300
Clubhouse	13,700
Total	**534,000**
Mixed-Use	
First Floor Total (Commercial/Retail)	66,000
Second Floor Total (Residential)	45,000
30 residential units	
Total	**111,000**
Proposed Parking	**Spaces**
Residential	813
Retail	323
Total	**1,136**

Based on the commonly accepted Valley usage of 65 gallons per capita per day, and the City's average household size of 3.2 people, water usage for each of the 570 dwelling units within the project would be208 gallons per day (3.2 x 65) and the annual water demand for all of the 570 dwelling units would be approximately 133 acre-feet per year [(208 x 570 x 365/1,000,000) x 3.07[1]].

Given the proximity of the project to the University of California, Merced, it is not unreasonable to assume that some of the available units could be occupied by students. The average water usage of 39 gallons per day by students is considerably lower than the typical Valley usage rate of 65 gallons per day. This student usage would result in an annual water demand of approximately 80 acre-feet per year with the occupancy level at 3.2 people per dwelling unit. The operational program for Student Housing provides for the control of the number of people per bedroom at One, were as the people per bedroom in the calculations assumed a greater number based on a residential living unit occupancy level in each bedroom. Therefore, the methodology should be considered maximum usage rather than the realistic usage of the project which would likely be considerably less given some student occupancy.

It is estimated that the Project, when completed, will have 147 full-time employees providing residential landscaping maintenance and, in phase three of the development, retail services. Typically, Valley employees will utilize 40 gallons per day. Assuming a 40-hour work week, such usage would create a demand in the order of (240 days x 40 gallons per day x 147) =

[1] Conversion factor to Acre-Feet

1,411,000 gallons per year, four acre-feet per year. It is assumed, to be conservative, that none of the employees' dwell onsite.

The irrigation of the 10.3 acres of landscaping (the non-impervious surface on the site, non-hard surfaced area) has been calculated to be in conformance with MELO's highest usage to require 24 acre-feet per year.

The total annual Project water usage is therefore calculated as:

Table 1-2
Project Water Usage

Multi-Family Housing/Mixed Use	133 acre ft/yr
Employee water usage	4 acre ft/yr
Landscape irrigation	24 acre ft/yr
Total	**161 acre ft/yr**

This usage, considering that 18.3 acres of the Project site is hard surfaced, is approximately (92.6/28.6) 3.24 acre-feet per acre, a reasonable expectation for an intensive urban development utilizing modern water use reduction measures, compared to 2.5 to 4.0 acre-feet per acre for intensive agricultures.

1.3.1 - WATER INFRASTRUCTURE

There is a 16-inch water main on both Yosemite Avenue and Gardner Avenue. The 16-inch water main on Yosemite Avenue is looped with a 12-inch line going south on Parsons, a 16-inch line going south on McKee, and a 12-inch line going north on Paulson Road. The 16-inch main on Gardner Avenue is looped with a 12-inch line going west on Dunn Road (connecting with the 12-inch line on Paulson Road).

The two 16-inch mains would be utilized to supply the anticipated flow requirements for fire, domestic, and landscape irrigation systems. It is contemplated that a 12-inch onsite "main" will be looped through the Project with a backflow device at each end where it connects to the 16-inch mains. Smaller mains and individual service lines to the various buildings will be fed from the 12-inch onsite loop where appropriate. The number and location/spacing of onsite fire hydrants will be determined during the design phase of the Project in accord with City and code requirements.

As is typical for most three-story buildings in Merced and if there is not sufficient water pressure adjacent to the site, there may be a fire booster pump for the fire sprinkler systems for the three-story housing buildings.

Figure 1-4 depicts Project site-adjacent water distribution.

1.4 - Project Water Supply Assessment Timeline

The Project will be built in five phases. The first phase will be the construction of the clubhouse, maintenance building, and the six most southerly residential buildings. The second phase will be the construction of the next six residential buildings north of the first phase with the third phase completing the final six northerly buildings. Lastly, the fourth and fifth phases will be the construction of mixed use and retail buildings 1, 2 and 3 and then buildings 4 and 5, respectively. These final two phases are dependent on the leasing activity of the first three phases, as phases four and five will be built as key tenants are identified.

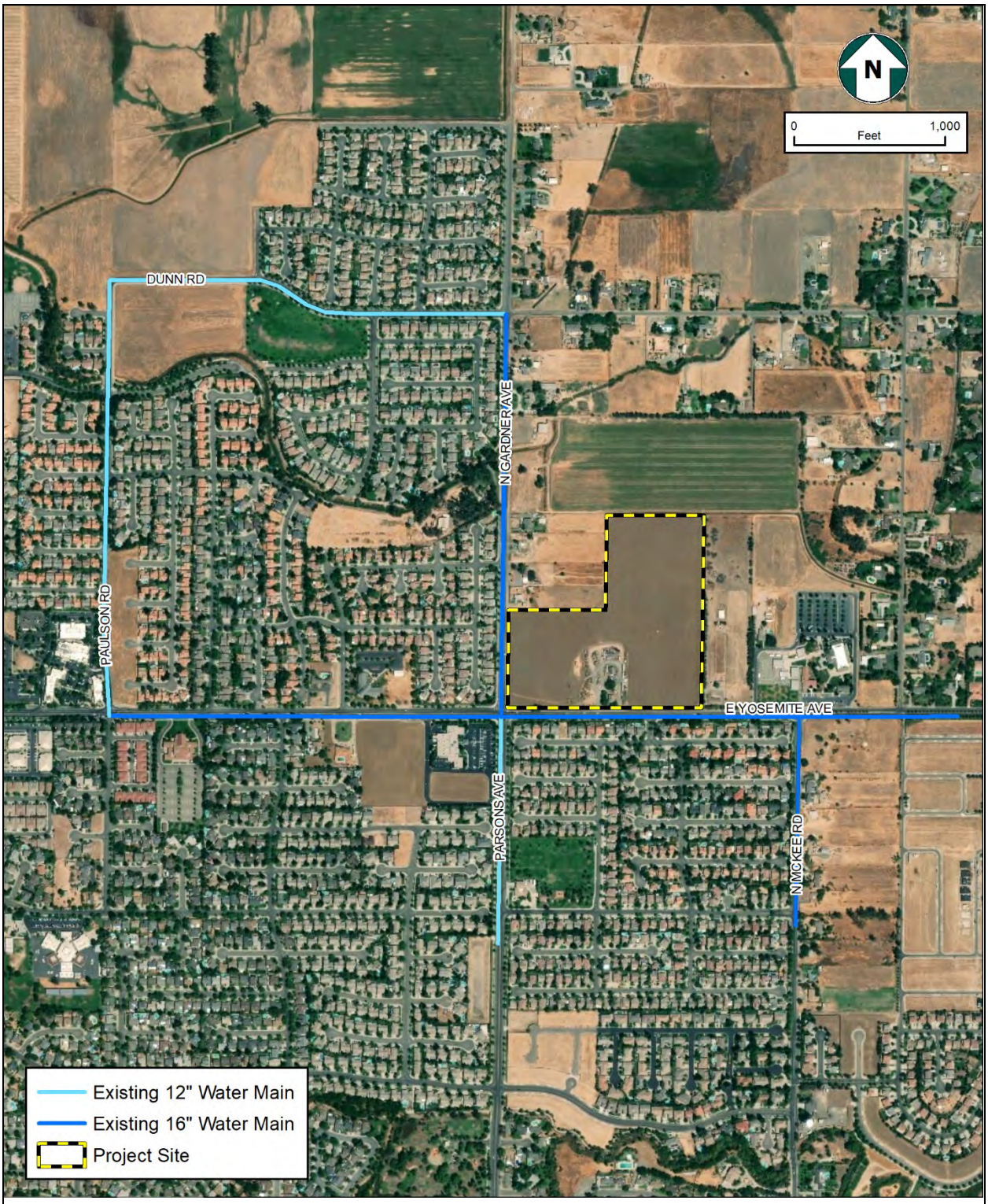


Figure 1-4
City of Merced Water System's Project Water Distribution Facilities

The Project for which this Water Supply Assessment (WSA) is prepared is internally "calendar timeless." Its growth projections are premised upon its total residential and commercial development additions to existing community development, not upon times of such development, for a 20-year period to approximately 2040.

The WSA is similarly unconstrained by the assumed or probable dates of intensification or modification of existing development restrictions or per capita usage requirements. The Water Code requires evaluation over a 20-year period of project water usage; it implies that such usage consider the impacts of full project development on the available water supply during normal rainfall years, "dry" years, and "multiple-dry" years. The possibility that implementation of Project development may be briefly delayed does not change Project water supply analysis criteria.

SECTION 2 - WATER SUPPLY

Water Code Section 10910

(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

The City of Merced Water Division currently pumps and delivers groundwater to meet the demands of the service area which will include the Project. The City currently has no rights to or contracts for surface water, nor purchases any wholesale water from other agencies with exception to an MOU between the City of Merced and the Merced Irrigation District allowing the purchasing of surface water from Merced Irrigation District. The following sections describe the groundwater subbasin and water supply/water system reliability.

2.1 - Groundwater

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or

the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as over drafted or has been projected that the basin will become over drafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition…

The area's geohydrologic characteristics are briefly described as:

There are three groundwater aquifers in the Merced Subbasin: an unconfined aquifer, a confined aquifer, and an aquifer in consolidated rocks. The unconfined water body occurs in the unconsolidated deposits above and east of the Corcoran Clay, which underlies the western half of the Subbasin at depths ranging from about 50 to 200 feet, except in the western and southern parts of the area where clay lenses occur and semi-confined conditions exist. The confined aquifer occurs in the unconsolidated deposits below the Corcoran Clay and extends downward to the base of fresh water. The aquifer system in consolidated rocks occurs under both unconfined and confined conditions. The community of Merced is located east of the easterly boundary of the Corcoran Clay. Furthermore, the majority of the wells are located within the City of Merced, however, a portion of the wells are also located within the Corcoran Clay boundary. There is, therefore, no continuous confined aquifer under the community and its well system.

2.2 - Groundwater Usage

The water purveyors in the Merced Subbasin are depicted on Figure 2-1. The Merced Integrated Regional Water Management Plan projected that in 2015 municipalities and urban districts in the Subbasin would pump (all are groundwater-dependent) about 107,000 acre-feet per year; that agricultural district would pump on the order of 400,000 acre-feet per year. These estimates assumed normal precipitation years and surface water usage for agricultural irrigation. They also preceded current reduced community growth rates, and the reductions of per capita per day usage by urban areas which may result from State or SGMA Plan drought-related urban water usage requirements.

Such forecast pumping rates do not reflect actual drought-related pumpage rates (municipality/urban water use reductions, or agricultural water pumpage increases due to surface water source shortage). They more accurately reflect long-term groundwater usage trends as indicators of subbasin water use demands. They are reported here for that purpose only. Estimated pumpage rates reported for 2012 in Merced County's 2030 General Plan Background Report were 54,000 acre-feet of urban demand and 492,000 acre-feet of agricultural pumpage. These rates reflected drought-related reduced urban water use and increased agricultural pumpage because of drought-affected lack of availability of surface water.

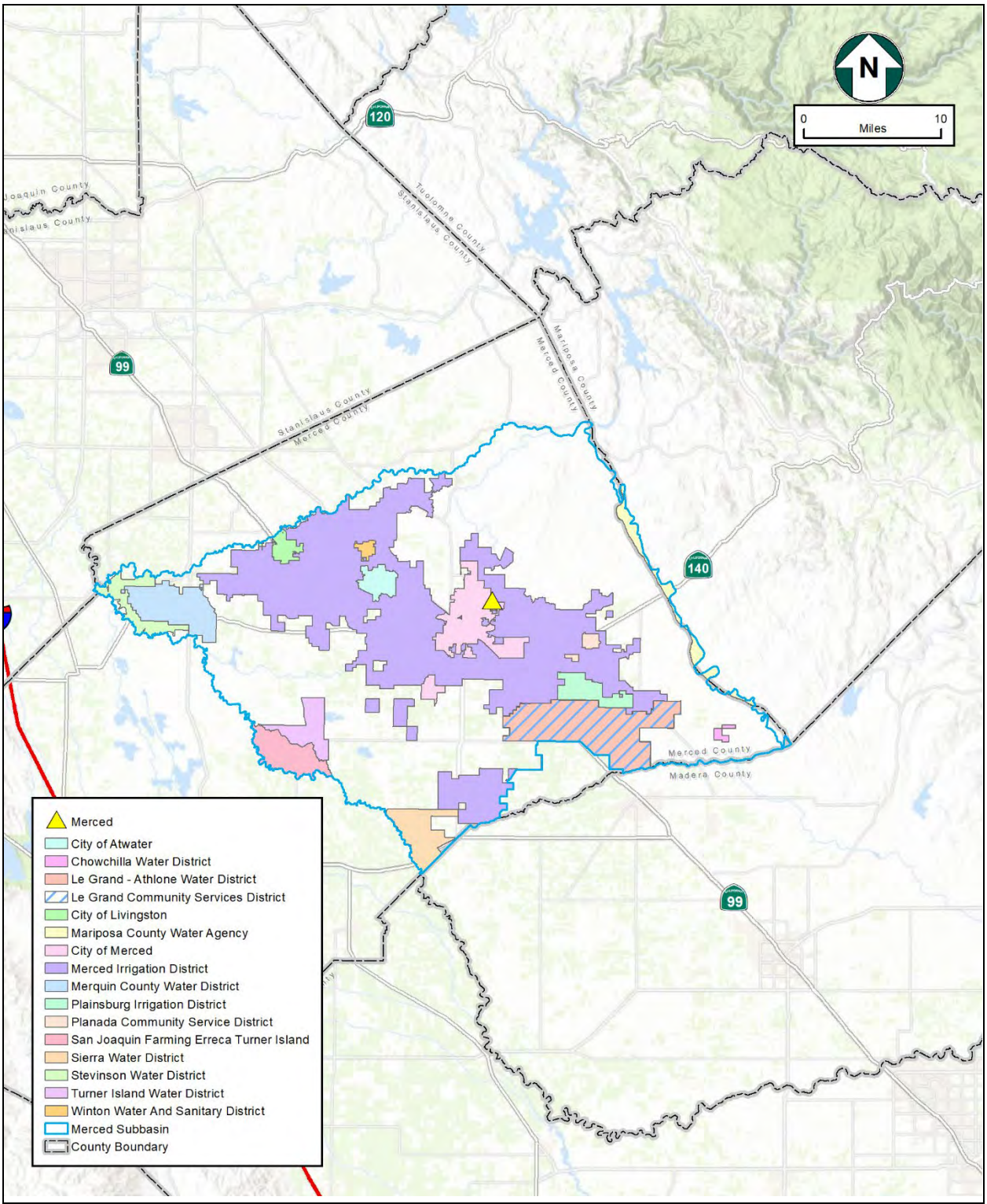


Figure 2-1
Water Purveyors, Merced Subbasin

Agriculture is the dominant land use in Merced County. It is estimated to account for more than 90 percent of all land use. According to the Merced Groundwater Basin Management Plan, most of the water used within the Merced Subbasin has historically been and continues to be used for agricultural purposes (Figure 2-2).

2.3 - Groundwater Subbasin

The Department of Water Resources (DWR) has divided the State into 10 hydrologic regions which have been further divided into basins and subbasins. The Project is located in the San Joaquin Hydrologic Region (Figure 2-3). As described in the 2003 update to Bulletin 118, "California's Groundwater," the Merced Groundwater Basin (MGWB) is a subbasin within the San Joaquin Valley Groundwater Basin of the San Joaquin River Hydrologic Region (Figure 2-4).

The MGWB is located in the San Joaquin Valley, which is surrounded by the Coast Range on the west, the San Emigdio and Tehachapi Mountains on the south, the Sierra Nevada on the east, and the Sacramento-San Joaquin Delta (Delta) and Sacramento Valley on the north. The northern portion of the San Joaquin Valley drains toward the Delta via the San Joaquin River and its tributaries, including the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the Valley is internally drained by the Kings, Kaweah, Tule and Kern Rivers that flow into the Tulare Drainage Basin including the beds of the former Tulare, Buena Vista, and Kern Lakes (DWR, 2003).

The MGWB lies on the eastern side of the San Joaquin Valley, entirely within Merced County, and is generally described as the eastern half of Merced County. For the purposes of this WSA, the northern border of MGWB includes lands south of the Merced River between the San Joaquin River on the west and the crystalline basement rock of the Sierra Nevada foothills on the east. The MGWB boundary on the south and west is the Chowchilla River and the Madera-Merced County line, thence northwest to the San Joaquin River.

Studies undertaken by associations of local water agencies, led by the Merced Irrigation District, have utilized an area only 54 square miles larger than the State, Bulletin 118, MGWB description as more accurately describing the Subbasin from a hydrologic standpoint, terming it the Merced Region. The information provided, and referenced, in this WSA will be based on that Subbasin definition. The terms MGWB and Merced Subbasin will be used interchangeably in the WSA (see Figure 2-2).

The Subbasin has a semi-arid climate, featuring very hot, dry summers and mild, wet winters. Average January temperatures are a maximum of 55 °F and a minimum of 36 °F. Average July temperatures are a maximum of 97.1 °F and a minimum of 60.9 °F. There is an average of 98.7 days with highs of 90 °F (32 °C) or higher and an average of 33.6 days with lows of 32 °F (0 °C) or lower. The record highest temperature of 114 °F was recorded on July 24, 1902, and August 8, 1905. The record lowest temperature of 13 °F was recorded on January 13, 2007.

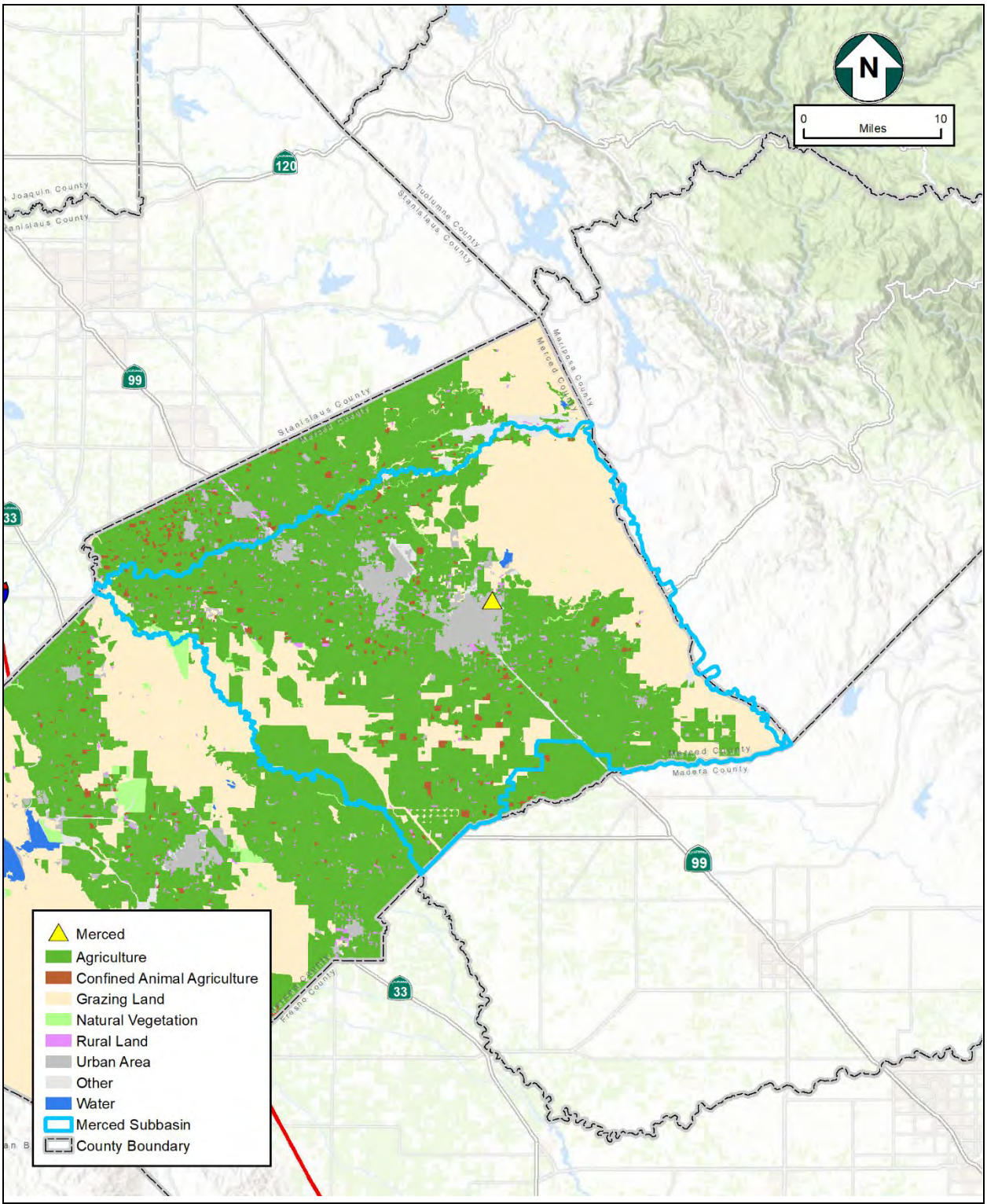


Figure 2-2
Merced Subbasin Land Uses

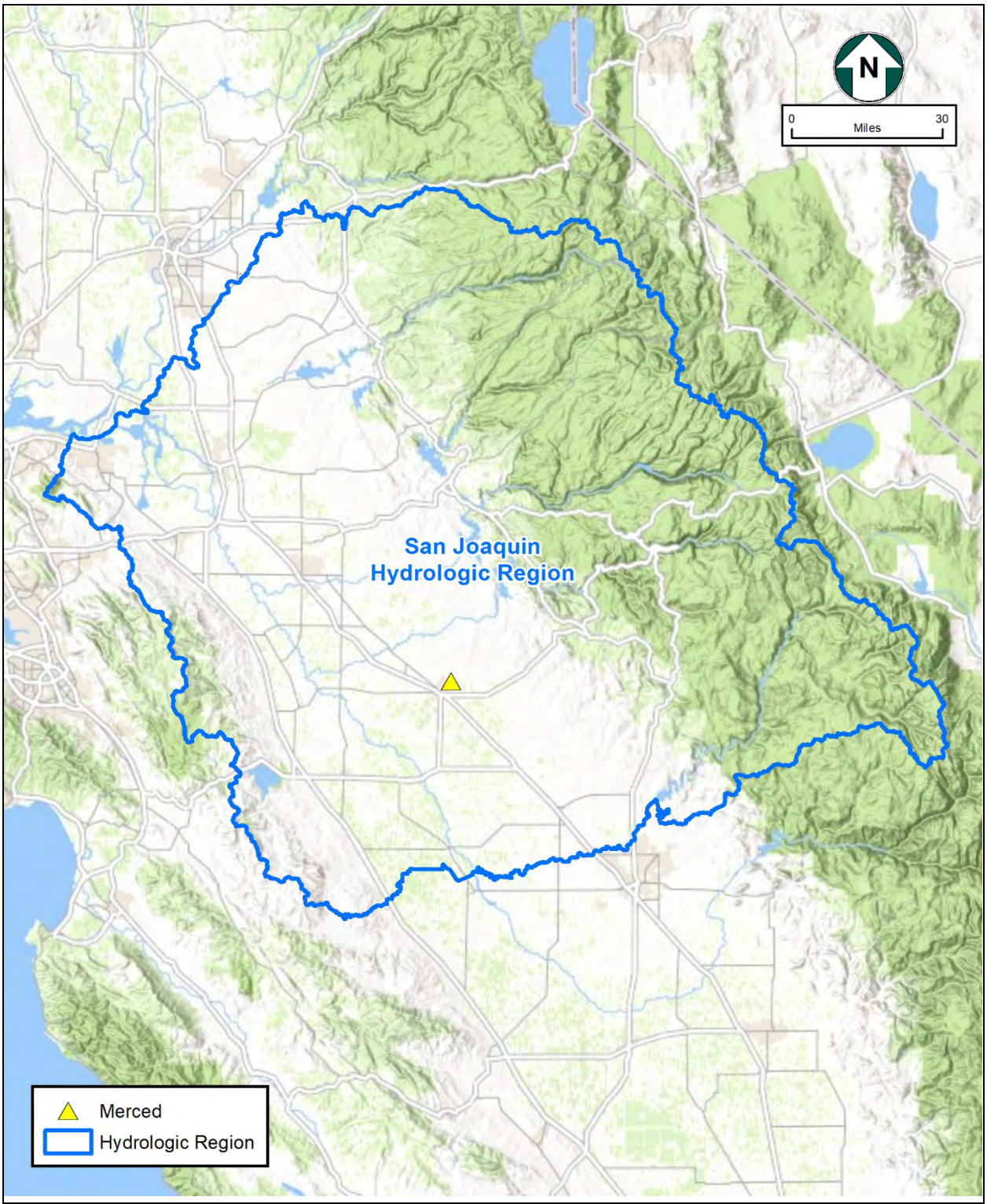


Figure 2-3
Hydrologic Region

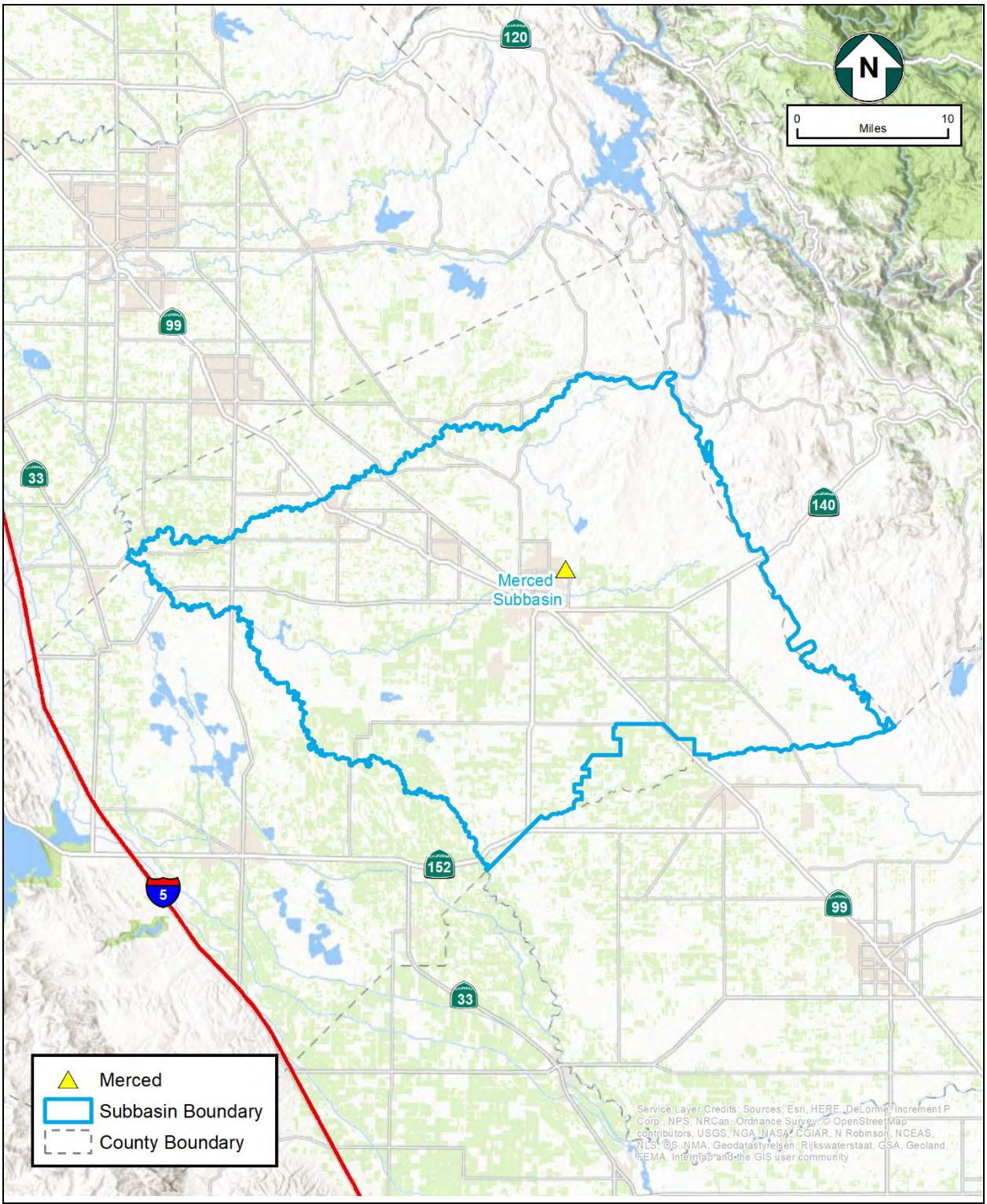


Figure 2-4
Merced Subbasin

Most of the rainfall occurs during the winter and averages 12.21 inches (310 mm) annually. There is an average of 48 days annually with measurable precipitation. The wettest year was 1998 with 21.66 inches (550 mm) and the driest year was 1947 with 5.50 inches (140 mm). The most rainfall in one month was eight inches (203 mm) in January 1909. The most rainfall in 24 hours was 2.20 inches (56 mm), which occurred on January 30, 1911, and March 9, 1911. Although snow is relatively rare in Merced, averaging only 0.6 inches (15 mm) annually, the City's proximity to the Sierra Nevada has resulted in some instances of remarkably heavy snowfall. The record 24-hour snowfall was 13.9 inches (35 cm) on February 16, 1946. The most snowfall in one month was 39.0 inches (99 cm) in December 1906. Table 2-1 depicts climate data.

Agricultural water supplies serving the Region (Figure 2-1) can be grouped into three broad classes.

1. Merced Irrigation District/Stevinson Water District: The largest irrigated area is served by MID with a generally reliable surface water supply available from the Merced River that is adequate to meet customer demands in most years. The MID service area covers about 164,000 acres, of which approximately 140,000 acres are irrigated agricultural land. Some groundwater is pumped within the MID service area by both private landowners and by MID. The category also includes Stevinson Water District, which has a perhaps more reliable surface water source than MID.

2. Other organized agricultural water suppliers: Approximately 72,600 irrigated acres are served by other agricultural water suppliers that rarely, if ever, have adequate surface water supplies to meet agricultural demands. These areas rely on a blend of surface water and groundwater with groundwater being the primary source. The ratio of surface to groundwater supply availability varies widely between these agencies.

3. No organized agricultural water suppliers: Irrigated areas outside the service areas of MID and other agricultural water suppliers rely solely on groundwater supplies for irrigation, with the exception of limited surface water purchases made in some years, subject to availability.

2.4 - Basin Overdraft

Portions of the San Joaquin River Hydrologic Region have been in a state of overdraft for many years. The California Water Plan Update – Bulletin 160-98 estimated annual average groundwater overdraft in the Region to be 239,000 acre-feet at a 1995 level of development. According to the 2008 Merced Area GWMP, Merced Subbasin groundwater levels declined on average approximately 14 feet since 1980, with most of the decline occurring between 1980 and 1996, thus classifying the Subbasin as in a state of mild long-term groundwater level decline. The 2013 IRWMP characterized the Merced Subbasin as being generally in overdraft. In August 2015, the Department of Water Resources defined the Subbasin as being in a state of critical overdraft.

Table 2-1
Merced Subbasin Climate (1899-2016)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	77 (25)	84 (29)	88 (31)	98 (37)	109 (43)	111 (44)	114 (46)	114 (46)	1110 (43)	102 (39)	91 (33)	76 (24)	114 (46)
Average high °F (°C)	54.9 (12.7)	61.6 (16.4)	67.2 (19.6)	74.3 (23.5)	82.6 (28.1)	90.8 (32.7)	97.1 (36.2)	95.3 (35.2)	90.0 (32.2)	79.8 (26.6)	66.2 (19.0)	55.7 (13.2)	76.3 (24.6)
Average low °F (°C)	36.0 (2.2)	38.7 (3.7)	41.2 (5.1)	44.9 (7.2)	50.6 (10.3)	56.4 (13.6)	60.9 (16.1)	58.9 (14.9)	54.8 (12.7)	47.2 (8.4)	39.6 (4.2)	35.6 (2.0)	47.1 (8.4)
Record low °F (°C)	13 (-11)	20 (-7)	20 (-7)	22 (-6)	30 (-1)	37 (3)	39 (4)	35 (2)	32 (0)	28 (-2)	21 (-6)	15 (-9)	13 (-11)
Average precipitation inches (mm)	2.46 (62)	2.17 (55)	1.96 (50)	1.09 (28)	0.44 (11)	0.10 (2.5)	0.01 (0.25)	0.02 (0.51)	0.15 (3.8)	0.60 (15)	1.37 (35)	1.89 (48)	12.27 (312)

Source: Western Regional Climate Center

2.5 - Regional Groundwater Management

The Groundwater Management Act, California Water code (CWC) Section 10753, et. seq., originally enacted as Assembly Bill (AB) 3030, was passed by the State legislature during the 1992 session and became law on January 1, 1993.

The Merced Irrigation District (MID) and the City of Merced prepared a final draft Groundwater Management Plan (GWMP) in 1997 to comply with the legislative requirements of AB 3030. In December 1997, water purveyors within the MGWB signed a Memorandum of Understanding (MOU) creating an association identified as the Merced Area Groundwater Pool Interests (MAGPI) (Appendix B). MAGPI adopted the GWMP in December 1997. The 1997 GWMP served as the initial framework for management of groundwater resources within the MGWB.

In 2002, State Senate Bills (SB) 1938 (Groundwater Management Planning Act of 2002) and SB 1672 (Integrated Regional Water Management Planning Act of 2002) were signed into law. These bills required various changes and additions to existing basin-wide groundwater management plans. In 2008, the 1997 GWMP was adopted and incorporated new components and updates of existing components to address the legislative requirements of SB 1938 and SB 1672. This update incorporated data collected since 1997 and reflected analyses performed subsequent to preparation of the 1997 GWMP.

In 2013 the water purveyors in the Region adopted, and are implementing, the Merced Integrated Regional Water Management Plan (MIRWMP) updating and expanding upon the GWMP.

Since 2019, in compliance with the State's Sustainable Groundwater Management Act, the County of Merced, the Merced Irrigation District, and other agencies are cooperating in formation of State-required Sustainable Groundwater Management Agencies.

The Merced Groundwater Subbasin, as one of the 21 basins in the State of California identified by the California Department of Water Resources as critically overdrafted, is one of 48 basins considered high priority. Thus, consistent with the requirements of the Sustainable Groundwater Management Act (SGMA), water management and land management agencies in the Merced Subbasin have formed three Groundwater Sustainability Agencies (GSAs): The Merced Subbasin Groundwater Sustainability Agency (MSGSA), the Merced Irrigation Urban Groundwater Sustainability Agency (MIUGSA), and the Turner Island Water District Groundwater Sustainability Agency (TIWDGSA). The three GSAs were collaborating on development of one Groundwater Sustainability Plan for the entire Merced Groundwater Subbasin. The combined GSP was completed, adopted, and submitted by January 2020 to the State. (see Figure 2-5 for the inter-Agency boundaries).

The City of Merced is a part of the Merced Irrigation Urban Groundwater Sustainability Agency. It will be a participant in implementing the Plan after its adoption.

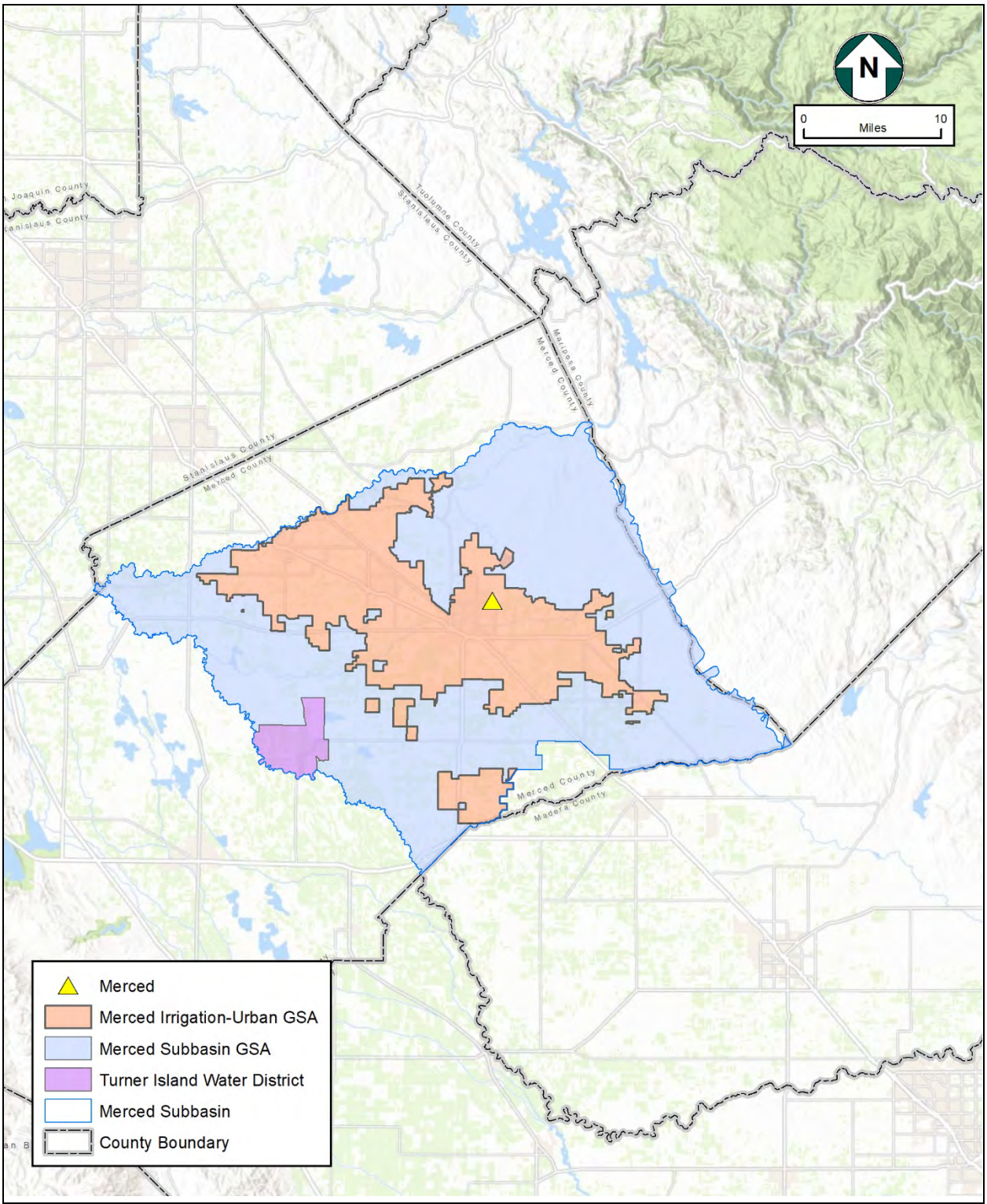


Figure 2-5
Merced Subbasin Groundwater Sustainability Agencies

The draft Plans prepared by the three agencies in the Subbasin have been completed and were circulated for comments and were coordinated prior to the January submittal to the State. Based on the information in the MIUGSA draft it will be necessary to plan and implement groundwater management programs to achieve subbasin groundwater sustainability in the Subbasin, as required by the State, by 2040. The City of Merced is represented on the MIUGSA advisory and governing committees.

2.6 - Reliability of Groundwater Basin Supply

As a prelude to the analysis of water supply sufficiency for the implementation of the proposed Project, which must consider the sufficiency and reliability of the Basin groundwater resources, the Basin is evaluated as:

- Providing adequate groundwater storage resources

  DWR Bulletin 118 cited an estimate of specific yield for the Merced Subbasin, which was developed by the Department of Water Resources (DWR) in 1995. The estimate was based on specific yields determined on a regional basis, which were used to obtain a weighted specific yield conforming to the Subbasin boundary. The estimated specific yield for the Subbasin was nine percent. The estimated storage capacity in the Subbasin was 21,100,000 acre-feet to a depth of 300 feet and 47,600,000 acre-feet to the base of fresh groundwater. These same calculations gave an estimate of 15,700,000 acre-feet of groundwater to a depth of 300 feet as of 1995.

  Although a current detailed budget is not available for this Subbasin, an estimate of groundwater demand has been calculated based on the 1990 normalized year and a water budget spreadsheet to estimate overall applied water demands, agricultural groundwater pumpage, urban pumping demand and other extraction data.

  Natural recharge into the Subbasin is estimated to be 47,000 acre-feet. Values for subsurface inflow have not been determined. There was approximately 243,000 acre-feet of applied water recharge into the Subbasin in 2012. Annual urban and agricultural extractions were at that juncture 54,000 acre-feet and 492,000 acre-feet, respectively. Other extractions equaled approximately 9,000-acre feet.

  Rather than attempting, for the purposes of this WSA, to prepare a detailed water budget, a worst-case assumption of decreased storage in the Subbasin was premised upon the reported average water level decline from 2012 to 2015. The loss in stored groundwater would have been in the order of 7,000,000 acre-feet in the Subbasin above 300 depth [(10'/225' x 15,700,000], 4.5 percent. This estimated loss occurred during severe drought years with reduced surface water availability, increased groundwater pumping and reduction of groundwater levels and storage volume. The Subbasin, despite its 2015 DWR designation as critically over drafted, currently recharges to some degree in normal rainfall/runoff years. With such recharge, and long-term average precipitation and surface water availability, there is no reasonable likelihood of the Subbasin not being able to provide adequate groundwater storage

resources. It is evident from this analysis that the Subbasin water resource, absent incalculable climatic change-related recharge, will remain a reliable source of groundwater supply. However, the adopted SGMA Plan estimates an annual overdraft of 190,000 acre-feet. The Plan proposes that the overdraft be eliminated with implementation of Plan-incorporated projects and groundwater in usage restriction during the Plan implementation goal of 2040.

- Possessing a consistent usage history of both surface water and groundwater resources which document effective usage of the resources.

  The Region's consistent history of planning and implementing groundwater and surface water usage within the framework of the 1997 Groundwater Management Plan and the 2013 Merced Integrated Regional Water Management Plan demonstrate the effective regional usage of available groundwater resources.

- Protected against groundwater resource deterioration by the Region's comprehensive water resource management programs.

  The leadership of the Merced Irrigation District and the County of Merced, in initiating and planning the regionwide effort led by the three aforementioned GSAs within the subbasin (MSGSA, MIUGSA, TIWDGSA) and all will work towards the implementation of the one Merced Groundwater Subbasin Groundwater Sustainability Plan.

SECTION 3 - WATER SYSTEM SUFFICIENCY

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater the following additional information shall be included in the water assessment:

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

3.1 - Water Service Area and Facilities

The City of Merced's water service area includes the University of California, Merced, which is provided with City water for its potable water needs (see Figure 1-4 and Table 1-1) (the SGMA Plan includes a proposed University well to supplement city water supply). The estimated current population of the served community is 82,000; the buildout (2035) population within existing city boundaries is estimated to be 110,000 plus 32,000 University students. Water service for the total community is provided by the City Water Division and will be so provided for the Project area. (The University, however, is proposing, in the adopted SGMA Plan, to acquire some, limited, surface water rights and supply.). Currently, there is a well located in proximity to the University, however, it is owned by the City.

The District's water system is, for a community of this size and age, well designed, staffed and operated. There are 20 active wells, with well design capacities of 1,500 to 1,900 gallons per minute. Services are metered. All water production is chlorinated.

SECTION 4 - WATER SUPPLY SUFFICIENCY

4.1 - Transfer, Exchange, New Water Supply

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater the following additional information shall be included in the assessment.

(3) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph 40 of subdivision (b) of Section 10631.

The City of Merced has discussed with the Merced Irrigation District the usage of tertiary-treated City wastewater and its 'trade' for tertiary wastewater effluent. It is assumed that this will occur during the 20-year SGMA Plan implementation period, supplementing groundwater usage in multiple-dry years. The City, therefore, anticipates using a small amount of surface water from MID to supplement its water supply in the future.

4.2 - Sufficiency Evaluation and Conclusion

Water Code Section 10910, Section 4.5

(c)(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single, dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

The Subbasin water supply resources analyses in Sections 2 and 3 of this WSA demonstrate that the Basin resource, although over drafted, poses no concern regarding its volumetric adequacy during the planning period of this WSA.

The City of Merced has prepared (2015, 2016, and 2017) analyses in Urban Water Master Plan (UWMP) professional evaluations of the sufficiency of its water supply in normal, dry and multiple-dry years. The Urban Water Master Plan provides, as a premise for these

analyses, City-enforced conservation measures during drought years to enable maintenance of the zero-impact conclusions of its supply and demand.

With the exception of multiple-dry years, in which the "trade" of tertiary level reclaimed water to Merced Irrigation District for an allocation of surface water supply is assumed, the City will rely totally upon its groundwater supply.

A brief summary of the basis of water supply availability and of normal year, dry year, and multiple-dry year projection, the following tables have been extracted from the UWMP, and reviewed and accepted for this WSA.

Table 4-1
Bases of Water Year Data

Year Type	Base Year	Volume Applied (AF)	Percent of Average Supply (%)
Average Year	2010	23,658	100
Single-Dry Year	2013	27,470	110
Multiple-Dry Year	2013	27,470	110
Multiple-Dry Year	2014	25,232	100
Multiple-Dry Year	2015	17,855	70

Notes: Percent of average supply is a comparison between the average year and dry year per capita demands.

The required supply/demand analyses premised upon water years availability assumptions are presented in Tables 4-2, 4-3, 4-4, and 4-5.

Table 4-2
Merced Subbasin Availability Status

	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)
Groundwater Supply	25,486	27,408	25,901	27,807
Recycled Water Supply	5,774	5,821	5,869	5,869
Surface Water Supply	0	58	4,105	4,153
Supply Total	31,260	33,287	35,875	37,829
Demand Totals	31,260	33,287	35,875	37,829
Difference	0	0	0	0

Notes: Data for supply is from Table 6.12 in Chapter 6, while demands are from Table 4.4 in Chapter 4.

Table 4-3
Normal Dry Year Supply and Demand Comparison

	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)
Groundwater Supply	28,035	30,149	28,491	30,588
Recycled Water Supply	5,774	5,821	5,869	5,869
Surface Water Supply	0	64	4,516	4,568
Supply Total	33,809	36,034	38,876	41,025
Demand Totals	33,809	36,034	38,876	41,025
Difference	0	0	0	0

Notes: Groundwater and surface represent a 100% increase of normal years.

Table 4-4
Single Dry Year Supply and Demand Comparison

	Supply	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)
First Year	Groundwater	28,035	30,149	28,491	30,588
	Recycled Water	5,774	5,821	5,869	5,869
	Surface Water	0	64	4,516	4,568
	Supply Totals	33,809	36,034	38,876	41,025
	Demand Totals	33,809	36,034	38,876	41,025
	Difference	0	0	0	0

Table 4-5
Multiple Dry Year Supply and Demand Comparison

	Supply	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)
First Year	Groundwater	25,486	27,408	25,901	27,807
	Recycled Water	5,774	5,821	5,869	5,869
	Surface Water	0	58	4,105	4,153
	Supply Totals	31,260	33,287	35,875	37,829
	Demand Totals	31,260	33,287	35,875	37,829
	Difference	0	0	0	0
Third Year	Groundwater	17,840	19,226	21,004	22,372
	Recycled Water	5,774	5,821	5,869	5,869
	Surface Water	0	0	0	0
	Supply Totals	23,614	25,047	26,873	28,241
	Demand Totals	23,614	25,047	26,873	28,241
	Difference	0	0	0	0

Notes:
1. Groundwater and surface water for year 1 represent a 110% increase of normal years.
2. Groundwater and surface for year 2 represent the normal years.
3. Groundwater for year 3 represents a 30% decrease of normal year's total groundwater and surface water supply.

4.3 - City Well and Distribution System Adequacy

Based on the review of the data and analyses in Section 3, the City's pumped water supply and distribution system have historically proven reliable. Continued effective operation and maintenance of the system has been demonstrated. District engineering design standards are in place that meet or exceed American Water Works Association Standards, ensuring that system reliability does not diminish as it is expanded. Funds to maintain and expand the system to meet the continued growth in water demand are collected through State and federal grants, water rates and development fees. The District's adequacy of both pumped water supply and water distribution were demonstrated during a recent five-year drought period and during the recent record single-dry year in that period.

In the evaluation of the City's water system's reliability, Sections 2.1 through 2.6 and 3.1 through 3.7 demonstrate its adequacy. The SB 610 Normal Water Year, Single-Dry Water Year, Multiple-Dry Years supply reliability analysis is provided in Sections 4.1 and 4.2 of this WSA. Project engineering analysis will evaluate whether any modifications in the distribution system are required to satisfy Project buildout, water delivery volumes, and pressures. The City will finance any required wells and distribution system modifications with development impact fees, State or federal grants, or rate adjustments.

4.4 - Lead Agency Action

Water Code Section 10911, Section 5

(g)(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county no later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

The County of Merced, in concert with the approval of appropriate environmental impact analysis of the Project, must adopt this Water Supply Assessment.

SECTION 5 - REFERENCES

Adopted Groundwater Sustainability Plan, Merced Groundwater Subbasin, November 2019

California's Groundwater, Bulletin 118, Update 2003, Department of Water Resources

Ordinance No. 1930, *An Ordinance to Prevent the Mining and Export of Groundwater Within the Unincorporated Areas of Merced County*, March 2015

2018 Merced Integrated Regional Water Management Plan, Merced Irrigation District

Irrigated Lands Regulatory Program, East San Joaquin Water Quality Coalition, 2018, Central Valley Regional Water Board

Merced County General Plan Update, 2016, County of Merced

Urban Water Management Plan, 2015, City of Merced, 2017

Merced Groundwater Subbasin Groundwater Sustainability Plan, January 2020

APPENDICES

APPENDIX A

SENATE BILL 610
(CHAPTER 643, STATUTES OF 2001)

Chapter 643, Statutes of 2001 (Senate Bill 610)

An act to amend Section 21151.9 of the Public Resources Code, and to amend Sections 10631, 10656, 10910, 10911, 10912, and 10915 of, to repeal Section 10913 of, and to add and repeal Section 10657 of, the Water Code, relating to water. Approved by Governor October 9, 2001. Filed with Secretary of State October 9, 2001.

The people of the State of California do enact as follows:

SECTION 1. (a) The Legislature finds and declares all of the following:
(1) The length and severity of droughts in California cannot be predicted with any accuracy.

(2) There are various factors that affect the ability to ensure that adequate water supplies are available to meet all of California's water demands, now and in the future.

(3) Because of these factors, it is not possible to guarantee a permanent water supply for all water users in California in the amounts requested.

(4) Therefore, it is critical that California's water agencies carefully assess the reliability of their water supply and delivery systems.

(5) Furthermore, California's overall water delivery system has become less reliable over the last 20 years because demand for water has continued to grow while new supplies have not been developed in amounts sufficient to meet the increased demand.

(6) There are a variety of measures for developing new water supplies including water reclamation, water conservation, conjunctive use, water transfers, seawater desalination, and surface water and groundwater storage.

(7) With increasing frequency, California's water agencies are required to impose water rationing on their residential and business customers during this state's frequent and severe periods of drought.

(8) The identification and development of water supplies needed during multiple-year droughts is vital to California's business climate, as well as to the health of the agricultural industry, environment, rural communities, and residents who continue to face the possibility of severe water cutbacks during water shortage periods.

(9) A recent study indicates that the water supply and land use planning linkage, established by Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code, has not been implemented in a manner that ensures the appropriate level of communication between water agencies and planning agencies, and this act is intended to remedy that deficiency in communication.

(b) It is the intent of the Legislature to strengthen the process pursuant to which local agencies determine the adequacy of existing and planned future water supplies to meet existing and planned future demands on those water supplies.

SEC. 2. Section 21151.9 of the Public Resources Code is amended to read:
21151.9. Whenever a city or county determines that a project, as defined in Section 10912 of the Water Code, is subject to this division, it shall comply with Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code.

SEC. 3. Section 10631 of the Water Code is amended to read:
10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be

based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.
(2) A single dry water year.
(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a). (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.
(B) Residential plumbing retrofit.
(C) System water audits, leak detection, and repair.
(D) Metering with commodity rates for all new connections and retrofit of existing connections.
(E) Large landscape conservation programs and incentives.
(F) High-efficiency washing machine rebate programs.
(G) Public information programs.
(H) School education programs.
(I) Conservation programs for commercial, industrial, and institutional accounts.
(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of such savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and non-economic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase

in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

SEC. 3.5. Section 10631 of the Water Code is amended to read:
10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years. For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.
(B) Residential plumbing retrofit.
(C) System water audits, leak detection, and repair.
(D) Metering with commodity rates for all new connections and retrofit of existing connections.
(E) Large landscape conservation programs and incentives.
(F) High-efficiency washing machine rebate programs.
(G) Public information programs.
(H) School education programs.
(I) Conservation programs for commercial, industrial, and institutional accounts.
(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).
SEC. 4. Section 10656 of the Water Code is amended to read:
10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

SEC. 4.3. Section 10657 is added to the Water Code, to read:
10657. (a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

SEC. 4.5. Section 10910 of the Water Code is amended to read:
10910. (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

(d) (1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contract-holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

(g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

(2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.

(3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

(h) Notwithstanding any other provision of this part, if a project has been the subject of a water supply assessment that complies with the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project for which a water supply assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.

(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.

(3) Significant new information becomes available which was not known and could not have been known at the time when the assessment was prepared.

SEC. 5. Section 10911 of the Water Code is amended to read:
10911. (a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

SEC. 6. Section 10912 of the Water Code is amended to read:
10912. For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system which is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

SEC. 7. Section 10913 of the Water Code is repealed.

SEC. 8. Section 10915 of the Water Code is amended to read:
10915. The County of San Diego is deemed to comply with this part if the Office of Planning and Research determines that all of the following conditions have been met:

(a) Proposition C, as approved by the voters of the County of San Diego in November 1988, requires the development of a regional growth management plan and directs the establishment of a regional planning and growth management review board.

(b) The County of San Diego and the cities in the county, by agreement, designate the San Diego Association of Governments as that review board.

(c) A regional growth management strategy that provides for a comprehensive regional strategy and a coordinated economic development and growth management program has been developed pursuant to Proposition C.

(d) The regional growth management strategy includes a water element to coordinate planning for water that is consistent with the requirements of this part.

(e) The San Diego County Water Authority, by agreement with the San Diego Association of Governments in its capacity as the review board, uses the association's most recent regional growth forecasts for planning purposes and to implement the water element of the strategy.

(f) The procedures established by the review board for the development and approval of the regional growth management strategy, including the water element and any certification process established to ensure that a project is consistent with that element, comply with the requirements of this part.

(g) The environmental documents for a project located in the County of San Diego include information that accomplishes the same purposes as a water supply assessment that is prepared pursuant to Section 10910.

SEC. 9.
Section 3.5 of this bill incorporates amendments to Section 10631 of the Water Code proposed by both this bill and AB 901. It shall only become operative if (1) both bills are enacted and become effective on or before January 1, 2002, (2) each bill amends Section 10631 of the Water Code, and (3) this bill is enacted after AB 901, in which case Section 3 of this bill shall not become operative.

SEC. 10.
No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

APPENDIX B

CONSISTENCY WITH DWR GUIDELINES

CONSISTENCY WITH DWR GUIDELINES

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
Section 1.0 (page 2). Does SB 610 or SB 221 apply to the proposed project	Is the project subject to SB 610? Is the project subject to CEQA (Water Code §10910(a))? If yes, continue.	WSA Section 1.1. Yes, the project is subject to SB 610 and CEQA.
	Is it a "project" as defined by Water Code §10910(a) or (b)? If yes, to comply with SB 610 go to Section 2.0, page 4.	WSA Section 1.1. Yes, the project is considered to meet the definition of "project" per Water Code §10912(a) or (b).
	Is the project subject to SB 221? Does the tentative map include a "subdivision" as defined by Government Code §66473.7(a)(1)? If no, stop.	Yes.
Section 2.0 (page 4). Who will prepare the SB 610 analysis?	Is there a public water system ("water supplier") for the project (Water Code §10910(b))? If no, go to Section 3.0, page 6.	WSA Section 1.3.Yes, the project sites will be connected to the City of Merced public water system.
Section 3.0 (page 6). Has an assessment already been prepared that includes this project?	Has this project already been the subject of an assessment (Water Code §10910(h))? If no, got to Section 4.0, page 8.	No, the project has not been the subject of an assessment.
Section 4.0 (page 8). Is there a current Urban Water Management Plan?	Is there an adopted urban water management plan (Water Code §10910(c))? If yes, continue. If yes, the information from the UWMP related to the proposed water demand for the project may also be used for carrying out Section 5.0, Steps 1 and 2, Section 7.0; proceed to Section 5.0, page 10 of the Guidelines.	WSA Section 1.3. Yes, there is an adopted UWMP for the project (the City of Merced). Information continued in the UWMP was used in the preparation of the WSA and cited accordingly.
	Is the project water demand for the project accounted for in the most recent UWMP (Water Code §10910(c)(2)? If no, go to Section 5.0, page 10.	No.
Section 5.0 (page 10). What information should be included in an assessment	Step One (page 13) Documenting wholesale water supplies.	The Project is not a retail water supplier and would not include the use of wholesale water supplies.
	Step Two (page 17). Documenting supply if groundwater is a source.	The Merced Subbasin is the proposed water supply.
	Specify if a groundwater management plan or any other specific authorization for groundwater management for the basin has been adopted and how it affects the water supplier's use of the basin.	WSA Section 2.5, in appropriate detail.

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	Description and analysis of the amount and location of groundwater pumped by the water supplier for the past five years. Include information on proposed pumping locations and quantities. The description and analysis is to be based on information that is reasonably available, including, but not limited to, historic use records from DWR.	WSA Section 3 provides a description of the City's groundwater usage.
	Analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the water supplier.	WSA Section 4. The quantity of water banked in the Merced Subbasin is sufficient for the project.
	Step 3 (page 21). Documenting project demand (Project Demand Analysis).	WSA Section 3.3 and Section 4.2.
	Step 4 (page 26). Documenting dry year(s) supply.	WSA Section 4.2.
	Step 5 (page 31). Documenting dry year(s) demand.	WSA Section 4.2.
Section 6.0 (page 33). Is the projected water supply sufficient or insufficient for the proposed project?		WSA Section 5 concludes that identified water supply/supplies are sufficient for the project.
Section 7.0 (page 35). If the projected supply is determined to be insufficient.	Does the assessment conclude that supply is "sufficient"? If no, continue.	WSA Section 4.3 concludes that sufficient water supplies are available for the project.
Section 8.0 (page 38). Final SB 610 assessment actions by lead agencies.	The lead agency shall review the WSA and must decide whether additional water supply information is needed for its consideration of the proposed project. The lead agency "shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, and in addition to existing and planned future uses."	The WSA for the project must be approved prior to or in concurrence with the EIR.
	The description of the groundwater basin may be excerpted from the groundwater management plan, from DWR Bulletin 118, California's Groundwater, or for some other document that has been published and that discusses the basin boundaries, type of rock that constitutes the aquifer,	WSA Sections 2.3 and 2.4 includes the data from and refences to the Urban Water Master Plan's and DWR Bulletin 118's further data.

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	variability of the aquifer material, and total groundwater in storage (average specific yield times the volume of the aquifer).	
	In an adjudicated basin the amount of water the urban supplier has the legal right to pump should be enumerated in the court decision.	Not applicable; the Basin is not adjudicated.
	The Department of Water Resources has projected estimates of overdraft, or "water shortage," based on projected amounts of water supply and demand (basin management) are projected by the Watermaster Agency (AVEK) in WSA Section 3.2, the hydrologic region level in Bulletin 160, California Water Plan Update. Estimates at the basin or subbasin level will be projected for some basins in Bulletin 118. If the basin has not been evaluated by DWR, data that indicate groundwater level trends over a period of time should be collected and evaluated.	Basin groundwater resources are discussed in WSA Sections 2.4 and 2.5.
	If the evaluation indicates an overdraft due to existing groundwater extraction, or projected increases in groundwater extraction, describe actions and/or programs designed to eliminate the long-term overdraft condition.	WSA Section 2.5. the referenced 2015 Urban Water Master Plan describes in detail the subject actions and programs, as does the currently proposed SGMA Plan.

APPENDIX C

MERCED GROUNDWATER SUBBASIN
GROUNDWATER SUSTAINABILITY PLAN DRAFT REPORT
EXECUTIVE SUMMARY

MERCED SGMA

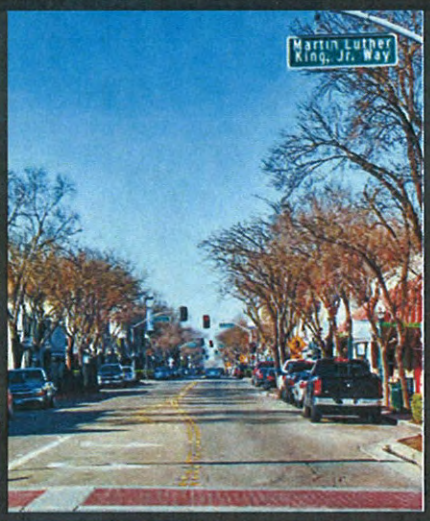
Merced Groundwater Subbasin

GROUNDWATER SUSTAINABILITY PLAN

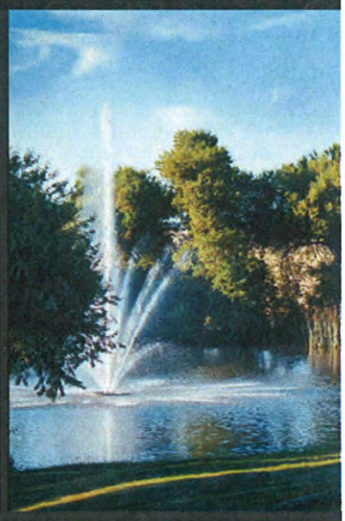
Draft Report — Executive Summary

Image courtesy Veronica Adrover/UC Merced









July 2019

EXECUTIVE SUMMARY

ES-1. INTRODUCTION AND PLAN AREA

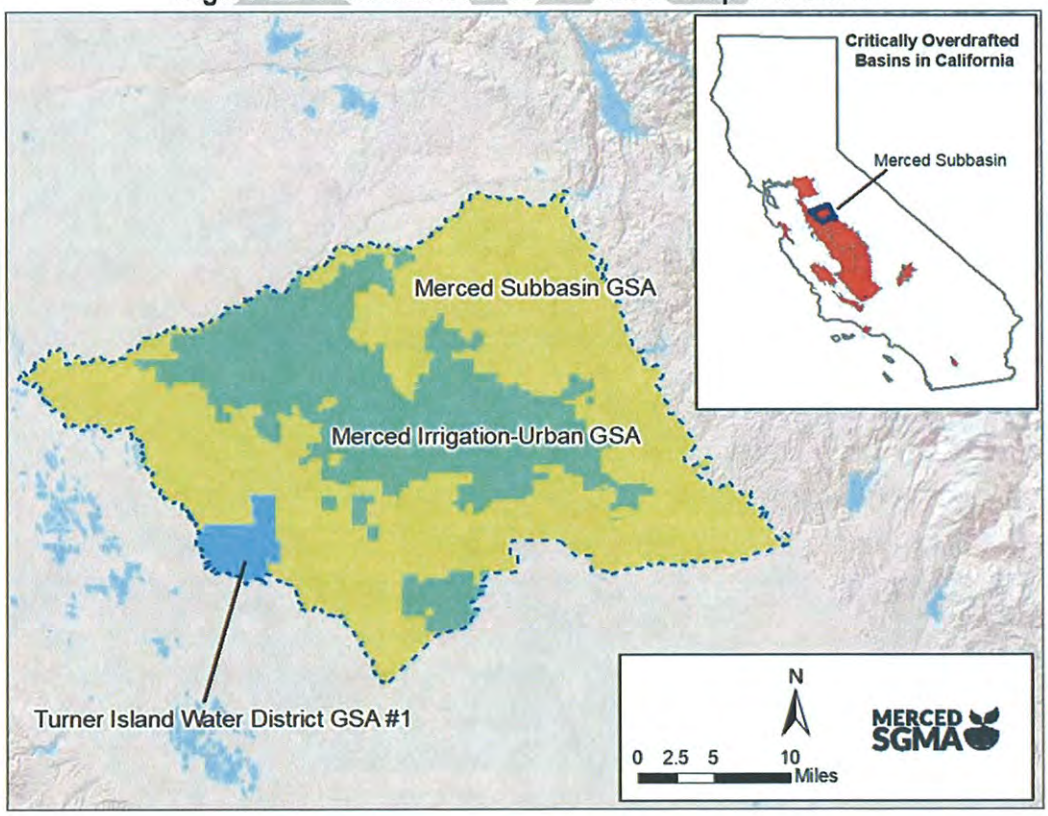
The Sustainable Groundwater Management Act (SGMA), passed in 2014, requires the formation of local Groundwater Sustainability Agencies (GSAs) to oversee the development and implementation of Groundwater Sustainability Plans (GSPs), with the ultimate goal of achieving sustainable management of the State's groundwater basins. The purpose of this Groundwater Sustainability Plan is to bring the Merced Groundwater Basin (Merced Subbasin), a critically overdrafted basin located within the San Joaquin Valley (see Figure ES-1), into sustainable groundwater management by 2040. The Subbasin is heavily reliant on groundwater, and users recognize the basin has been in overdraft for a long period of time.

The County of Merced and water districts and cities within the Merced Subbasin formed three GSAs in accordance with SGMA: Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), Merced Subbasin Groundwater Sustainability Agency (MSGSA), and Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1) (see Figure ES-1). The three GSAs coordinated efforts to develop this GSP for the Subbasin. With the adoption of this GSP, the GSAs will adopt the following sustainability goal for the Merced Subbasin:

> **"Achieve sustainable groundwater management on a long-term average basis by increasing recharge and/or reducing groundwater pumping, while avoiding undesirable results."**

This goal will be achieved by allocating a portion of the estimated Subbasin sustainable yield to each of the three GSAs and coordinating the implementation of programs and projects to increase both direct and in-lieu groundwater recharge, which will in turn increase the groundwater and / or surface water available in the Subbasin.

Figure ES-1: Merced Subbasin Location Map and GSAs



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Development of the GSP was guided by a Coordinating Committee composed of members appointed by the GSA Boards to provide recommendations on technical and substantive basin-wide issues. The Coordinating Committee and GSA Boards were also informed by a Stakeholder Advisory Committee, which consisted of a broad group of groundwater beneficial users (also appointed by the GSA Boards) to review groundwater conditions, management issues and needs, and projects and management actions to improve sustainability in the basin. Extensive outreach was also conducted to seek input from additional beneficial users of groundwater through multiple venues including public workshops held in locations specifically selected to provide access to disadvantaged communities. Figure ES-2 illustrates the relationship among the groups described above.

Figure ES-2: Diagram of Levels of Engagement and Decision-Making

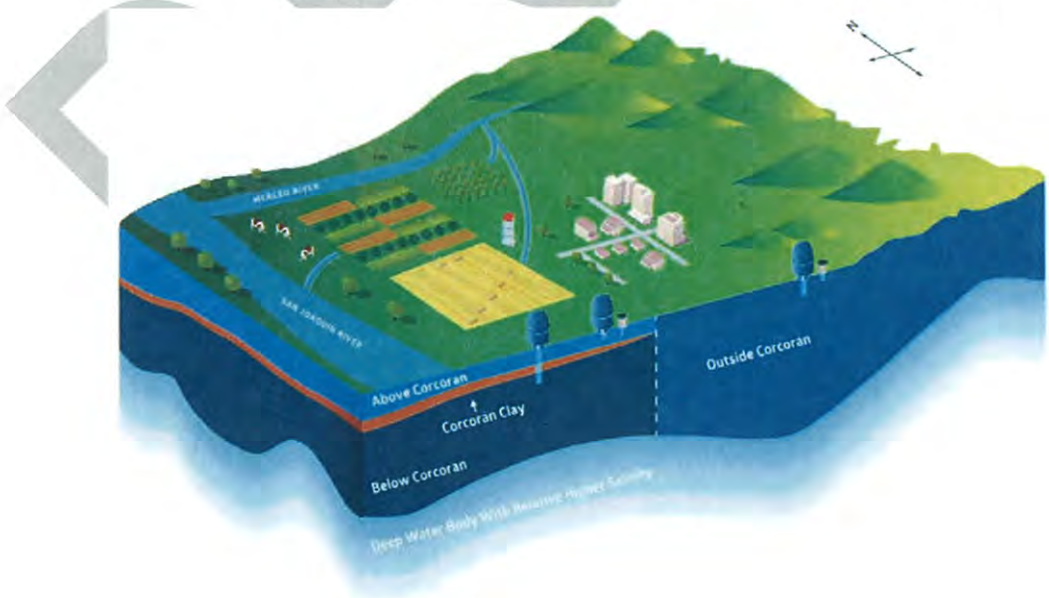


ES-2. BASIN SETTING

Hydrogeologic Conceptual Model

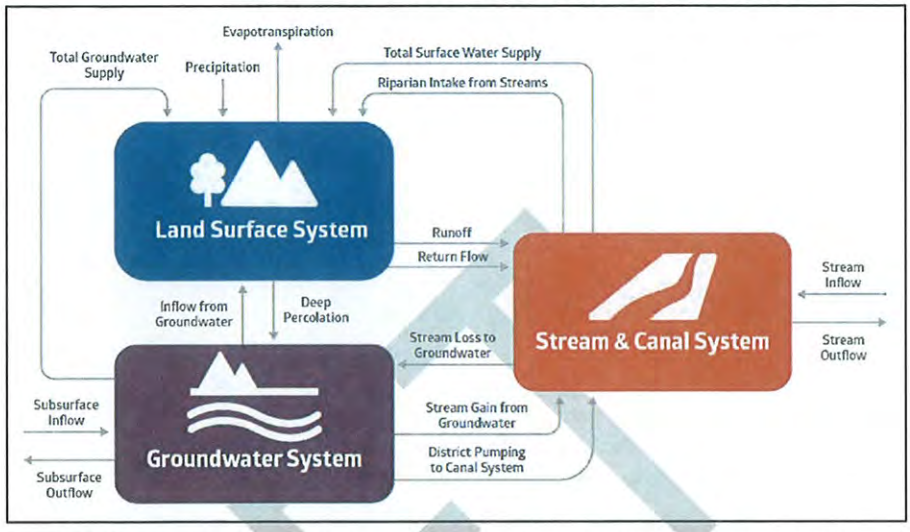
The Merced Subbasin contains three principal aquifers that are defined by their relationship to the Corcoran Clay aquitard, a laterally-extensive silt and clay layer that underlies about half of the western portion of the Subbasin and acts as a significant confining layer. The **Above Corcoran Principal Aquifer** includes all aquifer units that exist above the Corcoran Clay Aquitard and generally contains moderate to large hydraulic conductivities and yields for domestic and irrigation uses. The **Below Corcoran Principal Aquifer** includes all aquifer units that exist below the Corcoran Clay Aquitard and contains hydraulic conductivities and yields ranging from small to large for irrigation as well as some domestic and municipal uses. The **Outside Corcoran Principal Aquifer** includes all aquifers that exist outside of the eastern lateral extent of the Corcoran Clay. The Outside Corcoran Principal Aquifer is connected laterally with the Above Corcoran Principal Aquifer at shallower depths and the Below Corcoran Principal Aquifer at deeper depths. Major uses of water in the Outside Corcoran Principal Aquifer include irrigation, domestic, and municipal uses. The Principal Aquifers are underlain by a deep water body with higher salinity relative to the principal aquifers. See Figure ES-3 for a 3D illustration demonstrating the relationship between the principal aquifers and Corcoran Clay aquitard

Figure ES-3: 3D Illustration of Merced Subbasin Principal Aquifers and Aquitard



Water Budget Information

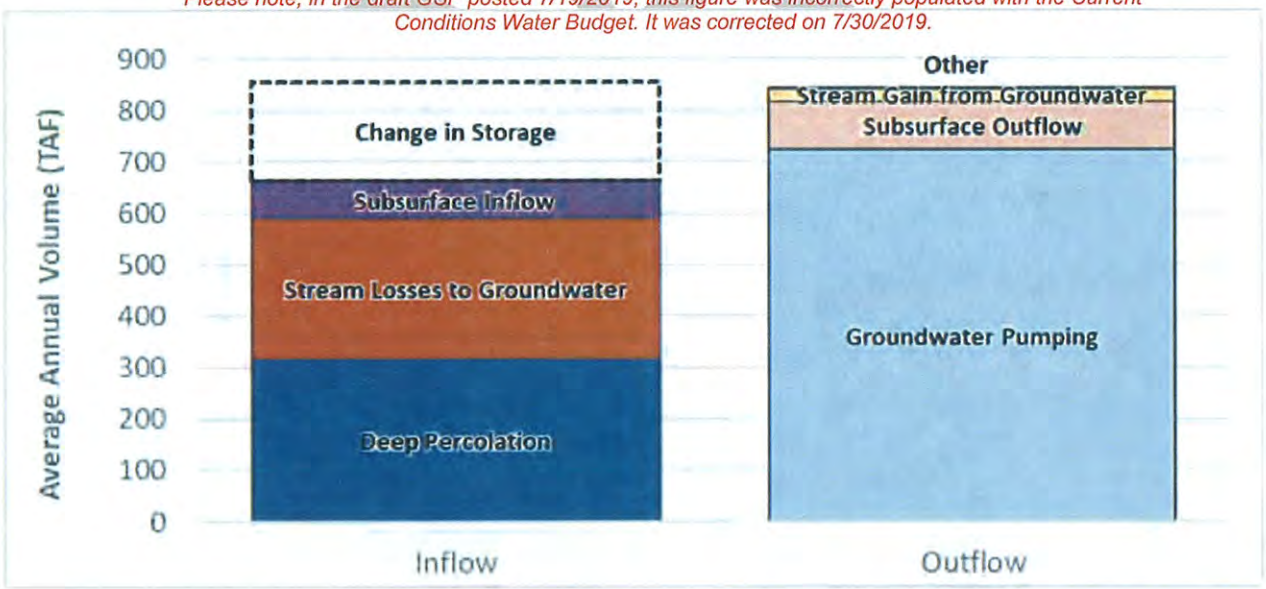
Figure ES-4: Generalized Water Budget Diagram



Water budgets provide quantitative accounting of water entering and leaving the Merced Subbasin and can be used to help estimate the extent of overdraft occurring now and in the future. Consistent with SGMA requirements, water budgets for historical, current, projected, and sustainable conditions were developed for the Merced Subbasin. These water budgets were developed using the Merced Water Resources Model (MercedWRM), a fully integrated surface and groundwater flow model developed and calibrated specifically for the Subbasin. See Figure ES-4 for a conceptual diagram of the inputs and outputs quantified by the model. The historical conditions water budget (see Figure ES-5) shows an annual average rate of overdraft ("Change in Storage") of 192,000 acre-feet per year (AFY) over Water Years 1996 through 2015. In this Figure, the "Change in Storage" represents the average annual decline in storage resulting from the Subbasin outflows, principally groundwater pumping.

Figure ES-5: Historical Conditions Water Budget

Please note, in the draft GSP posted 7/19/2019, this figure was incorrectly populated with the Current Conditions Water Budget. It was corrected on 7/30/2019.

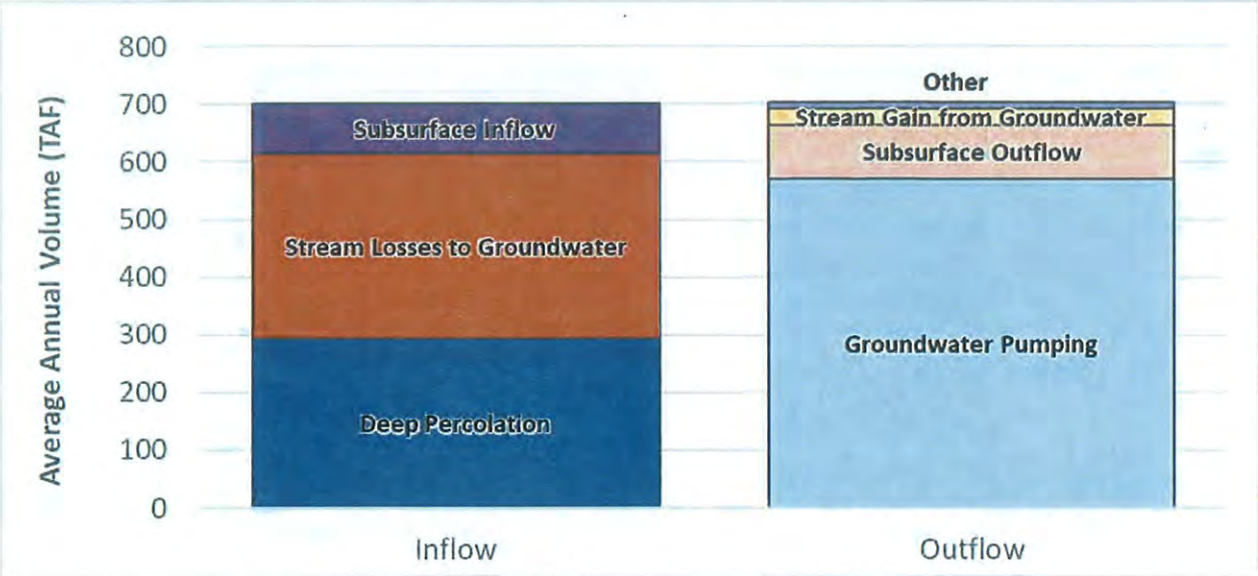


SGMA defines sustainable yield as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result" (California Water Code §10721(w)).

For the Merced Subbasin, sustainable yield was estimated by modifying conditions in the groundwater model to balance out the change in stored water over time. In order to achieve a net-zero change in groundwater storage over a long-term

average condition, current agricultural and urban groundwater demand in the Merced Subbasin would need to be reduced by approximately 10 percent, absent implementation of any new supply-side or recharge projects. Figure ES-6 illustrates the Subbasin water budget under long term sustainable conditions.

Figure ES-6: Groundwater Water Budget under Sustainable Groundwater Management Conditions Long-Term (50-Year) Average Annual



ES-3. SUSTAINABLE MANAGEMENT CRITERIA

SGMA requires consideration of six sustainability indicators. For each indicator, the GSP must define undesirable results for the basin ("significant and unreasonable" negative impacts) and determine if they could occur. For the indicators with the potential for undesirable results, the GSP must establish sustainable management criteria that are intended to prevent undesirable results from occurring and establish a monitoring network.

Sustainable management criteria were developed to be protective of beneficial uses in the Merced Subbasin and to support the Subbasin's sustainability goal. Demonstration by 2040 of stable groundwater elevations on a long-term average basis, combined with the absence of undesirable results, will support a determination that the basin is operating within its sustainable yield, and thus that the sustainability goal has been achieved.

A summary of the sustainable management criteria for the Merced Subbasin is shown in Table ES-1.

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Table ES-1: Summary of Sustainable Management Criteria

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective	Undesirable Result
Groundwater Levels	Depth of shallowest well in a 2-mile radius of each representative well or minimum pre-January 1, 2015, elevation	Projected average future groundwater level under sustainable yield modeling simulation	Greater than 25% of representative wells fall below MT in 2 consecutive wet, above normal, or below normal years
Groundwater Storage	N/A - not present and not expected to occur in the Subbasin due to the significant volumes of freshwater in storage		
Sea Water Intrusion	N/A - not present and not expected to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta)		
Degraded Water Quality	1,000 mg/L TDS	500 mg/L TDS	At least 25% representative wells exceed MT for 2 consecutive years
Land Subsidence	-0.75 ft/year	-0.25 ft/year	Exceedance of MT at 3 or more representative sites for 2 consecutive years
Depletions of Interconnected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator		

There are two sustainability indicators deemed not applicable to the Merced Subbasin. Undesirable results related to significant and unreasonable **depletions of groundwater storage** are not present and not expected to occur in the Subbasin, since historical reductions have been insignificant relative to the total volume of freshwater water storage in the Subbasin. **Seawater intrusion** is not an applicable sustainability indicator because seawater intrusion is not present and is not expected to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta).

For the remaining sustainability indicators, sustainable management criteria were established to be protective of Subbasin beneficial uses as described below.

Minimum thresholds for **declining groundwater levels** were developed based on records of well depth for the shallowest domestic wells within a 2-mile radius of each representative monitoring well, since domestic wells are generally shallower than agricultural and municipal wells and are thus more protective for setting thresholds. Sustainable management criteria for declining groundwater levels were developed with a robust dataset including historical groundwater levels, Merced County's domestic well permitting database, and simulated groundwater levels from the MercedWRM. Groundwater levels are being used as a proxy indicator for depletion of interconnected surface waters.

Degraded water quality is unique among the six sustainability indicators because it is already the subject of extensive federal, state, and local regulations carried out by numerous entities, and SGMA does not directly address the role of

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GSAs relative to these other entities (Moran & Belin, 2019). SGMA does not specify water quality constituents that must have minimum thresholds. Groundwater management is the mechanism available to GSAs to implement SGMA. Establishing minimum thresholds for constituents that cannot be managed by increasing or decreasing pumping was deemed inappropriate by the GSAs and basin stakeholders. The major water quality issue being addressed by sustainable groundwater management is the migration of relatively higher salinity water into the freshwater principal aquifers. The nexus between water quality and water supply management exists for the pumping-induced movement of low-quality water from the west and northwest to the east. Other water quality concerns are being addressed through various water quality programs and agencies that have the authority and responsibility to address them.

Within the Merced Subbasin, while **land subsidence** has been recognized by the GSAs as an area of concern, it is not considered to have caused a significant and unreasonable reduction in the viability of the use of infrastructure. However, it is noted that subsidence has caused a reduction in freeboard of the Middle Eastside Bypass over the last 50 years and has caused problems in neighboring subbasins, highlighting the need for ongoing monitoring and management in the Merced Subbasin. Thus, sustainable management criteria were established based on historical rates of subsidence in the Subbasin.

Depletions of interconnected surface waters will be managed using groundwater levels as a proxy due to the challenges associated with directly measuring streamflow depletions and because of the significant correlation between groundwater levels and depletions.

ES-4. MONITORING NETWORKS

Consistent with SGMA requirements, the GSAs plan to establish monitoring networks for each sustainability indicator to monitor trends in the Subbasin and evaluate GSP implementation against sustainable management criteria. The groundwater monitoring network consists of wells from the California Statewide Groundwater Elevation Monitoring (CASGEM) program that were selected to provide representative conditions for groundwater levels across the Subbasin. The groundwater quality network includes a combination of wells in the Subbasin that are part of the East San Joaquin Water Quality Coalition Groundwater Quality Trend Monitoring Program as well as Public Water System wells that report data to the Division of Drinking Water. The subsidence monitoring network relies on control points monitored by the United States Bureau of Reclamation as part of the San Joaquin River Restoration Program. While the monitoring networks reflect a robust history of monitoring Subbasin conditions, data gaps still exist and plans to fill these data gaps for each sustainability indicator are also described in this plan.

ES-5. DATA MANAGEMENT SYSTEM

The Merced Subbasin Data Management System (DMS) was developed to serve as a data sharing portal to enable utilization of the same data and tools for visualization and analysis to support sustainable groundwater management and transparent reporting of data and results. Monitoring data can be manually input by users or batch uploaded via template and is expected to include (but is not limited to) groundwater elevation, groundwater quality, streamflow, and subsidence. All monitoring locations can be viewed spatially (map or list format) and data records per site can be viewed temporally (chart or list format). Ad-hoc queries and standard reports will greatly assist in answering questions about basin characterization, providing input for decision-making, and developing reports to meet annual report submittal requirements.

ES-6. PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY GOAL

SGMA requires that GSPs describe the projects and management actions to be implemented as part of bringing the Subbasin into sustainability. The primary means for achieving sustainability in the basin will be implementation of an allocation framework to allocate the sustainable yield of the basin to the GSAs. A water allocation framework has been

the subject of much discussion during GSP development. The GSAs have agreed that they intend to allocate water to each GSA but have not yet reached agreement on allocations or how they will be implemented.

The GSP identifies a shortlist of 12 priority projects that met a series of screening criteria for implementation (see Table ES-2) as well as a longer list of possible future projects that were identified during GSP development. Projects and management actions will either increase surface water supplies to augment the sustainable groundwater yield or will increase groundwater recharge, which will in turn increase the amount of groundwater that may be sustainably used.

Table ES-2: Projects Shortlist for Merced Subbasin Groundwater Sustainability Plan*

Project Name	Current Status	Expected Completion	Estimated Cost
Project 1: Planada Groundwater Recharge Basin Pilot Project	Planning, to be implemented with DWR Grant Funding	12/17/2023	$395,292
Project 2: El Nido Groundwater Monitoring Wells	Planning, to be implemented with DWR Grant Funding	12/31/2019	$400,000
Project 3: Meadowbrook Water System Intertie Feasibility Study	Planning	06/2020	$100,588
Project 4: Merquin County Water District Recharge Basin	Planning/Initial Study	12/15/2021	$1,400,000
Project 5: Merced Irrigation District to Lone Tree Mutual Water Company Conveyance Canal	Conceptual	11/2020	$3-6,000,000
Project 6: Merced IRWM Region Climate Change Modeling	Design	4/30/2021	$250,000
Project 7: Merced Region Water Use Efficiency Program	Design	12/31/2020	$500,000
Project 8: Merced Groundwater Subbasin LIDAR	Planning/Initial Study	12/2020	$150,000
Project 9: Study for Potential Water System Intertie Facilities from MID to LGAWD and CWD	Design Complete	06/01/2020	$100,000
Project 10: Vander Woude Dairy Offstream Temporary Storage	Planning/Initial Study & Conceptual Design	05/2020	$750,000
Project 11: Mini-Big Conveyance Project	Planning	06/2026	$ 6-8,000,000
Project 12: Streamlining Permitting for Replacing Sub-Corcoran Wells	Planning	1/31/2020	$75,000

*Information provided by project proponents.

ES-7. PLAN IMPLEMENTATION

Implementation of the GSP will be a substantial undertaking that will include implementation of the projects and management actions as well as GSAs administration, public outreach, implementation of the monitoring programs and filling data gaps, development of annual reports, and development of a 5-year update and report. The GSAs have developed an implementation schedule (see Table ES-3) and estimated costs for all activities, as well as potential funding mechanism options. Implementation of the GSP is projected to run between $1.2M and $1.6M per year. Costs for projects and management actions are estimated to be an additional $22.9M in total, with costs for individual projects or management actions ranging between $75K to $8M in total.

Table ES-3: GSP Implementation Schedule

2020	2025	2030	2035	2040
Monitoring and Reporting	**Preparation for Allocations and Low Capital Outlay Projects**	**Prepare for Sustainability**	**Implement Sustainable Operations**	
• Establish Monitoring Network • Install New Groundwater Wells • Reduce/Fill Data Gaps	• GSAs conduct 5-year evaluation/update • Monitoring and reporting continue	• GSAs conduct 5-year evaluation/update • Monitoring and reporting continue	• GSAs conduct 5-year evaluation/update • Monitoring and reporting continue	
• GSAs allocated initial allocations • GSAs establish their allocation procedures and demand reduction efforts • Develop Metering Program	• As-needed demand reduction to reach Sustainable Yield allocation • Metering program continues	• As-needed demand reduction to reach Sustainable Yield allocation	• Full implementation demand reduction as needed to reach Sustainable Yield allocation by 2040	
• Funded and smaller projects implemented	• Planning/ Design/ Construction for small to medium sized projects	• Planning/ Design/ Construction for larger projects begins	• Project implementation completed	
• Extensive public outreach regarding GSP and allocations	• Outreach regarding GSP and allocations continues	• Outreach continues	• Outreach continues	

DRAFT

APPENDIX D

CONSUMER CONFIDENCE REPORT



City Of Merced
Consumer Confidence Report
Reporting Year 2018

Last year, as in years past, your tap water met or surpassed all U.S. Environmental Protection Agency (EPA) and State drinking water health standards. The City of Merced vigilantly safeguards its water supplies and once again, we are proud to report that our system had no violations of maximum contaminant levels or any other water quality standard. This brochure is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State Standards. We are committed to providing you with information because informed customers are our best allies.

Este informe contiene información muy mportante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

SOURCE WATER ASSESSMENT

An assessment of the drinking water source for the City of Merced's water system was completed in March 2003. The source is considered vulnerable from the following activities: gas stations (current and historic), dry cleaners, leaking underground storage tanks, sewer collection system, chemical/petroleum pipeline, fertilizer, pesticide/ herbicide application, agricultural drainage, farm chemical distributor/application service, low density septic system, agricultural wells, and irrigation wells. A copy of the complete assessment is available at the City of Merced, Public Works Department at 1776 Grogan Avenue, Merced, CA. You may request a summary of the assessment by contacting the Administration Office at (209) 385-6800.

DRINKING WATER FLUORIDATION

Our water system is treated by adding fluoride to the naturally occurring level to help prevent dental cavities in consumers. State regulations require the fluoride levels in the treated water be at an optimum dose of 0.70ppm (parts per million). Our monitoring showed the fluoride levels in the treated water ranged from 0.10ppm - 1.00ppm with an average of 0.70ppm. Information about fluoridation, oral health, and current issues is available by visiting www.waterboards.ca.gov/drinkingwater/program/ index.shtml.

COMMUNITY PARTICIPATION

The City Council meets every first and third Monday of the month beginning at 6:00 pm at the Civic Center located at 678 W. 18th Street, Merced. The public is encouraged to attend.

PROTECT OUR DRINKING WATER SYSTEM

Tampering with a public water system is a Federal offense. Please report any suspicious activity occurring at any water facility or hydrant to the Merced Police Department at (209) 385-6905.

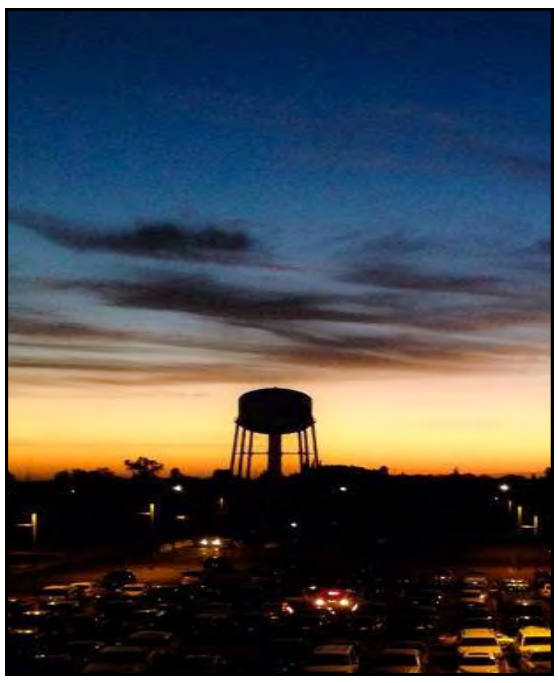
WATER CONSERVATION

To monitor your water use, go to www.eyeonwater.com, where you can check for leaks and view your water usage by the hour, day or month.

WHERE DOES THE CITY OF MERCED GET IT'S WATER?

The City of Merced supplies water through the operation of 20 active wells throughout the City. These wells draw water from the Merced Groundwater Subbasin. Each site can produce over 1,500 gallons per minute. The distribution system is well over 500 miles long, includes over 25,000 service connections, nearly 3,000 fire hydrants and approximately 25,000 water meters, 7,000 main line valves and over 2,100 backflow devices. The system regularly pumps 35 million gallons per summer day needed to supply the 86,000 citizens of Merced.

In 2018, these wells pumped 6.3 billion gallons of water to residents, businesses, and commercial properties. In a continued effort to conserve water, the City of Merced encourages residents to keep an Eye On Water (a water meter software application), and follow the conservation program and water waste ordinance.



THE SAFE DRINKING WATER ACT

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. SDWA authorizes the United States Environmental Protection Agency (US EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. US EPA, states, and water systems then work together to make sure these standards are met. The National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants, required ways to treat water to remove contaminants as well as testing the water for those contaminants, and specific reporting requirements of the test results.

IMPORTANT HEALTH INFORMATION

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/ AIDS or other immune system disorders, some elderly and infants, may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800)426-4791.

CITY OF MERCED WEBSITE

Visit www.cityofmerced.org, Water Dept., for more information on our water system. If you have any questions regarding the content of this report or any other drinking water related topic, please call us at (209) 385-6800.



CROSS CONNECTION CONTROL PROGRAM

The purpose of the cross connection control program (aka backflow) is to reduce the hazards of contamination to the public water system by identifying actual and potential cross connections and taking action to protect the system from these hazards. This is accomplished by installing approved backflow prevention assemblies where hazards are identified; or ensuring that water-using equipment on the premises is installed in accordance with the plumbing code requirements and good practices. To keep your drinking water safe, the City's Cross Connection Specialist surveys the system to ensure compliance with cross connection/backflow requirements. The Specialist tests each primary external backflow prevention assembly annually; in 2018 the City tested 2,174 cross connection backflow assemblies, and found 180 of those needed repair.

SAFETY IN WORK ZONES

Whenever you see traffic cones and/or signs of our employees at work, please obey these signs and slow down. The City of Merced water crews often work in trenches, below the ground level, where repairs to the water main (pipe) may be needed. Their goal is to work as fast and skillfully as possible to get your water back on. Slowing down and following directions will help ensure the safety of our residents, as well as our employees.



LEAD IN HOME PLUMBING

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead and want your water tested, call us for information at (209) 385-6800. For information on lead in drinking water, testing methods, and steps you can take to minimize exposure, call the Safe Drinking Water Hotline or visit www.epa.gov/safewater.



SCHOOL LEAD TESTING

In August 2017, the City of Merced took initiative and conducted the required Lead testing of the drinking water at all schools within the public water system service area. With the collaboration of all 30 schools, the Lead testing was completed by October 2017. The Action Level (AL) for Lead is 15 ppb (parts per billion). All schools within the City of Merced public water system tested below the AL.

SAMPLING RESULTS The tables below list all drinking water contaminants that we tested for and detected according to State drinking water requirements. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless noted, the data presented in this report are from testing accomplished from January 1, 2018 to December 31, 2018. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not frequently change. In these cases, the most recent sample data are included, along with the year in which the samples were collected.

REGULATED CONTAMINANTS WITH PRIMARY DRINKING WATER STANDARDS: Enforceable standards and treatment techniques to protect public health by limiting the levels of contaminants in drinking water.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AVERAGE DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
1,2,3 Trichloropropane [TCP] (ppt)	2018	5	0.7	0.1	ND-.65	No	Industrial solvents; cleaning and degreasing agent; paint remover
Arsenic[1] (ppb)	2017	10	0.004	3.9	1.8-8.7	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium (ppm)	2017	1	2	0.23	0.09-0.49	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chlorine (ppm)	2018	[4.0 (as Cl2)]	[4.0 (as Cl2)]	0.69	0.2-1.1	No	Drinking water disinfectant added for treatment
Chromium [Total] (ppm)	2017	50	(100)	3.8	ND-5.3	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Copper (ppm)	2017	AL=1.3	0.3	0.003	ND-0.016	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Fluoride (ppm)	2018	2	1	0.11	ND-0.17	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2017	15	(0)	2.4	ND-12	No	Erosion of natural deposits
Gross Beta Particle Activity[2] (pCi/L)	2017	50	(0)	6.1	ND-11	No	Decay of natural and man-made deposits
Lead (ppb)	2017	AL=15	0.2	0.22	ND-1.2	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Nitrate[3] (as N) (ppm)	2018	10	10	2.8	1.2-4.9	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Tetrachloroethylene [PCE][4] (ppb)	2018	5	0.06	.07	ND-3.7	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Trichloroethylene [TCE] (ppb)	2018	5	1.7	0.03	ND-1.2	No	Discharge from metal degreasing sites and other factories
Turbidity (NTU)	2017	5	NS	0.08	ND-0.86	No	Soil runoff
Uranium (ppb)	2017	30	0	2.4	ND-8.7	No	Erosion of natural deposits

REGULATED CONTAMINANTS WITH SECONDARY DRINKING WATER STANDARDS: Non-enforceable guidelines regarding contaminants that may cause cosmetic or aesthetic effects. *There are no PHGs, MCLGs, or mandatory standard health effects language for these contaminants because secondary MCLs are set on the basis of aesthetic concerns.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AVERAGE DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2017	200	NS	10	ND-220	No	Erosion of natural deposits; residue from some surface water treatment processes
Chloride (ppm)	2017	500	NS	9.5	4.8-15	No	Runoff/leaching from natural deposits; seawater influence
Corrosivity[5] (Units)	2016	Non-corrosive	NS	12	12-13	No	Natural or industrially influenced balance of hydrogen, carbon and oxygen in the water; affected by temperature and other factors
Iron (ppb)	2017	300	NS	0	ND-73	No	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2018	50	NS	0.16	ND-3.6	No	Leaching from natural deposits
Odor (Threshold)	2017	3 Units	NS	.05	ND-1	No	Naturally occurring organic materials
pH, Laboratory	2018	6.5-8.5	NS	7.8	7.2-8.2	No	Low pH: bitter metallic taste, corrosion. High pH: slippery feel, soda taste; deposits
Sulfate (ppm)	2017	500	NS	10.4	6.8-14	No	Runoff/leaching from natural deposits; industrial wastes
Specific Conductance (µS/cm)	2018	1600	NS	310	197-505	No	Substances that form ions when in water; seawater influence
Total Dissolved Solids (ppm)	2017	1,000	NS	263	190-370	No	Runoff/leaching from natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	PHG (MCLG)	AVERAGE DETECTED (90TH %TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2018	1.3	0.3	0.2	0/45	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2018	15	0.2	ND	0/45	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

UNREGULATED AND OTHER SUBSTANCES[6]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH
Bromide (ppb)	2018	70	24-170
Calcium (ppm)	2017	30	16-52
Chlorate (ppm)	2014	113	50-240
Chlorodifluoromethane (ppb)	2014	0.14	0.081-0.18
Hardness (Total) as CACO3 (ppm)	2017	126	62-220
Hexavalent Chromium (ppb)	2017	3.5	1.6-4.7
Magnesium (ppm)	2017	12.3	4.7-24
Molybdenum (ppb)	2016	1.5	ND-2.9
Potassium (ppm)	2017	6.3	ND-12
Sodium (ppm)	2017	23.8	14-34
Strontium (ppb)	2014	377	200-660
Toluidine (ppb)	2018	0.0019	ND-.034
Vanadium (ppb)	2014	21	16-28
1,4 Dioxane (ppb)	2014	0.094	0.092-0.095

1) Arsenic results at Well Site 2 for all three wells are within the blending MCL of 10 ppb. While your drinking water meets the Federal and State standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. The U.S. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.
2) SWRCB considers 50 pCi/L to be the level of concern for beta particles.
3) Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.
4) PCE and TCE were detected well below the MCL at Well Sites 3, 5, and 13. All other City Well Sites reported no detection. While your drinking water meets Federal and State standards, it may contain low levels of contaminants below detection limits and below the Regulatory Action Level. The PCE and TCE standard balances the current understanding of possible health effects against the cost of removing contaminants from the drinking water. The U.S. EPA continues to research the health effects of low levels of PCE and TCE.
5) Corrosivity is not a National Environmental Laboratory Accreditation Program accredited analyte. All sampling results are based and calculated on an average of 20 production wells.
6) Unregulated contaminant monitoring helps the U.S. EPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated.

SUBSTANCES THAT COULD BE IN WATER

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Water Resource Control Board (State Board/SWRCB) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Contaminants that may be present in source water include:
Microbial Contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic Contaminants, such as salts and metals, that can be naturally occurring or can result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.

Radioactive Contaminants that can be naturally occurring or can be the result of oil and gas production and mining activities.

DEFINITIONS

AL (Regulatory Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste and appearance of drinking water.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. EPA.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NS: No standard

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

PDWS (Primary Drinking Water Standard): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

PHG (Public Health Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California EPA.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter; ug/L)

ppm (parts per million): One part substance per million parts water (or milligrams per liter; mg/L.)

ppt (parts per trillion): One part substance per trillion parts water (1 ppt = 1000 ppm)

APPENDIX E

EXECUTIVE SUMMARY,
MERCED GROUNDWATER SUBBASIN SUSTAINABILITY PLAN

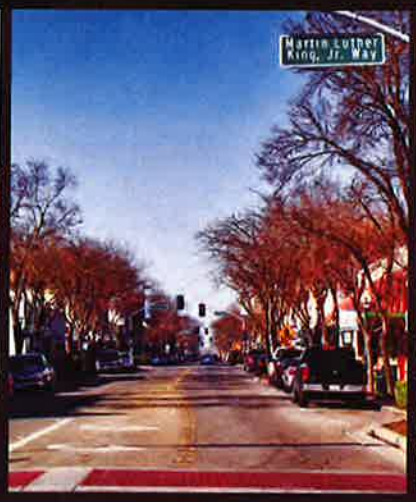
MERCED SGMA

Merced Groundwater Subbasin

GROUNDWATER SUSTAINABILITY PLAN

Executive Summary









November 2019

EXECUTIVE SUMMARY

ES-1. INTRODUCTION AND PLAN AREA

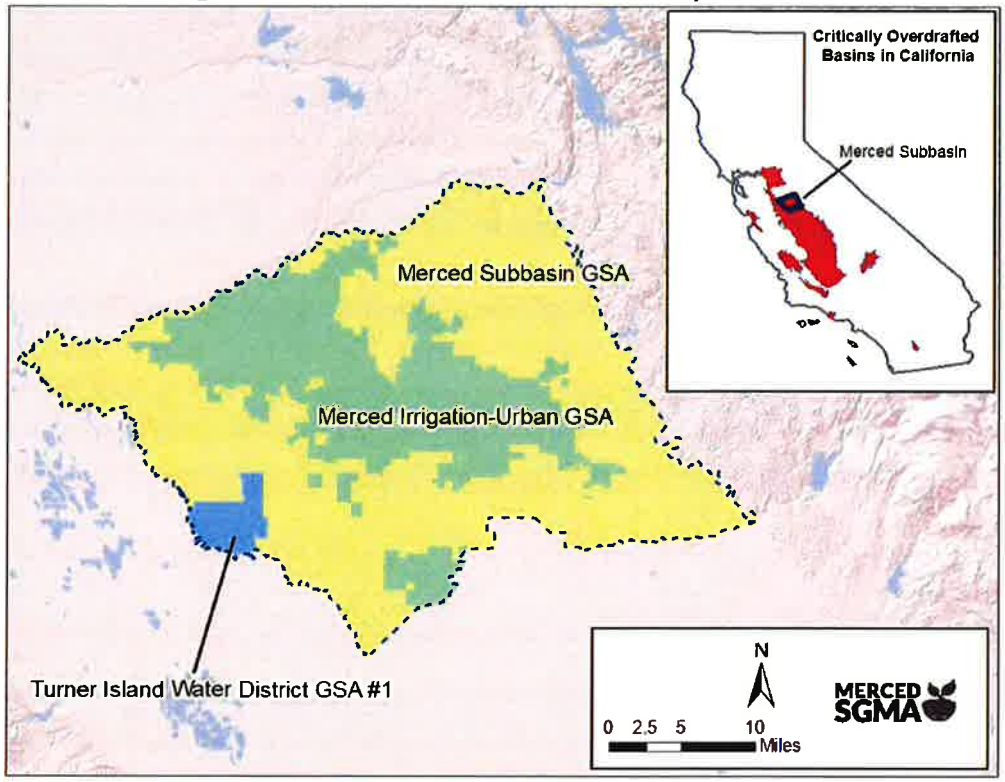
The Sustainable Groundwater Management Act (SGMA), passed in 2014, requires the formation of local Groundwater Sustainability Agencies (GSAs) to oversee the development and implementation of Groundwater Sustainability Plans (GSPs), with the ultimate goal of achieving sustainable management of California's groundwater basins. The purpose of this Groundwater Sustainability Plan is to bring the Merced Groundwater Basin (Merced Subbasin or Subbasin), a critically overdrafted basin located within the San Joaquin Valley (see Figure ES-1), into sustainable groundwater management by 2040. The Subbasin is heavily reliant on groundwater, and users recognize the basin has been in overdraft for a long period of time.

The County of Merced and water districts and cities within the Merced Subbasin formed three GSAs in accordance with SGMA: Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), Merced Subbasin Groundwater Sustainability Agency (MSGSA), and Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1) (see Figure ES-1). The three GSAs coordinated efforts to develop this GSP for the Subbasin. With the adoption of this GSP, the GSAs will adopt the following sustainability goal for the Merced Subbasin:

> **"Achieve sustainable groundwater management on a long-term average basis by increasing recharge and/or reducing groundwater pumping, while avoiding undesirable results."**

This goal will be achieved by allocating a portion of the estimated Subbasin sustainable yield to each of the three GSAs and coordinating the implementation of programs and projects to increase both direct and in-lieu groundwater recharge, which will in turn increase the groundwater and / or surface water available in the Subbasin.

Figure ES-1: Merced Subbasin Location Map and GSAs



Development of the GSP was guided by a Coordinating Committee composed of members appointed by the GSA Boards to provide recommendations on technical and substantive basin-wide issues. The Coordinating Committee and GSA Boards were also informed by a Stakeholder Advisory Committee, which consisted of a broad group of groundwater beneficial users (also appointed by the GSA Boards) to review groundwater conditions, management issues and needs, and projects and management actions to improve sustainability in the basin. Extensive outreach was also conducted to seek input from additional beneficial users of groundwater through multiple venues including public workshops held in locations specifically selected to provide access to disadvantaged communities. Figure ES-2 illustrates the relationship among the groups described above.

Figure ES-2: Diagram of Levels of Engagement and Decision-Making

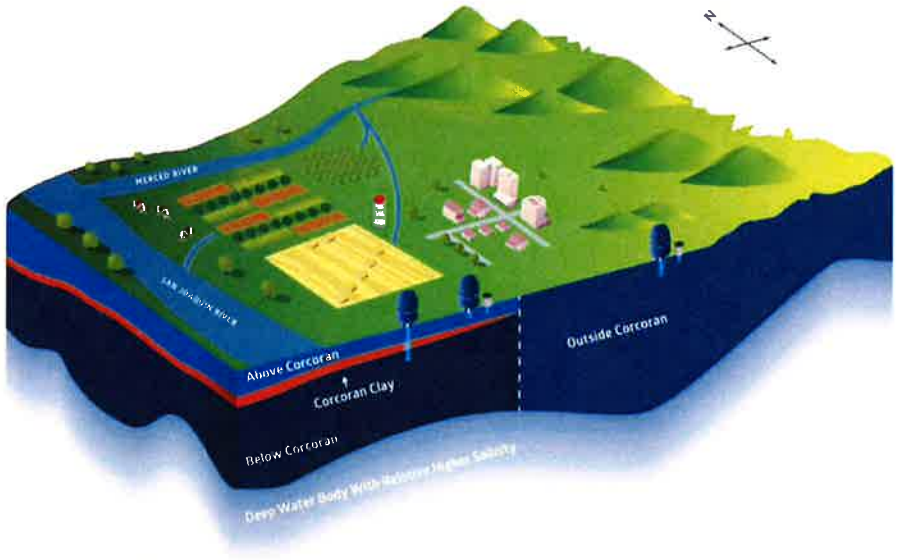


ES-2. BASIN SETTING

Hydrogeologic Conceptual Model

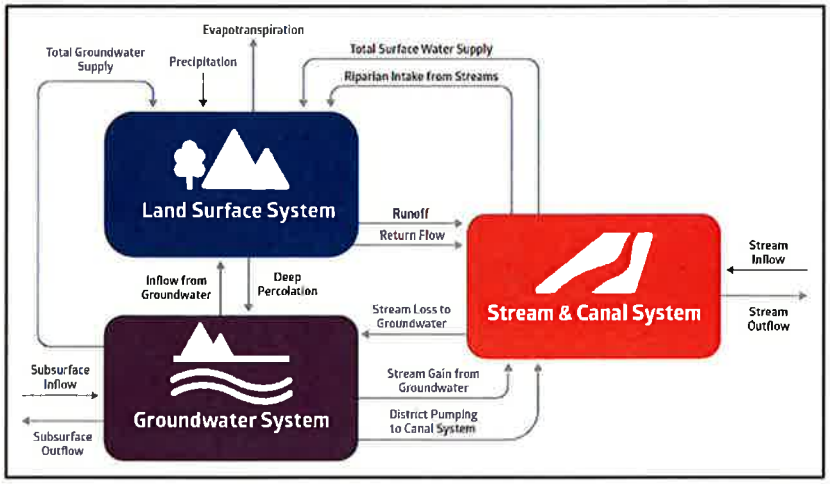
The Merced Subbasin contains three principal aquifers that are defined by their relationship to the Corcoran Clay aquitard, a laterally-extensive silt and clay layer that underlies approximately the western half of the Subbasin and acts as a significant confining layer. The **Above Corcoran Principal Aquifer** includes all aquifer units that exist above the Corcoran Clay Aquitard and generally contains moderate to large hydraulic conductivities and yields for domestic and irrigation uses. The **Below Corcoran Principal Aquifer** includes all aquifer units that exist below the Corcoran Clay Aquitard and contains hydraulic conductivities and yields ranging from small to large for irrigation as well as some domestic and municipal uses. The **Outside Corcoran Principal Aquifer** includes all aquifers that exist outside of the eastern lateral extent of the Corcoran Clay. The Outside Corcoran Principal Aquifer is connected laterally with the Above Corcoran Principal Aquifer at shallower depths and the Below Corcoran Principal Aquifer at deeper depths. Major uses of water in the Outside Corcoran Principal Aquifer include irrigation, domestic, and municipal uses. The Principal Aquifers are underlain by a deep aquifer with higher salinity relative to the principal aquifers. See Figure ES-3 for a 3D illustration demonstrating the relationship between the principal aquifers and Corcoran Clay aquitard

Figure ES-3: 3D Illustration of Merced Subbasin Principal Aquifers and Aquitard



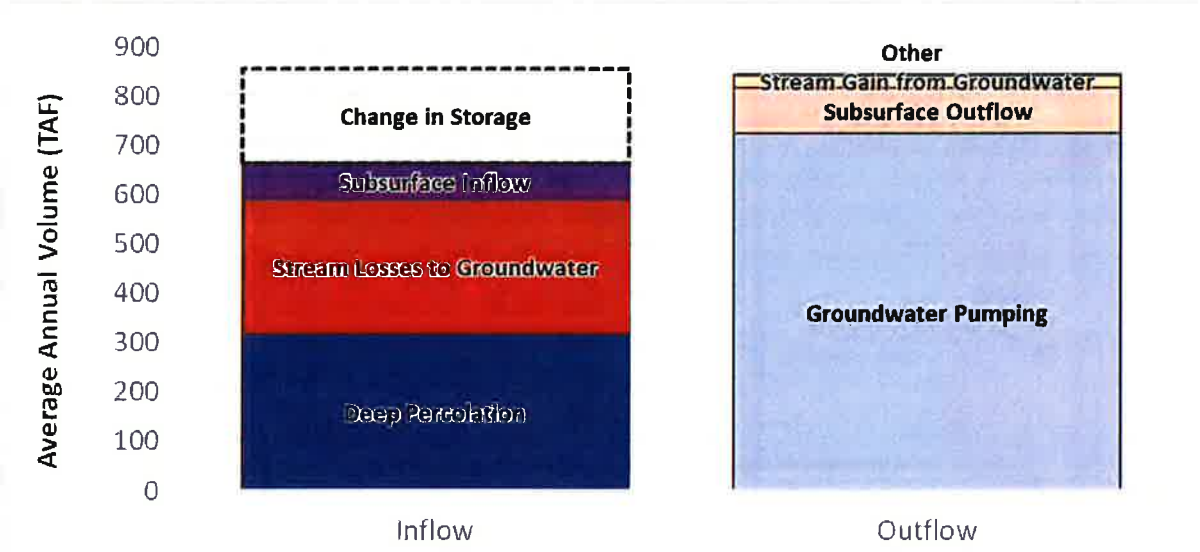
Water Budget Information

Figure ES-4: Generalized Water Budget Diagram



Water budgets provide quantitative accounting of water entering and leaving the Merced Subbasin and can be used to help estimate the extent of overdraft occurring now and in the future. Consistent with SGMA requirements, water budgets for historical, current, projected, and sustainable conditions were developed for the Merced Subbasin. These water budgets were developed using the Merced Water Resources Model (MercedWRM), a fully integrated surface and groundwater flow model developed and calibrated specifically for the Subbasin. See Figure ES-4 for a conceptual diagram of the inputs and outputs quantified by the model. The historical conditions water budget (see Figure ES-5) shows an annual average rate of overdraft ("Change in Storage") of 192,000 acre-feet per year (AFY) over water years 2006 through 2015. In this Figure, the "Change in Storage" represents the average annual decline in storage resulting from the Subbasin outflows, principally groundwater pumping.

Figure ES-5: Historical Conditions Water Budget

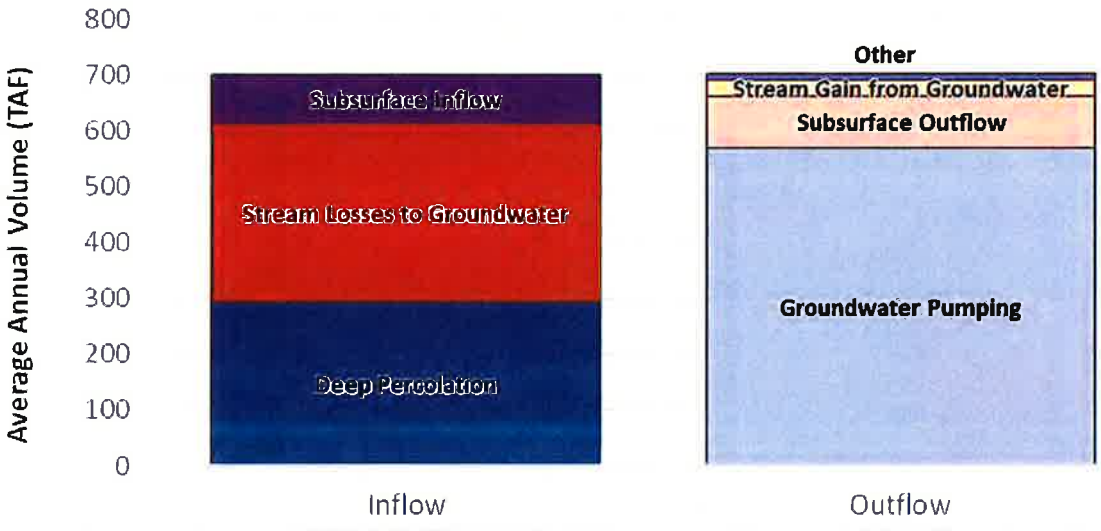


SGMA defines sustainable yield as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result" (California Water Code §10721(w)).

For the Merced Subbasin, sustainable yield was estimated by modifying conditions in the groundwater model to balance out the change in stored water over time. In order to achieve a net-zero change in groundwater storage over a long-term average condition, current agricultural and urban groundwater demand in the Merced Subbasin would need to be

reduced by approximately 10 percent, absent implementation of any new supply-side or recharge projects. Figure ES-6 illustrates the Subbasin water budget under long term sustainable conditions.

Figure ES-6: Groundwater Water Budget under Sustainable Groundwater Management Conditions Long-Term (50-Year) Average Annual



ES-3. SUSTAINABLE MANAGEMENT CRITERIA

SGMA requires consideration of six sustainability indicators. For each indicator, the GSP must define undesirable results for the basin ("significant and unreasonable" negative impacts) and determine if they could occur. For the indicators with the potential for undesirable results, the GSP must establish sustainable management criteria that are intended to prevent undesirable results from occurring and establish a monitoring network.

Sustainable management criteria were developed to be protective of beneficial uses in the Merced Subbasin and to support the Subbasin's sustainability goal. Demonstration by 2040 of stable groundwater elevations on a long-term average basis, combined with the absence of undesirable results, will support a determination that the basin is operating within its sustainable yield, and thus that the sustainability goal has been achieved.

A summary of the sustainable management criteria for the Merced Subbasin is shown in Table ES-1.

Table ES-1: Summary of Sustainable Management Criteria

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective	Undesirable Result
Groundwater Levels	Depth of shallowest well in a 2-mile radius of each representative well or minimum pre-January 1, 2015, elevation	Projected average future groundwater level under sustainable yield modeling simulation	Greater than 25% of representative wells fall below MT in 2 consecutive wet, above normal, or below normal years[1]
Groundwater Storage	Not applicable - not present and not likely to occur in the Subbasin due to the significant volumes of freshwater in storage		
Seawater Intrusion	Not applicable - not present and not likely to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta)		
Degraded Water Quality	1,000 mg/L TDS	500 mg/L TDS	At least 25% representative wells exceed MT for 2 consecutive years
Land Subsidence	-0.75 ft/year	-0.25 ft/year	Exceedance of MT at 3 or more representative sites for 2 consecutive years
Depletions of Interconnected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator		

There are two sustainability indicators deemed not applicable to the Merced Subbasin. Undesirable results related to significant and unreasonable **depletions of groundwater storage** are not present and not likely to occur in the Subbasin, since historical reductions have been insignificant relative to the total volume of freshwater water storage in the Subbasin. **Seawater intrusion** is not an applicable sustainability indicator because seawater intrusion is not present and is not likely to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta).

For the remaining sustainability indicators, sustainable management criteria were established to be protective of Subbasin beneficial uses as described below.

Minimum thresholds for **chronic declining groundwater levels** were developed based on records of well depth for the shallowest domestic wells within a 2-mile radius of each representative monitoring well. This methodology is intended to be protective against significant and unreasonable dewatering of domestic wells. Since domestic wells are generally shallower than agricultural and municipal, this is also protective of these other well types. Sustainable management criteria for declining groundwater levels were developed with a dataset including historical groundwater levels, Merced County's well permitting database, and simulated groundwater levels from the MercedWRM. Groundwater levels are also being used as a proxy indicator for depletion of interconnected surface waters.

[1] *Water year types based on San Joaquin Valley Water Year Index* (DWR, 2017c)

Degraded water quality is unique among the six sustainability indicators because it is already the subject of extensive federal, state, and local regulations carried out by numerous entities, and SGMA does not directly address the role of GSAs relative to these other entities (Moran & Belin, 2019). SGMA does not specify water quality constituents that must have minimum thresholds. Groundwater management is the mechanism available to GSAs to implement SGMA. Establishing minimum thresholds for constituents that cannot be managed by increasing or decreasing pumping was deemed inappropriate by the GSAs and basin stakeholders. The major water quality issue being addressed by sustainable groundwater management is the migration of relatively higher salinity water into the freshwater principal aquifers. The nexus between water quality and water supply management exists for the pumping-induced movement of low-quality water from the west and northwest to the east. Other water quality concerns are being addressed through various water quality programs and agencies that have the authority and responsibility to address them.

Within the Merced Subbasin, while **land subsidence** has been recognized by the GSAs as an area of concern, it is not considered to have caused a significant and unreasonable reduction in the viability of the use of infrastructure. However, it is noted that subsidence has caused a reduction in freeboard of the Middle Eastside Bypass over the last 50 years and has caused problems in neighboring subbasins, highlighting the need for ongoing monitoring and management in the Merced Subbasin. Thus, sustainable management criteria were established based on historical rates of subsidence in the Subbasin, and the GSAs will continue to coordinate efforts with surrounding subbasins to develop regional or local solutions to subsidence occurring in the Merced, Chowchilla, and Delta-Mendota Subbasins.

Depletions of interconnected surface waters will be managed using groundwater levels as a proxy due to the challenges associated with directly measuring streamflow depletions and because of the significant correlation between groundwater levels and depletions.

ES-4. MONITORING NETWORKS

Consistent with SGMA requirements, the GSAs plan to establish monitoring networks for each sustainability indicator to monitor trends in the Subbasin and evaluate GSP implementation against sustainable management criteria. The groundwater level monitoring network consists of wells from the California Statewide Groundwater Elevation Monitoring (CASGEM) Program that were selected to provide representative conditions for groundwater levels across the Subbasin. The groundwater quality monitoring network includes a combination of wells in the Subbasin that are part of the East San Joaquin Water Quality Coalition Groundwater Quality Trend Monitoring Program as well as public water system wells that report data to the Division of Drinking Water. The subsidence monitoring network relies on control points monitored by the United States Bureau of Reclamation as part of the San Joaquin River Restoration Program. While the monitoring networks reflect a robust history of monitoring Subbasin conditions, data gaps exist, and plans to fill these data gaps for each sustainability indicator are also described in this GSP.

ES-5. DATA MANAGEMENT SYSTEM

The Merced Subbasin Data Management System (DMS) was developed to serve as a data sharing portal to enable utilization of the same data and tools for visualization and analysis to support sustainable groundwater management and transparent reporting of data and results. Monitoring data can be manually input by users or batch uploaded via template and is expected to include groundwater level, groundwater quality, streamflow, and subsidence data. All monitoring locations can be viewed spatially (map or list format) and data records per site can be viewed temporally (chart or list format). Ad-hoc queries and standard reports will greatly assist in answering questions about basin characterization, providing input for decision-making, and developing reports to meet annual report submittal requirements.

ES-6. PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY GOAL

SGMA requires that GSPs describe the projects and management actions to be implemented as part of bringing the Subbasin into sustainability. The primary means for achieving sustainability in the basin will be reduction in groundwater pumping achieved through implementation of an allocation framework to allocate the sustainable yield of the basin to the GSAs. A water allocation framework has been the subject of much discussion during GSP development. The GSAs have agreed that they intend to allocate water to each GSA but have not yet reached agreement on allocations or how they will be implemented. Such an agreement will be developed during GSP implementation.

The GSP identifies a shortlist of 12 priority projects that met a series of screening criteria for implementation (see Table ES-2) as well as a longer list of possible future projects that were identified during GSP development. Projects and management actions will either increase surface water supplies to augment the sustainable groundwater yield or will increase groundwater recharge, which will in turn increase the amount of groundwater that may be sustainably used.

Table ES-2: Projects Shortlist for Merced Subbasin Groundwater Sustainability Plan*

Project Name	Current Status	Expected Completion	Estimated Cost
Project 1: Planada Groundwater Recharge Basin Pilot Project	Planning, to be implemented with DWR Grant Funding	12/17/2023	$395,292
Project 2: El Nido Groundwater Monitoring Wells	Planning, to be implemented with DWR Grant Funding	12/31/2019	$400,000
Project 3: Meadowbrook Water System Intertie Feasibility Study	Planning	06/2020	$100,588
Project 4: Merquin County Water District Recharge Basin	Planning/Initial Study	12/15/2021	$1,400,000
Project 5: Merced Irrigation District to Lone Tree Mutual Water Company Conveyance Canal	Conceptual	11/2020	$3-6,000,000
Project 6: Merced IRWM Region Climate Change Modeling	Design	4/30/2021	$250,000
Project 7: Merced Region Water Use Efficiency Program	Design	12/31/2020	$500,000
Project 8: Merced Groundwater Subbasin LIDAR	Planning/Initial Study	12/2020	$150,000
Project 9: Study for Potential Water System Intertie Facilities from MID to LGAWD and CWD	Design Complete	06/01/2020	$100,000
Project 10: Vander Woude Dairy Offstream Temporary Storage	Planning/Initial Study & Conceptual Design	05/2020	$750,000
Project 11: Mini-Big Conveyance Project	Planning	06/2026	$ 6-8,000,000
Project 12: Streamlining Permitting for Replacing Sub-Corcoran Wells	Planning	1/31/2020	$75,000

*Information provided by project proponents.

ES-8. PLAN IMPLEMENTATION

Implementation of the GSP will be a substantial undertaking that will include implementation of the projects and management actions as well as GSAs administration, public outreach, implementation of the monitoring programs and filling data gaps, development of annual reports, and development of a 5-year update and report. The GSAs have developed an implementation schedule (see Table ES-3) and estimated costs for all activities, as well as potential funding mechanism options. Implementation of the GSP is projected to run between $1.2M and $1.6M per year. Costs for projects and management actions are estimated to be an additional $22.9M in total, with costs for individual projects or management actions ranging between $75,000 to $8M in total.

Table ES-3: GSP Implementation Schedule

2020	2025	2030	2035	2040
Monitoring and Reporting	Preparation for Allocations and Low Capital Outlay Projects	Prepare for Sustainability	Implement Sustainable Operations	
• Establish monitoring network • Install new monitoring wells • Reduce/fill data gaps	• Conduct 5-year evaluation/update • Monitoring and reporting continue	• Conduct 5-year evaluation/update • Monitoring and reporting continue	• Conduct 5-year evaluation/update • Monitoring and reporting continue	
• GSAs allocated initial allocations • GSAs establish their allocation procedures and demand reduction efforts • Develop metering program	• As-needed demand reduction to reach Sustainable Yield allocation • Metering program continues	• As-needed demand reduction to reach Sustainable Yield allocation	• Full implementation demand reduction as needed to reach Sustainable Yield allocation by 2040	
• Funded and smaller projects implemented	• Planning/ design/ construction for small to medium sized projects	• Planning/ design/ construction for larger projects begins	• Project implementation completed	
• Extensive public outreach regarding GSP and allocations	• Outreach regarding GSP and allocations continues	• Outreach continues	• Outreach continues	

Appendix M

Transportation Impact Study

DKS, August 2021



UNIVERSITY VILLAGE MERCED

TRAFFIC IMPACT STUDY

AUGUST 2021

PREPARED FOR:

DUDEK

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VERSION CONTROL

VERSION NUMBER	DATE	DESCRIPTION OF CHANGE	AUTHOR
0-1	01/18/2017	Administrative Draft	David Tokarski James Daisa Bobby Sidhu
0-2	02/10/2017	Revised Administrative Draft responding to client comments	David Tokarski James Daisa
0-3	02/07/2020	Revised project description and factored 2016 counts to reflect growth through 2019.	David Tokarski Benjamin Rady
0-4	8/12/2020	Added VMT Analysis	David Tokarski
0-5	8/13/2021	Revised VMT Analysis (locally serving retail)	David Tokarski

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TRAFFIC IMPACT ANALYSIS

This Traffic Impact Analysis (TIA) describes the existing transportation and circulation environment in the vicinity of the proposed project and potential impacts the project may have on the transportation network. Regulations and policies affecting transportation in the Project vicinity are also discussed in this section.

This TIA includes analysis and discussion responding to comment letters received during the NOP (Notice of Preparation) period. Comments received included concerns about "cut-through" traffic using local residential roadways to avoid delays on more major roadways, as well as concerns regarding Project traffic use of State Highway facilities.

PROJECT DESCRIPTION

The applicant, University Village Merced, LLC, proposes to construct new market rate apartment housing and commercial uses on a site just outside the boundary of the City of Merced. The proposed Project includes the annexation of the subject property, as well as other adjacent properties into the City of Merced. The proposed Project is located on approximately 28.6 acres of land at the northeast corner of the intersection of East Yosemite Avenue and North Gardner Avenue/ North Parsons Avenue. The Project site currently is the only quadrant of the intersection that lies outside the boundary of the City of Merced and is the only quadrant of the intersection lacking improved street frontages.

The proposed Project would consist of 540 market rate apartments, with 27 units (15 one bedroom and 12 two bedroom) housed in each of 20 buildings, a 13,700 square foot clubhouse for use of Project residents, as well as approximately 66,000 square feet of commercial development serving the Project residents and the general public. The retail portion of the project would also include 12 luxury residential apartments and 18 extended stay units. The proposed Project includes a total of 1,223 parking spaces (901 for residential and 323 for mixed use).

Figure 1 illustrates the proposed Project's location within the Study Area.

The proposed Project would implement street improvements along its frontage on East Yosemite Avenue and North Gardner Avenue. The City requires developments fronting on unimproved streets to dedicate the right of way and construct one half of the street's ultimate cross-section designated in the City's General Plan. These frontage improvements complete gaps in the City's circulation system and connect the proposed Project to the surrounding pedestrian and bicycle system.

The General Plan designates East Yosemite Avenue as a minor arterial comprised of four lanes divided by a raised median/left turn lane with bike lanes, sidewalks and park rows on both sides of the street. The Project proposes to provide a public bus stop and turnout on westbound Yosemite Avenue located approximately 720 feet east of Gardner Avenue.

The applicant proposes two access driveways on East Yosemite Avenue: the main driveway located approximately 885 feet east of Gardner Avenue and a secondary driveway serving

the commercial element of the site located approximately 365 feet east of Gardner Avenue, as shown in Figure 3.10-2.

Gardner Avenue is also designated as a minor arterial in the General Plan consisting of four travel lanes divided by a center turn lane, bike lanes, and sidewalks separated from the street by park rows. The applicant proposes two access driveways on Gardner Avenue: the main driveway located about 540 feet north of East Yosemite Avenue, and a secondary driveway serving the commercial element located about 275 feet north of East Yosemite Avenue.

EXISTING SETTING

This section describes the existing transportation conditions in the Project study area, including descriptions of the roadway network and transit, pedestrian and bicycle facilities in the vicinity of the Project site.

INTERSECTIONS STUDIED

Intersection operations were evaluated during the weekday morning (AM) and evening (PM) peak periods. Ten intersections in the vicinity of the Project site were selected for analysis because they are located on streets that would likely be used by Project traffic under both existing and future conditions. Most of the intersections were selected because they are located on primary routes accessing UC Merced and Merced College or routes used by Project-related traffic as access to and from nearby commercial and residential areas and downtown Merced. Some intersections were selected in order to evaluate the potential for Project traffic to use residential streets to bypass arterial streets. The study intersections are shown on **Figure 1** and listed below:

1. G Street / Mercy Avenue
2. G Street / East Yosemite Avenue
3. North Gardner Avenue / East Yosemite Avenue
4. North Gardner Avenue / Dunn Road
5. Hatch Road / Dunn Road
6. Hatch Road / East Yosemite Avenue
7. Lake Road / Dunn Road
8. Lake Road / East Yosemite Avenue
9. McKee Road / East Yosemite Avenue
10. Chaparral Drive / East Yosemite Avenue

FIGURE 1: PROJECT STUDY AREA

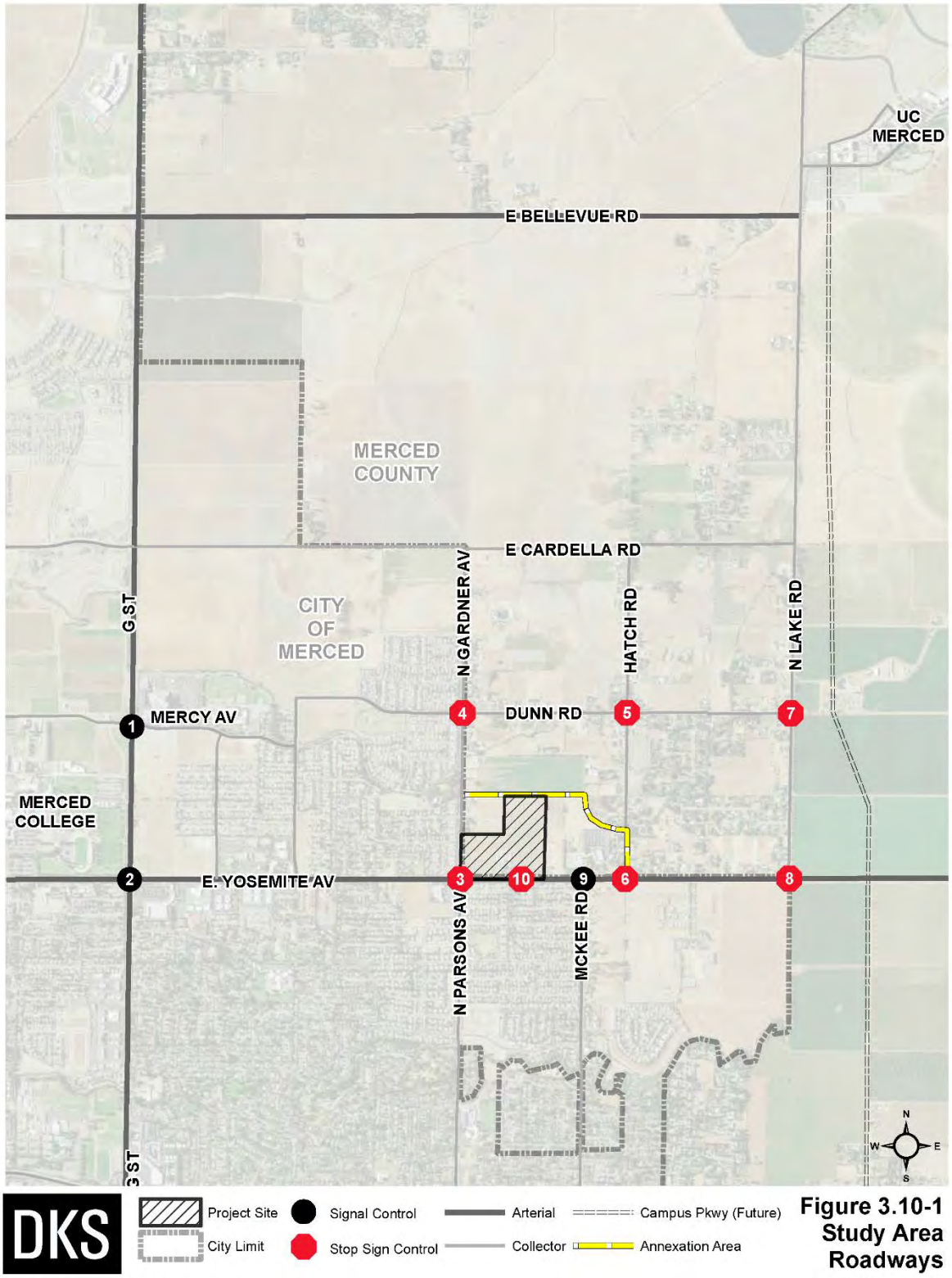


Figure 3.10-1 Study Area Roadways

FIGURE 2: PROJECT SITE PLAN



EXISTING ROADWAY NETWORK

The roadway network in the study area is shown in **Figure 1**. The area surrounding the proposed Project site is largely undeveloped with limited roadway infrastructure in place. The site can be accessed by two-lane rural roads, including Gardner Avenue and Yosemite Avenue. Descriptions of the most important local and regional roadways in the vicinity of the Project are provided below.

G Street is a north-south roadway extending from Highway 99 to La Paloma Road, where it turns into Snelling Road. G Street is a four-lane roadway south of Yosemite Avenue, narrowing to two lanes north of Yosemite Avenue. G Street carries almost 26,000 vehicles per day within the City, and 6,700 daily vehicles north of the city limits.

East Bellevue Road is a two-lane east-west road extending from Fox Road to its eastern terminus at Lake Road. This roadway currently carries approximately 3,700 vehicles per day, west of Lake Road. Bellevue Road provides access between newly developing portions of Merced and the UC Merced campus.

East Yosemite Avenue is a two-lane east-west road extending from R Street to its eastern terminus at Arboleda Drive. This roadway carries between 15,100 vehicles per day east of G Street, decreasing to 2,150 vehicles per day east of Kibby Road. West of G Street, West Yosemite Avenue provides access to Merced College. East of G Street, East Yosemite Avenue provides access to Lake Road and UC Merced to the north.

Lake Road is a two-lane north-south road extending from Yosemite Avenue to its northern terminus at Lake Yosemite. Lake Road becomes a local access road in the future. Campus Parkway replaces its function for through access. Lake Road currently provides primary access to the UC Merced campus.

Mercy Avenue is a two-lane east-west collector street that provides primary access to Mercy Medical Center. Mercy Avenue begins at G Street and continues east to just east of Paulson Road. West of G Street, Mercy Avenue becomes Community College Drive North and provides access to the northern portions of Merced College.

North Parsons Avenue is a north-south two lane minor arterial roadway between East Bear Creek Drive to the south and East Yosemite Avenue to the north. Parsons Avenue becomes North Gardner Avenue north of East Yosemite Avenue.

North Gardner Avenue is currently a two-lane north-south road designated as a minor arterial in the City's General Plan. It currently acts as an extension of Parsons Avenue from East Yosemite Avenue to its terminus approximately one half mile north of Dunn Road. In the future, the City's General Plan designates this street as a four lane minor arterial extending north to connect to East Bellevue Road.

Dunn Road is a two-lane east-west street between Paulson Road to the west and Lake Road to the east. The segment between N. Gardner Avenue and Lake Road is currently in Merced County. Dunn Road serves predominantly rural residential and consists of a narrow (24 feet) unimproved road (without curb, gutter and sidewalk) with moderate to poor

pavement conditions. In the future, the adopted UC Merced Community Plan identifies Dunn Road connecting to the planned Campus Parkway east of Lake Road.

TRAFFIC ANALYSIS METHODOLOGY

Study intersections were analyzed using the 2010 Highway Capacity Manual (HCM) methodologies. Traffic operations were analyzed using the Synchro 9.0 software program, which is based on procedures outlined in the HCM.

The analysis results are presented using a descriptive term known as level of service (LOS), which is a measure of the quality of traffic operating conditions varying from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed capacity resulting in long queues and delays). LOS grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving.

The LOS is determined differently depending on the type of control at the intersection. For side-street stop-controlled intersections, the LOS rating is based on the weighted average control delay of the side-street. At all-way stop-controlled and signalized intersections, the LOS rating is based on the weighted average control delay of all movements measured in seconds per vehicle. Peak hour traffic volumes, lane configurations, and signal timing plans are used as inputs in the LOS calculations. **Table 1** summarizes the relationship between the average control delay per vehicle and LOS for signalized and unsignalized intersections.

TABLE 1: LEVEL OF SERVICE CRITERIA

LEVEL OF SERVICE (LOS)	AVERAGE CONTROL DELAY (SECONDS/VEHICLE)	
	Stop Controlled[1]	Signalized
A	≤ 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

[1] Applied to the average intersection delay at stop controlled intersections.

Source: Highway Capacity Manual, 2010, DKS Associates, 2020

EXISTING LEVELS OF SERVICE

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were conducted at the study intersections on clear days with area schools in normal session in November 2016. The 2016 traffic counts are provided in the Technical Appendix. For each intersection, the single hour with the highest traffic volumes during the two count periods was identified. The peak hour volumes and intersection lane configuration and control type are presented on **Figure 3**. Count volumes have been adjusted to represent the time that has elapsed since the counts were conducted in late 2016. Because UC Merced is the most influential land use in the vicinity of the Project, an estimated growth rate of 8.6% between 2016 and 2019 has been assumed. This rate is based on University of California data[1] and has been agreed to by City staff.

Existing operations were evaluated for the weekday AM and PM peak hours at the existing study intersections. The existing traffic volumes were used with current lane configurations and signal phasing/timings as inputs into the LOS calculations. Table 2 summarizes the LOS results. Detailed intersection LOS calculation worksheets are presented in the Technical Appendix.

Two delay values are reported for each unsignalized intersection: (1) intersection average delay and (2) the highest controlled movement delay. LOS D is the limit of acceptable operations in the City of Merced. LOS C is the limit of acceptable operations for intersections in rural portions of the County. For the purposes of this analysis, all Level of Service designations are based on average intersection delay and worst movement delay is presented for informational purposes.

Table 2 shows that all intersections but one currently operate at LOS C or better during both the AM and PM peak hours. One intersection (North Gardner/ East Yosemite) currently operates with an average intersection delay representing LOS D during both AM and PM peak hours, and operates with a worst movement delay representing LOS F during the AM peak hour and LOS E during the PM peak hour.

EXISTING TRANSIT SERVICE

The UC Merced campus is accessible by transit both locally and regionally.

Amtrak provides service to the City of Merced and vicinity on its San Joaquin route. The San Joaquin runs multiple times daily between the San Francisco Bay Area (or Sacramento) and Bakersfield, where Amtrak Thruway buses connect to Southern California destinations. Stops in addition to Merced include Stockton, Modesto, Martinez, and Fresno. The northbound and southbound trains currently stop in Merced 7 times daily. The Amtrak station is located in downtown Merced, approximately 3.5 miles from the proposed project.

The Bus is operated by the Transit Joint Powers Authority for Merced County and provides regular fixed route bus service within Merced County. The Bus currently operates nearly

[1] https://www.universityofcalifornia.edu/news/record-breaking-class-pushes-uc-merced-enrollment-near-8000

thirty bus lines throughout the County, seven of which serve the City of Merced and its surrounding communities. Other routes connect Merced with other cities located further away in the County. Four bus routes provide either direct service or nearly direct service to the proposed project site.

FIGURE 3: EXISTING INTERSECTION GEOMETRICS AND PEAK HOUR VOLUMES

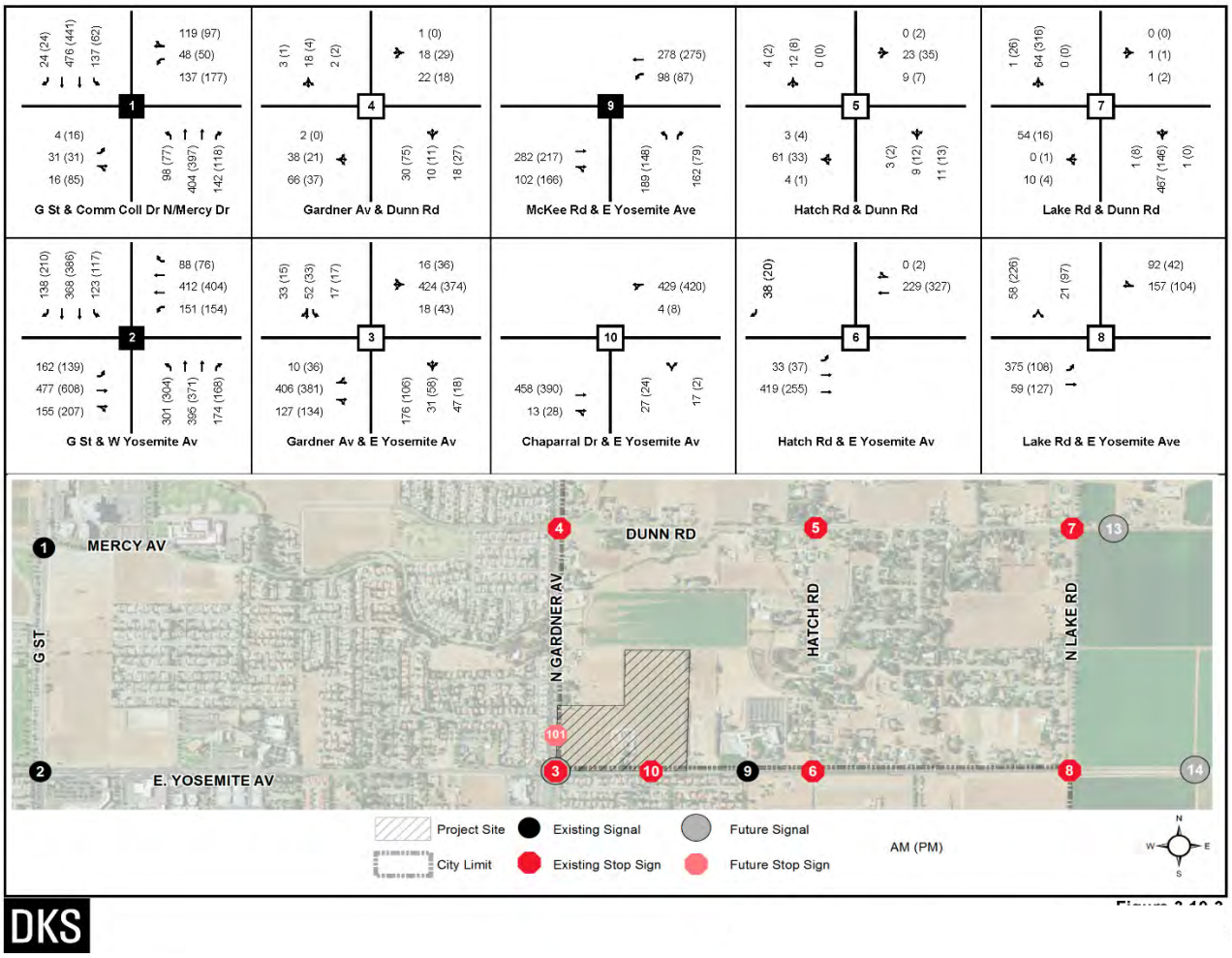


TABLE 2: EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE

INTERSECTION	JURISDICTION	LOS POLICY	INTER-SECTION CONTROL	EXISTING CONDITIONS			
				AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	21.1	C	20.8	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	36.2	D	43.0	D
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	33.7 (62.2)	D	24.7 (40.4)	C
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	7.1 (10.1)	A	7.2 (10.9)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	7.0 (9.6)	A	6.6 (9.4)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.9 (9.2)	A	0.8 (9.5)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	1.5 (14.1)	A	0.7 (13.2)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	6.2 (16.9)	A	7.9 (14.5)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	11.5	B	10.3	B
CHAPARRAL DRIVE / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (16.9)	A	0.6 (18.0)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies.
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), Average Intersection (Worst Movement) Delay
DKS Associates, 2020.

Route M1 (Merced West) provides access to Merced College and its nearest stop is at the western edge of Merced College (on M Street), approximately 1.5 miles from the project

site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south and west.

Route M2 (R Street Shuttle) provides access to Merced College and its nearest stop is at the western edge of Merced College (on M Street), approximately 1.5 miles from the project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south.

Route M3 (M Street Shuttle) provides access to Merced College and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Paulson Road, approximately ½ mile from the proposed project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south.

Route M4 (G Street Shuttle) provides access to Merced College and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Paulson Road, approximately ½ mile from the proposed project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced and other portions of the City of Merced to the south.

Route M6 (Olive Loops) provides access to Merced College and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Parsons Avenue, across the street from the proposed project site. This route operates every 30 minutes throughout the day.

Route UC (UC Merced) provides access to UC Merced, Merced College, and Mercy Medical Center and its nearest stop is on East Yosemite Avenue near Parsons Avenue, across the street from the proposed project site. This route operates every 30 minutes throughout the day and provides connections to downtown Merced.

CatTracks is a bus system funded by the UC Merced campus. It connects the campus and surrounding areas, including downtown Merced and research facilities located on the closed Castle Air Force base. CatTracks operates a number of routes in the vicinity of the proposed project. A number of CatTracks routes include on-demand stops along East Yosemite Avenue within walking distance of the proposed project.

StaRT (Stanislaus Regional Transit) provides one round trip each direction daily between Modesto, Turlock, and Merced along SR-99. It connects with The Bus in Merced.

YARTS (Yosemite Area Regional Transit) connects the City of Merced to Yosemite National Park.

Figure 4 shows the local Bus routes in the vicinity of the proposed project.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

The City of Merced has the most extensive bike path system in the county. Merced's bikeway system consists of Class I paths (separated from roadways) and Class II on-street bike lanes. Most of the Class II bike lanes are on streets within the urban area of Merced, while the Class I bike paths run along portions of Black Rascal Creek and Bear Creek. Few dedicated bicycle facilities exist in the unincorporated areas of Merced County.

The County does have one Class I Bike Path (Lake Road) and plans to construct an additional Class I Bike Path along Segments 2 and 3 of Campus Parkway. While overall development of non-motorized facilities is a responsibility of local government, Caltrans provides state-level funds through the Bicycle Transportation Account and Safe Routes to School programs. **Figure 5** shows existing bicycle facilities in the vicinity of the Proposed Project.

FIGURE 4: MAP OF MERCED TRANSIT ROUTES

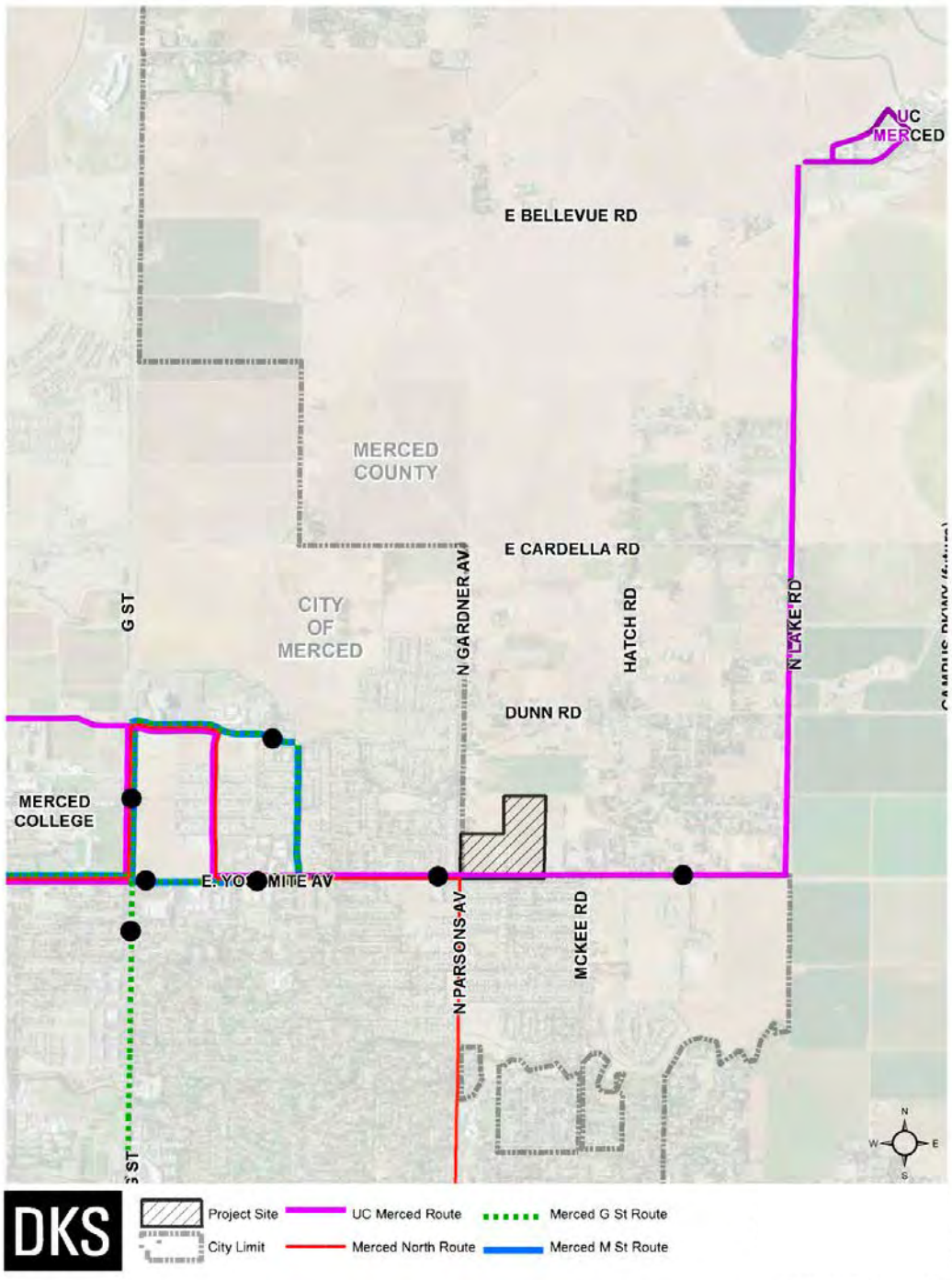
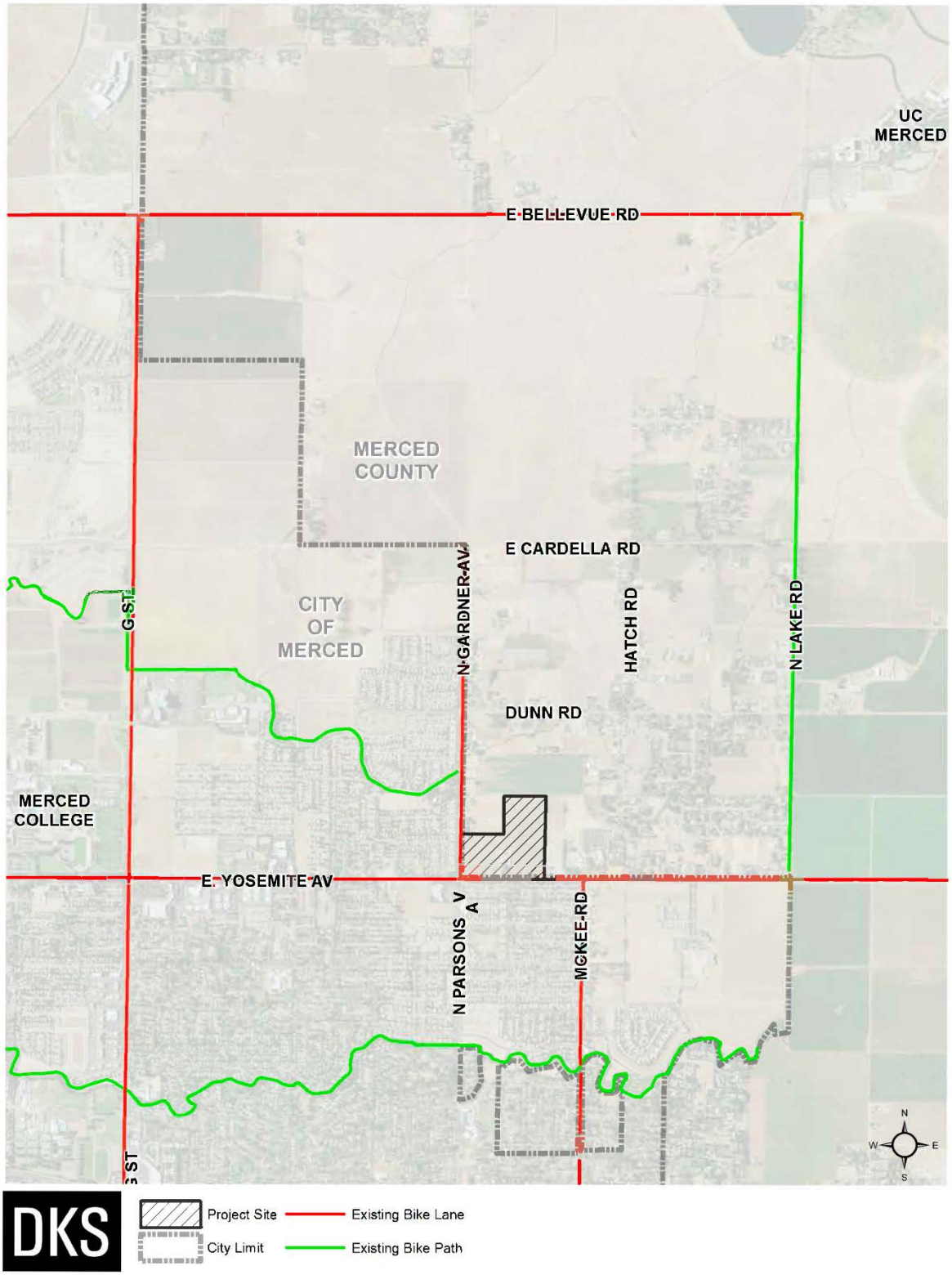


FIGURE 5: MAP OF EXISTING BIKEWAYS



REGULATORY SETTING

This section summarizes the planning and policy documents that relate to the provision of transportation services in Merced County. This information provides a context for the impact discussion related to the 2030 General Plan's consistency with applicable regulatory conditions. These documents include a number of planned improvements that could benefit the project. Some of the key documents include:

- Merced Vision 2030 General Plan, City of Merced
- Merced County Year 2030 General Plan, Merced County
- UC Merced Long Range Development Plan 2020
- 2018 Regional Transportation Plan & Sustainable Communities Plan, Merced County Association of Governments
- Merced County Regional Commuter Bicycle Plan, Merced County Association of Governments, 2008
- Technical Advisory on Evaluating Transportation Impacts in CEQA: California Governor's Office of Planning and Research (OPR) – April 2018

Merced Vision 2030 General Plan

The City of Merced adopted its *Merced Vision 2030 General Plan* in January 2012, superseding the *Merced Vision 2015 General Plan*. The Transportation and Circulation chapter of the 2030 General Plan includes goals and policies intended to plan for circulation while enhancing the community and protecting the environment. The Plan's goals and objectives include roadways and vehicular access, active transportation, and the coordination of land use planning and circulation. The Plan identifies a one mile grid system of arterial roadways, which will be extended to serve Merced's new growth areas in the area between the proposed project and the UC Merced campus.

Some of the goals and policies contained in the Vision 2030 General Plan relevant to this analysis include the following:

- **Goal Area T-1: Streets and Roads**
  - An integrated Road System that is safe and efficient for motorized and non-motorized uses
  - A circulation System that is accessible, convenient, and flexible
  - A comprehensive System of "complete streets" which address all modes of transportation
- **Policies T-1**
  - T-1.1 Design streets consistent with circulation function, affected land uses, and all modes of transportation
  - T-1.2 Coordinate circulation and transportation planning with pertinent regional, State, and Federal agencies
  - T-1.3 Design major roads to maximize efficiency and accessibility

        - 1.3a Adhere, to the greatest possible extent, to the standards adopted for spacing streets that intersect arterials and higher order roadways
            - Identifies intersection spacing of ¼ to ½ mile for major arterials, arterials, and divided arterials, and 1/8 to ¼ mile for minor arterials
        - 1.3b Improve traffic flow of arterials and other major roadways whenever possible by avoiding or eliminating on-street parking
        - 1.3c Work to ensure that land use fronting major streets have shared access across adjacent properties and provide sufficient on-site parking to avoid depending upon on-street parking
        - 1.3d Continue to require the provision of on-site visitor parking in multi-family projects
        - 1.3f Whenever feasible avoid, or eliminate, unnecessary or poorly placed median openings and consider limiting left turns at uncontrolled intersections during peak hours on arterials
        - 1.3k Approve driveway access locations only if consistent with approved minimum acceptable distances from major intersections, except in unusual circumstances
    - T-1.4 Promote traffic safety for all modes of transportation
    - T-1.5 Minimize unnecessary travel demand on major streets and promote energy conservation
    - T-1.6 Minimize street system impacts on residential neighborhoods and other sensitive land uses
    - T-1.8 Use a minimum peak hour Level of Service (LOS) "D" as a design objective for all new streets in new growth areas and for most existing City streets except under special circumstances:
        - 1.8a Traffic studies will be conducted as needed to determine the traffic impacts and to apply appropriate mitigation measures for new development projects
        - 1.8b Use peak-hour Level of Service "D" ("Tolerable Delays") as the design standard for new streets and intersections in new growth areas
        - 1.8c Establish minimum LOS standards for existing roadways and intersections that reflect the special circumstances of the surrounding area.
- **Goal Area T-2: Bicycles, Pedestrians, and Public Transit**
    - An Efficient and Comprehensive Public Transit System
    - A Comprehensive System of Safe and Convenient Bicycle Routes (Within the Community and Throughout the Urban Area).
    - A Comprehensive System of Safe and Efficient Pedestrian Facilities.
    - A Comprehensive System of "Complete Streets" Addressing All Modes of Transportation.
- **Policies T-2**

- T-2.1 Provide for and maintain a major transit way along "M" Street and possibly along the Bellevue Road/Merced-Atwater Expressway and Campus Parkway corridors
- T-2.2 Support and enhance the use of public transit
- T-2.3 Support a safe and effective public transit system
- T-2.4 Encourage the use of bicycles
- T-2.5 Provide convenient bicycle support facilities to encourage bicycle use
- T-2.6 Maintain and expand the community's existing bicycle circulation system
- T-2.7 Maintain a pedestrian-friendly environment
- T-2.8 Improve planning for pedestrians
- T-2.9 Ensure that new development provides the facilities and programs that improve the effectiveness of Transportation Control Measures and Congestion Management Programs

Merced County Year 2030 General Plan

Merced County adopted its *2030 Merced County General Plan* in December 2013. The Transportation and Circulation Element of the General Plan provides the policy context for Merced County to achieve its vision for the safe and efficient circulation of people, vehicles, and goods throughout the County. The element was written to establish goals and policies for the circulation system in order to balance the varying needs of motorists, bicyclists, pedestrians as well as the unique needs for the movement of farm equipment and agricultural commodities.

- **Goal CIR-1** Maintain an efficient roadway system for the movement of people and goods that enhances the physical, economic, and social environment while being safe, efficient, and cost-effective.
  - Policy CIR-1.5: County Level of Service Standards (RDR)
    - Implement a Countywide roadway system that achieves the following level-of-service (LOS) standards during peak traffic periods:
      a) For roadways located within rural areas: LOS "C" or better
      b) For roadways located outside Urban Communities that serve as connectors between Urban Communities: LOS of "D" or better
      c) For roadways located within Urban Communities: LOS of "D" or better
  - Policy CIR-1.6: Level of Service "E" Exception (RDR)
    - Allow a level of service "E" or worse only on a minor component of the circulation system (such as a left turn movement from a local roadway) if the major component of the circulation system (such as a through movement on a collector or arterial roadway) would be significantly compromised in the process of improving the level of service of the minor component
- **Goal CIR-2** Maintain an efficient roadway system for the movement of people and goods that enhances the physical, economic, and social environment while being safe, efficient, and cost-effective.

- **Goal CIR-3** Maintain a public transit system that provides an alternative to automobile travel, supports ridesharing, and meets the needs of the entire community.
- **Goal CIR-4** Maintain and expand a safe, continuous, and easily accessible bicycle and pedestrian circulation system.

2018 Regional Transportation Plan & Sustainable Communities Plan (RTP/SCS)

The goals and objectives for the 2018 RTP/SCS were established to meet the regulatory requirements of the FAST Act, the Clean Air Act, Title VI of the Civil Rights Act, SB 375, the California Complete Streets Act, and the California Environmental Quality Act. They were tailored specifically to the unique needs of Merced County and the feedback that was received from the public during the planning process. Each goal was associated with specific performance measures to compare different planning alternatives against current conditions.

- **Goal 1. Highways, Streets, and Roads:** Provide a safe and efficient regional road system that accommodates the demand for movement of people and goods.
- **Goal 9. Land Use Strategies:** Provide economical, long-term solutions to transportation problems by encouraging community designs that encourage walking, transit, and bicycling.
- **Goal 12. Sustainable Communities:** Reduce per capita greenhouse gas emissions by coordination compact growth with alternative transportation strategies. Protect and enhance the natural environment. Support vehicle electrification and the provision of electrification infrastructure in public and private parking facilities and structures.
- **Goal 17. Social Equity and Environmental Justice:** Promote and provide equitable transportation and housing options for all populations and ensure that all populations share in the benefits of transportation investments.

Technical Advisory on Evaluating Transportation Impacts in CEQA – California OPR

California Senate Bill 743 (SB 743) was signed in 2013 and later incorporated into the California Environmental Quality Act (CEQA) in 2018. Starting July 1, 2020, all new land-use development and transportation projects will be expected to evaluate transportation impacts under CEQA using vehicle miles traveled (VMT) instead of Level of Service (LOS). While LOS requires the estimation of traffic volumes on the roadway, typically conducted by manual surveys or tube counts, calculating baseline VMT for SB 743 requires data on the amount of vehicle trips, trip lengths, and vehicle occupant classification (resident vs. employee).

This technical advisory is one in a series of advisories provided by the Governor's Office of Planning and Research (OPR) as a service to professional planners, land use officials, and CEQA practitioners. OPR issues technical assistance on issues that broadly affect the practice of land use planning and the California Environmental Quality Act (CEQA). The advisory contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures.

ROADWAY DEFICIENCIES AND CONDITIONS OF APPROVAL

ANALYSIS SCENARIOS

The following scenarios are evaluated in this study:

1. Existing – Existing (November 2016) conditions based on traffic counts. This scenario establishes baseline conditions for evaluating Project-specific deficiencies on the existing transportation system.
2. Existing Plus Project - This scenario identifies current Project-specific deficiencies on the existing transportation system.
3. Existing with Approved Projects – Existing conditions with traffic from development that has been approved by the City of Merced but not yet built. This scenario establishes baseline conditions for evaluating near-term Project deficiencies in combination with other development.
4. Existing with Approved projects Plus Project – Existing conditions with traffic from development that has been approved by the City of Merced but not yet built plus Project traffic. This scenario identifies the Project's contribution to deficiencies that might occur once approved developments are built and adding traffic to the surrounding transportation system.
5. Cumulative 2030 No Project – This scenario establishes baseline conditions for evaluating long-term Project contribution to deficiencies that might occur with build out of the City of Merced's General Plan to the year 2030.
6. Cumulative 2030 Plus Project – This scenario identifies the Project's contribution to long-term deficiencies that might occur with build out of the City of Merced's General Plan to the year 2030.

STANDARDS OF SIGNIFICANCE FOR TRANSPORTATION

Standards of significance are quantitative criteria used to determine if the Project would cause an impact to the transportation system considered "significant" enough to require the Project to mitigate its impact to a level of "insignificance". Standards of significance are based on the guidance from the Office of Planning and Research for vehicle miles traveled and from policies contained within the Transportation and Circulation chapters of the Merced Vision 2030 General Plan and the Merced County 2030 General Plan for General Plan consistency.

As of July 1, 2020, all standards of significance based on roadway and intersection Level of Service (LOS) no longer apply for identifying impacts under the California Environmental Quality Act (CEQA). These impacts are, however applied as they relate to local jurisdictions' transportation and circulation policies.

Transportation related impacts under CEQA are now based on the project's relative impact to vehicle miles traveled (VMT) in the vicinity of the proposed project.

VEHICLE MILES OF TRAVEL

Given that the City of Merced and the County of Merced (the project is currently located in unincorporated Merced County but would be annexed to the City of Merced) have not yet

developed comprehensive policies or standards of significance to determine significant impacts based on VMT, the consultant team will follow OPR's guidance on project screening criteria (to establish whether a VMT analysis is even warranted) or determining VMT impacts for development projects. While the guidance presented by OPR gives local jurisdictions leeway in their interpretation of the recommended screening criteria and impact thresholds, it does specify the thresholds that local jurisdictions may apply to determine impacts of development project. The guidance identifies separate recommendations for residential portions and employment portions of a proposed project. VMT per capita (per resident) and VMT per employee of the proposed project are to be compared to existing development. The definition of "existing development" is left to the discretion of the lead agency. In this case, discussions with the City of Merced resulted in "existing development" being designated as the entirety of Merced County. In its guidance, OPR states the following *"OPR finds that in most instances a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold."*

For the purposes of this analysis, a project (residential or non-residential) would be screened from having to perform a VMT analysis if:

- Project generates less than 110 daily trips
- Project is a residential development that consists of 100% non-market rate housing units (i.e., low-income housing)
- Project is within a ½ mile of two or more high quality transit lines
- Is located in a low VMT area

For the purposes of this analysis, an VMT impact would be considered significant if:

- The project cannot be "screened out" based on the above criteria; AND,
  - VMT per capita for the residential portion of the proposed project would exceed 85 percent of the regional (in this case Merced County) average; OR,
  - VMT per office employee for the non-residential portion of the proposed project would exceed 85 percent of the regional (in this case Merced County) average; OR,
  - Net VMT increases due to project-added "regional commercial" development.
  - Net VMT increases due to project-added retail development.

ROADWAY SYSTEM

Traffic deficiencies would be considered inconsistent with the General Plan if:

- The Project would cause the deterioration in the operation of a signalized intersection from operating at a LOS D or better under no project conditions to operating at a LOS E or LOS F under with project conditions; or if a signalized intersection is already operating at a LOS E or F without the project and the addition of project traffic causes an increase in the intersection's average delay of five or more seconds.
- The Project would substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).

- The Project would result in inadequate emergency access to the Project site.
- The Project would conflict with adopted policies, plans, or programs supporting alternative modes of transportation.

TRANSIT SYSTEM

Transit impacts would be considered significant if:

- The Project or any Project-related mitigation measure disrupts existing transit services or facilities. This includes disruptions caused by proposed Project driveways on transit streets, impacts to transit stops/shelters, and impacts to transit operations from traffic improvements proposed by, or resulting from, the Project.
- The Project would interfere with planned transit services or facilities.
- The Project would create a demand for public transit services above that which is provided or planned.
- The Project would conflict with, or create inconsistencies with, adopted transit system plans, guidelines, policies or standards.

BICYCLE SYSTEM

Bicycle impacts would be considered significant if:

- The Project disrupts existing bicycle facilities.
- The Project interferes with planned bicycle facilities. This includes failure to dedicate right-of-way for planned on- and off-street bicycle facilities included in an adopted Bicycle Master Plan or the General Plan.
- The Project conflicts with, or creates inconsistencies with, adopted bicycle system plans, guidelines, policies or standards.

PEDESTRIAN SYSTEM

Pedestrian impacts would be considered significant if:

- The Project disrupts existing pedestrian facilities. This can include adding new vehicular, pedestrian or bicycle traffic to an area experiencing pedestrian safety concerns.
- The Project interferes with planned pedestrian facilities.
- The Project conflicts with, or creates inconsistencies with, adopted pedestrian system plans, guidelines, policies or standards.

STOP-CONTROLLED INTERSECTION SIGNIFICANCE CRITERIA AND TRAFFIC SIGNAL WARRANTS

The Transportation and Circulation chapters of the Merced Vision 2030 General Plan and the Merced County 2030 General Plan do not contain specific criteria or standards for determining deficiencies at stop-controlled or unsignalized intersections. Stop-controlled

intersections operate, and are evaluated, differently than signalized intersections and, therefore, the standards are applied in a manner that reflects these differences.

This study uses the following methodology for identifying deficiencies at stop-controlled intersections:

- Conduct a peak hour LOS analysis of the intersection using either the 2000 or 2010 Highway Capacity Manual procedures. This study presents the average intersection LOS (all movements) and the LOS for the worst individual stop-controlled movement. The worst movement LOS is reported for informational purposes only.
- Identify impacts based on the same standards of significance for signalized intersections but for stop-controlled intersections, the intersection must also meet warrants for installation of a traffic signal for the Project to cause a significant impact.

To assess the need for signalization of stop-controlled intersections, the 2014 California Manual of Uniform Traffic Control Devices presents eight signal warrants or tests. Warrants 1, 2 and 3 (the 8-Hour Volume, 4-Hour Volume and Peak Hour Volume) were used in this study to determine if a traffic signal is warranted and, combined with the findings of the LOS analysis, to identify a potentially significant impact caused by the addition of Project traffic.

PROJECT TRIP GENERATION AND DISTRIBUTION

For the purpose of estimating trip generation, the proposed Project is divided into two components: a residential component comprised of 540 apartments and a 13,700 square foot clubhouse for use of Project residents; and a commercial component comprised of 66,000 square feet of retail development serving the Project residents and the general public, twelve residential apartments, and eighteen extended stay units. The proposed Project includes a total of 1,223 parking spaces.

Table 3 shows the estimated trip generation for the proposed Project, including the residential and commercial components, based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. The table includes reduction factors applied to each land use where appropriate. A five percent reduction was applied to the trip generation of the residential to reflect the site's proximity to public transit lines and the UC Merced and Merced College campuses.

A forty percent "pass-by" reduction was applied to the retail uses within the commercial component of the Project, based on data from ITE's *Trip Generation Handbook* for estimating trip generation for commercial developments. Pass-by trips are traffic already on the way from an origin to a primary destination that make an intermediate stop at the site while passing by on an adjacent street. Pass-by trips are considered existing traffic because they would have been passing by the site regardless of the new development. Pass-by trips make up a large share of the trip generation for convenience stores, gas stations, and restaurants.

Trip generation for both the residential and the commercial components of the Project site were adjusted for internal capture. Internal capture are trips estimated as part of the total trip generation of each individual land use within multi-use developments, but are trips between one land use and another land use on the same site (e.g., between residential and retail or restaurant). Internal capture trips can be made on the site by walking or by vehicles using internal roadways without using the major street system and thus can be subtracted from the total site trip generation. A twelve percent and ten percent internal capture reduction was applied to the residential and commercial components of the Project respectively.

TABLE 3: ESTIMATED PROJECT TRIP GENERATION

LAND USE	NUMBER OF UNITS	VEHICLE TRIPS						
		AM Peak			PM Peak			Daily
		In	Out	Total	In	Out	Total	Total
LOW-RISE APARTMENT RESIDENTIAL (ITE CODE 220)	552 Dwelling Units	56	186	242	170	100	270	4,132
COMMERCIAL (ITE CODE 820)	66,000 Square Feet	38	24	62	120	131	251	5,184
EXTENDED STAY HOTEL (ITE CODE 311)	18 Rooms	4	3	7	3	4	7	90
COMMERCIAL RESIDENTIAL (ITE CODE 220) [1]	12 Dwelling Units	3	3	6	3	3	6	80
TOTAL UNADJUSTED TRIPS		**174**	**259**	**433**	**365**	**311**	**676**	**8,744**
RESIDENTIAL TRIP REDUCTIONS	5% Transit 12% Internal Capture	-9	-31	-40	-28	-16	-44	-678
COMMERCIAL TRIP REDUCTIONS	40% Pass-By 10% Internal Capture	-19	-12	-31	-57	-62	-118	-2,421
TOTAL ADJUSTED RESIDENTIAL TRIPS		47	155	202	142	84	226	3,454
TOTAL ADJUSTED COMMERCIAL TRIPS		22	15	37	66	72	139	2,843
GRAND TOTAL PROJECT TRIPS		**69**	**170**	**239**	**209**	**156**	**365**	**6,297**

DKS Associates, 2020

It should be noted that the transit and pass-by trip reductions are applied first and the internalization reduction is applied to the resultant trips, therefore the reductions are not necessarily equal to the two percentages added together. The table shows that the proposed Project would generate approximately 239 trips during the AM peak hour, 365 trips during the PM peak hour, and 6,297 trips on an average weekday.

Project trip distribution was estimated based on existing traffic patterns and likely destinations for Project traffic. Trip distribution is expected to be quite different between the residential and commercial components of the Project. A large proportion of the AM and PM peak hour residential trips are traveling to and from the UC Merced and Merced College campuses, with a smaller percentage of traffic traveling to other destinations of Merced. Non-school related trips (e.g., shopping, social, recreational, etc.) generated by the residential component of the proposed Project would typically have destinations within a couple miles of the site with a relatively high percentage of these trips to/from the commercial component of the Project for convenience (e.g., internal capture).

Figure 6 shows the assumed distribution of trips for both the residential and commercial portions of the proposed Project and **Figure 7** shows the AM and PM peak hour volumes added to each study intersection

FIGURE 6: PROJECT TRIP DISTRIBUTION

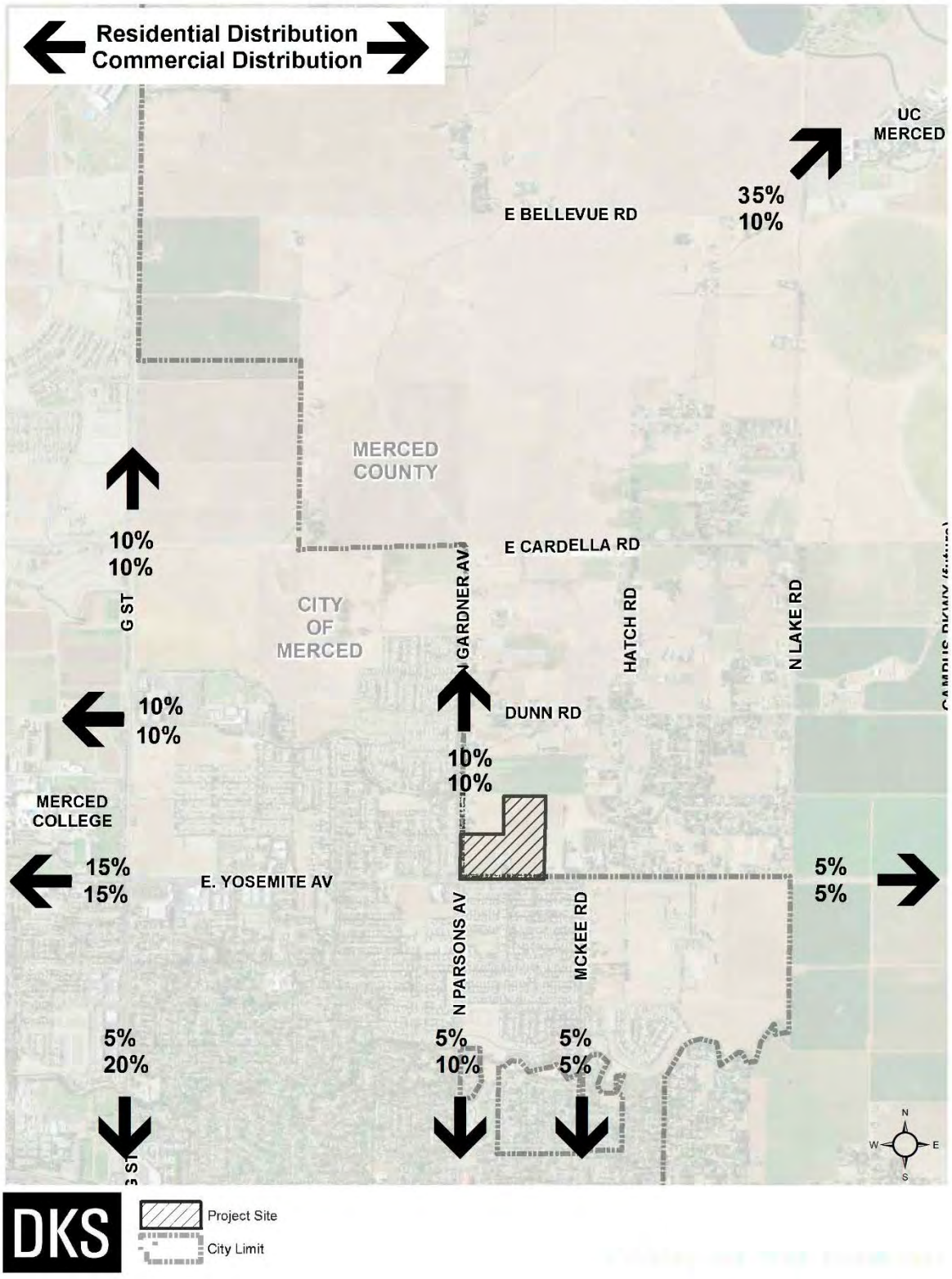
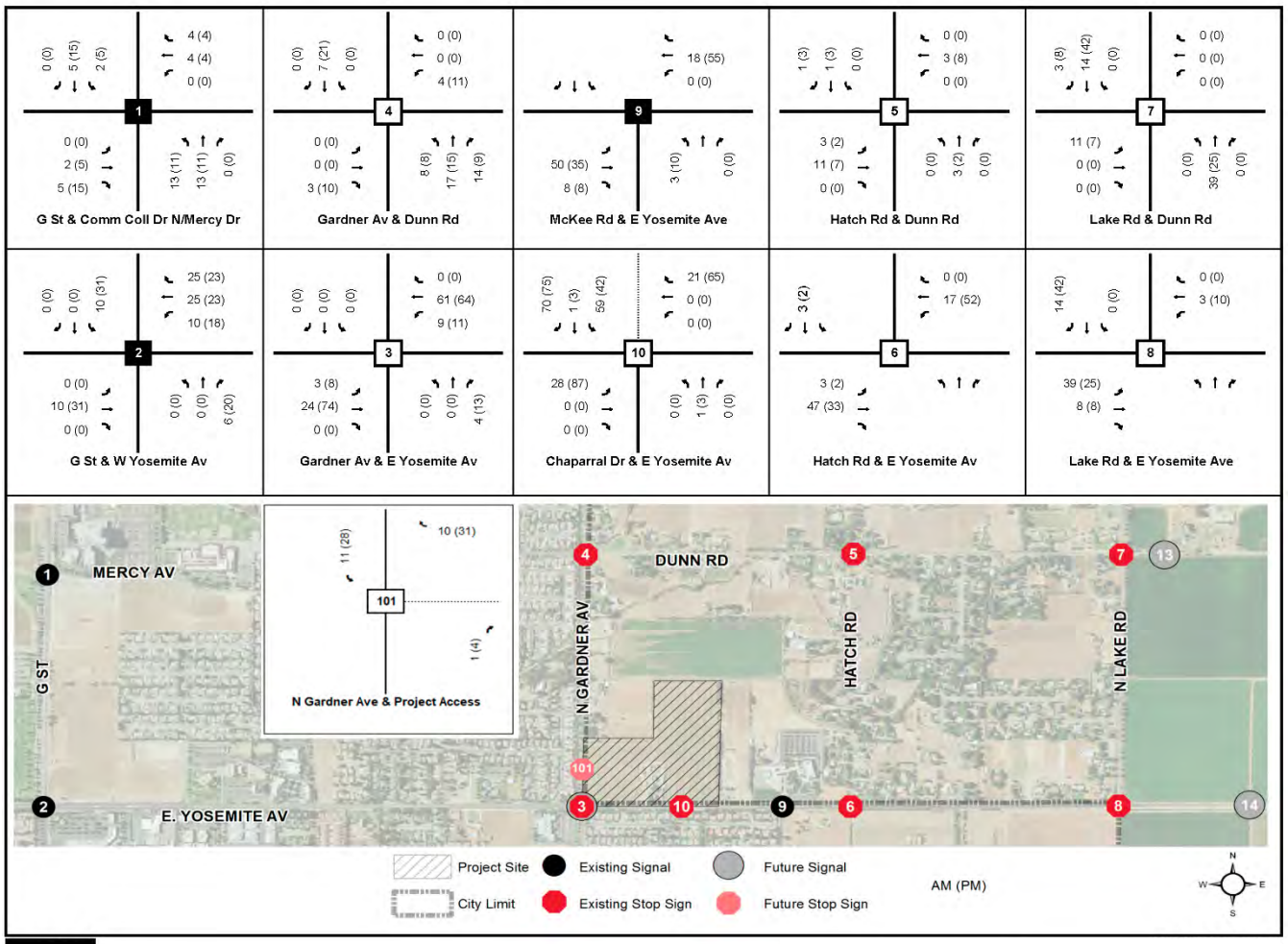


FIGURE 7: PROPOSED PROJECT ADDED PEAK HOUR VOLUMES



DKS

VEHICLE MILES OF TRAVEL PER CAPITA (RESIDENTIAL DEVELOPMENT)

Project Impact 1: The residential portion of the proposed Project would cause increases in Vehicle Miles Traveled in the vicinity of the project site. This impact is considered to be *less than significant*.

The proposed project would add residents and employees to the study area. Vehicles driven by residents of the proposed apartments and employees of the proposed commercial square footage would be added to the existing environment. Whereas CEQA impacts on study area roadways used to be based on roadway volumes and resultant Level of Service (LOS) changes, the passage and implementation of Senate Bill 743 (SB 743) has resulted in CEQA impacts now being based on changes in vehicle miles traveled (VMT) as discussed in sections above. Changes in VMT lead in turn to impacts to mobility, greenhouse gas emissions (GHG) and public health.

Various methodologies exist to estimate project VMT statistics and compare it to that of the existing environment, including travel demand models, tabulation of existing known trip lengths for the proposed project, and "Big Data" sources. For the purposes of this analysis, a "Big Data" source (provided by Streetlight Data[2]) was utilized to estimate project VMT per capita and compare it to the existing environment. Streetlight Data was used to determine existing VMT per capita and VMT per employee for the project site and adjacent areas. In simple terms, the anonymized personal trip data provided by Streetlight Data is based on a large sample size of mobile location sources, including mobile phones and other location-enabled devices. Streetlight Data uses trip patterns to determine home and work locations for each device, and then can approximate daily trip patterns for that device. Sampled devices and people are anonymized and then factored to determine total trips and trip lengths per resident and employee, and results are then summarized by a specific geography, in this case Census Block Groups. The data set obtained for the purposes of this study consisted of ten Census Block Groups, including the Block Group where the project is located, and nine others in the immediate vicinity of the project site.

Figure 8 shows the locations of the ten Block Groups for which data was obtained and summarized, based on input on Block Group choice from City of Merced staff. Block Groups are color coded by their relative VMT per capita compared to the overall VMT per capita of Merced County. Block Groups that have VMT per capita more than 15% below the Merced County average are shown in green. Block Groups that have VMT per capita less than 15% below the Merced County average are shown in yellow. Block Groups that have VMT per capita greater than the Merced County average are shown in orange and red. Relative population based on the American Community Survey (ACS) are labeled for each Block Group for reference. The figure shows that of the ten Block Groups, seven have VMT per capita more than 15% below that of the County average, while one is less than 15% below

[2] https://www.streetlightdata.com/sb-743-vmt-solutions/

the County average, and two are greater than the County average. The Block Group where the project site is located (Block Group 060470018011) shows VMT per capita that is approximately 55.4% of the Merced County Average. This result is significantly lower than the threshold of 15% below the Countywide average (or 85% of the Countywide average). While it would be simple to assume the proposed project would have similar trip length and therefore similar VMT per capita characteristics of the Block Group in which it will be located, there are two factors that limit the appropriateness of this assumption. First, Block Group 060470018011 is unique in that it includes a majority of the University of California (UC) Merced campus, and therefore its trip characteristics are skewed by the large number of University students living in the Block Group. University students are more likely to have fewer and shorter daily vehicle trips, as much of their daily routine is centered around the university campus and many may not own or drive cars. Second, the project site is located on the border of three Census Block Groups, and it is therefore less likely that its travel characteristics would identify significantly greater with one area over the others. Therefore, for the purposes of this analysis, a weighted average (weighted by relative population in each Block Group) has been calculated for the three Block Groups that either contain or are directly adjacent to the project site. For informational purposes, a similar weighted average has been calculated for all ten Block Groups for which VMT per capita data was obtained.

Table 4 shows the relative weighted VMT per capita (compared to the County as a whole) for the single Block Group the project is located within, the three Block Groups adjacent to the proposed project, and the ten Block Groups for which data was obtained. The table shows that each of these three options yields weighted VMT per capita more than 15% below the countywide average.

Therefore, based on the residential VMT per capita rates presented above, the project's residential impact on Vehicle Miles Traveled is considered to be **less than significant**.

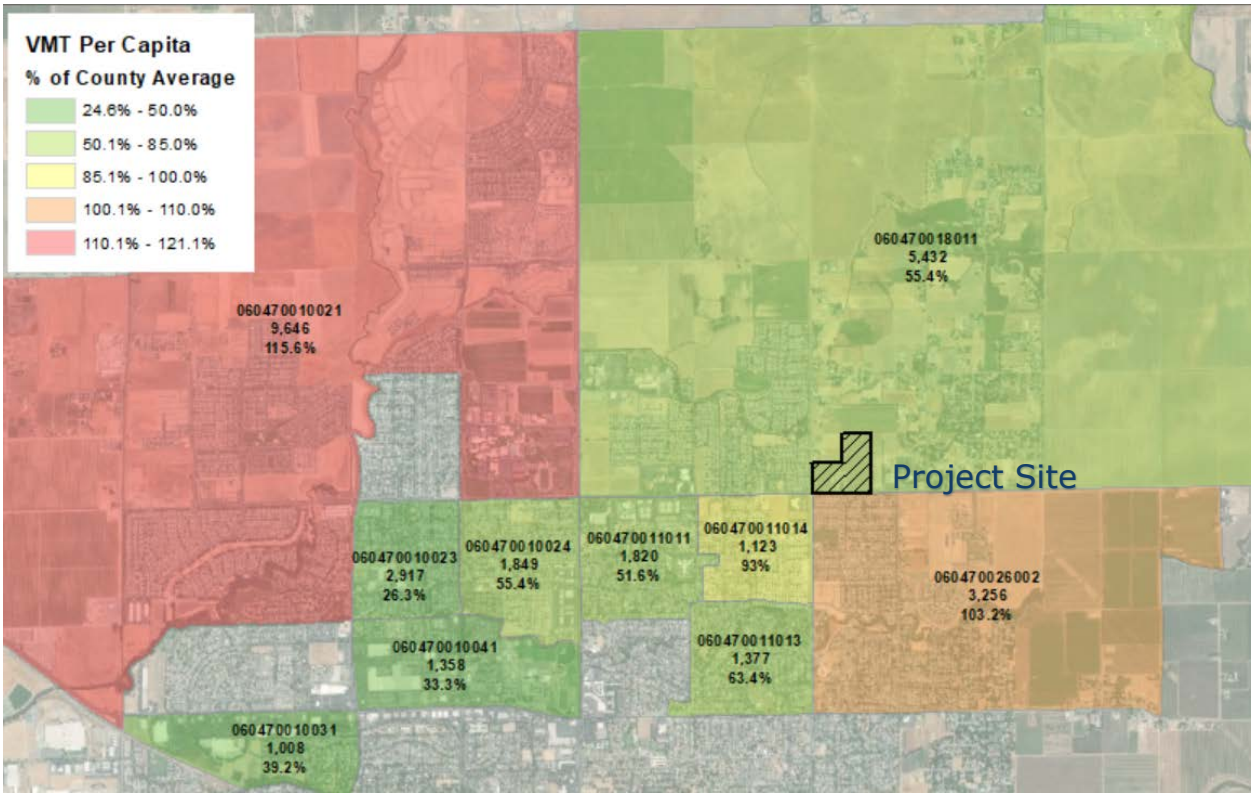
Mitigation Measure: **None Required**

TABLE 4: VMT PER CAPITA BY CENSUS BLOCK GROUP

	COUNTYWIDE	PROJECT BLOCK GROUP (060470018011)	THREE ADJACENT BLOCK GROUPS	ALL TEN BLOCK GROUPS
TOTAL POPULATION	269,075	5,432	8,375	29,786
RESIDENT AVERAGE TRIP LENGTH	10.6 mi	8.0 mi	8.0 mi	8.1 mi
WEIGHTED VMT PER CAPITA	18.6	10.3	11.1	14.4
AS PERCENT OF COUNTYWIDE	100%	55.4%	59.6%	77.3%

Source: Streetlight Data, 2020

FIGURE 8: VMT PER CAPITA BY CENSUS BLOCK GROUP (COMPARED TO MERCED COUNTY AVERAGE)



VEHICLE MILES OF TRAVEL (COMMERCIAL DEVELOPMENT)

Project Impact 2: The commercial portion of the proposed Project has been identified to be "locally-serving" commercial. This impact is considered to be *less than significant*.

In addition to the residential apartment units, includes approximately 66,000 square feet of retail development. Again, as with residential development, the City of Merced has not yet adopted specific thresholds for VMT associated with commercial development. According to the OPR guidance:

"By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant."

The OPR guidance suggests that a reasonable amount of square footage to determine whether retail project (or portion of a project) is regional in nature is that retail projects over 50,000 square feet can be considered regional in nature. Therefore, based strictly on the OPR guidance, the 66,000 square feet of commercial would represent retail that is regionally commercial in nature, and thus be considered an impact of it results in any increase in regional VMT. However, given the proposed land use designation of Neighborhood Commercial, the location of this project, the limited amount of retail development in the immediate vicinity, and the proximity to UC Merced and local housing, the City of Merced has determined that the commercial development proposed as part of the project would be local-serving in nature and would likely be occupied by locally serving businesses.

Therefore, based on the retail component of the project being identified by the local agency as local-serving retail, the project's impact on Vehicle Miles Traveled is considered to be **less than significant**.

Mitigation Measure: None Required

ACTIVE TRANSPORTATION MODES

Project Impact 3: The proposed Project could cause potentially significant impacts to study area transit operations. This impact is considered to be *less than significant*.

The proposed Project includes the provision of a public bus stop on East Yosemite Avenue directly in front of the Project. The proposed project will likely increase ridership on the route(s) using the stop and will help increase fare box recovery for area transit providers. It is not anticipated that the proposed project would result in over-capacity conditions on local bus routes.

Mitigation Measure: None Required

Project Impact 4: The proposed Project could cause potentially significant impacts to study area bicycle facilities. This impact is considered to be *less than significant*.

The proposed Project site is served by existing bike lanes on both East Yosemite Avenue and North Gardner Street. The City of Merced 2013 Bicycle Transportation Plan includes proposed bikeway improvements adjacent to the proposed Project, including the following:

- Extend bike lane along Yosemite Avenue (on north side) between McKee Road and Parsons Avenue (this improvement is part of the frontage improvements required of the Project).
- Extend bike lanes on Gardner Avenue north of East Yosemite Avenue (this improvement, in part on the east side of Gardner Avenue, is part of the frontage improvements required of the Project).

The proposed Project would provide bicycle facilities that connect to the existing bicycle transportation system as well as construct portions of the City's planned bicycle system. The Project would not hinder any planned bicycle facility nor conflict with any General Plan policy or standard and, therefore, would not cause any significant impacts.

Mitigation Measure: **None Required**

Project Impact 5: The proposed Project could cause potentially significant impacts to study area pedestrian facilities. This impact is considered to be *less than significant*.

The proposed project site is located at a corner that currently lacks pedestrian improvements on the east side of North Gardner Avenue and the north side of East Yosemite Avenue. The proposed Project would include new sidewalk facilities on both of these roadways closing gaps in the existing pedestrian network. Along with the required frontage improvements to North Gardner Avenue and East Yosemite Avenue, the applicant should consider adding crosswalks to the north and east legs of this all-way stop controlled intersection to provide pedestrian access to points west of the Project site. Refer to the diagram located in **Appendix B: Recommended Near Term Configuration of Project Frontage Improvements at Gardner / Yosemite Intersection.**

Mitigation Measure: **None Required**

Project Impact 6: The proposed Project could cause potentially significant neighborhood intrusion impacts to study area streets. This impact is considered to be *less than significant*.

There is a potential for Project-related traffic to utilize existing collector and/or local streets to bypass arterial streets that have real or perceived slower travel times, or because prohibited movements from the Project's Gardner Avenue access point divert Project traffic through adjacent neighborhoods.

Merced's Vision 2030 General Plan adopted polices to reduce the impacts of new development on residential neighborhoods, particularly where street design encourages traffic to "cut-through" existing neighborhoods as a real or perceived shortcut. Specifically, Policy T-1.7 (Minimize Street System Impacts on Residential Neighborhoods and Other Sensitive Land Uses) contains two implementing actions relevant to this potential impact:

- Implementing Action 1.7.a To the greatest extent feasible, maintain a distinct hierarchy of streets that will provide for major roadways between neighborhoods rather than through neighborhood areas.
- Implementing Action 1.7.b Whenever feasible, approve street circulation patterns that discourage exterior traffic from driving through neighborhoods.

The design of the Project's internal circulation and access points are consistent with the City's policy. The Project's circulation is entirely self-contained within the site property and its access points are located on designated minor arterials, not local or collector streets. The design of the Project itself would not encourage Project-related traffic to drive through adjacent neighborhoods, but implementation of City standards regarding intersection spacing and prohibited movements in combination with a perceived out of direction route required to access the Project's primary associated destination (the UC Merced campus) might cause Project generated traffic to seek alternative routes.

The circumstances described above might occur under the Existing + Project, EPAP + Project, or 2030 Cumulative conditions:

A. Drivers of automobiles generated by the student residential component of the Project who are destined to UC Merced and typically exit the site at the main Yosemite Avenue driveway and travel on Yosemite Avenue to Lake Road may perceive the route as longer than if they exited the site on the Gardner Avenue driveway and used Gardner Avenue to Dunn Road to Lake Road. This would result in undesirable traffic on Dunn Road which, once annexed into the City of Merced, would be classified as either a local residential street or residential collector.

B. Once Gardner Avenue is fully built to the City's standards for minor arterials, drivers of automobiles generated by the student residential or the commercial component of the Project who are destined to any external location and typically exit the site at the Gardner Avenue driveway would be required to turn right on Gardner Avenue[3].

   i. If these drivers are destined to the UC Merced campus or any location to the east of the Project site, they may perceive using Dunn Road to Lake Road as a more convenient route than exiting the Project site via the main driveway on Yosemite Avenue and traveling on Yosemite Avenue to Lake Road.

   ii. If these drivers are destined to the Merced College campus or any location to the west of the Project site, they may perceive using the residential streets of Hunters Drive to White Dove Avenue to Yosemite Avenue as a more convenient route than exiting the Project site via the main driveway on Yosemite Avenue and traveling on Yosemite Avenue through Gardner Avenue.

Determining the potential for significant impacts caused by cut-through traffic on residential streets uses the following procedure:

1. Compare the travel times for the desired and the potential cut-through routes[4]. Determine if there is a difference in travel times such that:
   a. if the desired route is substantially faster (greater than 60 seconds difference) then conclude the impact is negligible;
   b. if the desired and cut-through route have similar travel times (less than 60 seconds difference) then assume a certain proportion of Project trips will use the cut-through route (for this study

[3] The City's design standard for minor arterials includes a raised median and prohibition of full access minor intersections or driveways within 1/8th mile from any arterial/arterial intersection such as Yosemite Avenue and Gardner Avenue. Under these standards, the proposed Project's main driveway on Gardner Avenue would be restricted to right turns in / right turns out, and left turns in only, and the secondary driveway on Gardner Avenue would be restricted to right turns in / right turns out only.

[4] Travel times were estimated using actual route distance and average speeds, and accounting for delays at intersections along the route during peak hours.

a conservative 40% was assumed) and then analyze the cut-through route using the TIRE Index[5].

Table 5 summarizes the findings of the analysis process for the potential cut-through routes identified above.

TABLE 5: SUMMARY OF POTENTIAL NEIGHBORHOOD INTRUSION IMPACTS

POTENTIAL CUT-THROUGH ROUTE	TRAVEL TIME DIFFERENCE FROM DESIRED ROUTE (SEC) [1]	PEAK HOUR PROJECT TRAFFIC USING CUT-THROUGH ROUTE	WITHOUT PROJECT	WITH PROJECT
			Average Daily Traffic	Average Daily Traffic [2]
			TIRE Index	TIRE Index [3]
GARDNER TO DUNN TO LAKE	39	20	900	1,100
			3.0	3.0
GARDNER TO HUNTERS TO WHITE DOVE TO YOSEMITE	62	0	Negligible Impact	

Notes:
[1] A difference in travel time between the desired and cut-through route greater than sixty seconds in favor of the desired route is considered to have a negligible impact.
[2] Project traffic estimated to use the potential cut-through route is estimated assuming 40% of the outbound peak hour trips would use the route. For use in the TIRE Index, the peak hour volume is converted to an average daily volume assuming a 10% peak to daily ratio.
[3] Traffic Infusion on Residential Environments (TIRE) index. "TIRE" is a numerical representation of a resident' s perception on the effect of street traffic. The TIRE index is not required by CEQA as part of the environmental review process, but it is often used in traffic studies to evaluate the effects of changes in traffic volumes on quality of life issues such as walking, cycling, playing and daily tasks such as maneuvering a car out of a residential driveway. Streets are designated with a TIRE index (on a scale of 1.5 to 5) based on the existing daily traffic volume. Streets with TIRE indices above 3.6 are considered to be traffic-dominated, while those below 3.6 are better suited for residential activities. Cut-through traffic volumes causing a +0.1 change in the TIRE Index when the Index without the cut-through traffic is already above 3.0 is considered an impact.

DKS Associates, 2020.

Mitigation Measure: None Required

[5] The effects of the volume changes on residential streets can be assessed using the Traffic Infusion on Residential Environments (TIRE) index. See Table 3.10-14 for a complete description of the index and its usage.

NON-CEQA ROADWAY DEFICIENCIES

EXISTING PLUS PROJECT CONDITIONS

Existing Plus Project conditions represents a scenario where the proposed development project is added to the existing environment.

Table 6 and **Table 7** compare intersection LOS at the study intersections under Existing conditions and Existing Plus Project conditions during the AM and PM peak hours, respectively. The tables show that intersection LOS would remain acceptable based on City standards (or County standards, where applicable) for all study intersections under this scenario. The main Project driveways (on East Yosemite Avenue at Chaparral Drive and on North Gardner Avenue north of East Yosemite Avenue) would both operate at LOS A.

The all-way stop controlled intersection of North Gardner Avenue/East Yosemite Avenue would continue to operate at a LOS D or better (with a slight improvement in delay) during both the AM and PM peak hours, based on average intersection delay. The LOS with the Project assumes Project-related improvements to westbound East Yosemite Avenue. Construction of the proposed Project would include the required frontage improvements on the Project's side of East Yosemite Avenue and North Gardner Avenue (see Project Description). Implementing the frontage improvements on East Yosemite Avenue would result in the westbound approach of this intersection providing an exclusive left turn lane, a through lane and a shared through-right turn lane. These required improvements result in the slight improvement in the average intersection delay presented in the tables.

Project Issue 6: The proposed project would increase average intersection delay and potentially cause deficiencies to study area intersections under Existing plus Project conditions.

As stated above, traffic from the proposed Project added to existing conditions would increase delay at several study area intersections and reduce delay at intersections where Project-related improvements would occur. However, none of the increases in delay would increase average delay at a study intersection enough to result in a substantial degradation in level or service, nor cause a significant operational issue.

Mitigation Measure: None Required

TABLE 6: EXISTING PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE – AM PEAK HOUR

INTERSECTION	JURISDICTION	LOS POLICY	INTERSECTION CONTROL	AM PEAK HOUR			
				Existing		Plus Project	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVE	City	D	Signal	21.1	C	21.5	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	36.2	D	37.5	D
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	33.7 (62.2)	D	28.3 (31.7)	D
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	7.1 (10.1)	A	6.4 (10.6)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	7.0 (9.6)	A	7.1 (9.7)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.9 (9.2)	A	0.9 (9.3)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	1.5 (14.1)	A	1.8 (15.7)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	6.2 (16.9)	A	6.7 (18.2)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	11.5	B	11.7	B
CHAPARRAL DRIVE / PROJECT ACCESS / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (16.9)	A	3.6 (25.5)	A
NORTH GARDNER AVENUE / PROJECT ACCESS	City	D	TWSC	Not Applicable		1.0 (8.6)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies.
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
DKS Associates, 2020.

TABLE 7: EXISTING PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE – PM PEAK HOUR

INTERSECTION	JURISDICTION	LOS POLICY	INTERSECTION CONTROL	PM PEAK HOUR			
				Existing		Plus Project	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	20.8	C	21.7	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	43.0	D	46.8	D
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	24.7 (40.4)	C	23.1 (27.7)	C
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	7.2 (10.9)	A	6.5 (11.7)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	6.6 (9.4)	A	6.6 (9.5)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (9.5)	A	0.7 (9.6)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	0.7 (13.2)	A	0.9 (14.2)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	7.9 (14.5)	A	8.8 (16.1)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	10.3	B	10.4	B
CHAPARRAL DRIVE / PROJECT ACCESS / EAST YOSEMITE AVENUE	City	D	TWSC	0.6 (18.0)	A	3.8 (36.9)	A
NORTH GARDNER AVENUE / PROJECT ACCESS	City	D	TWSC	Not Applicable		2.0 (9.1)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
DKS Associates, 2020.

EXISTING PLUS APPROVED PROJECTS (EPAP) CONDITIONS

Existing Plus Approved Projects (EPAP) conditions represents a near-term scenario where approved development identified by the City of Merced have been developed and add traffic to the study area intersections. For this study, the City of Merced has provided the consultant team with a list of four approved projects to include in the analysis:

- **Moraga Subdivision Buildout –** This single-family residential subdivision generally southeast of the intersection of East Yosemite Avenue and Hatch Road/ Whitewater Way is currently partially developed. Approximately 38 homes and a small park have been built, along with most of the roadways required for completion of the subdivision. The City of Merced has requested that EPAP conditions assume buildout of the entire subdivision, including the parcel to the east. Buildout consists of 306 units for the Moraga subdivision and 234 units on the large parcel to the east. Subtracting the 38 currently built units results in 502 additional units.
- **Northview Medical Offices –** This approved project (also known as the Lakireddy project) is located at the southwest corner of Mercy Avenue and Mansionette Drive. This project would consist of approximately 85,250 square feet of general office and medical office facilities. This project is proposed on a site that was originally zoned for 28 single family housing units. A Conditional Use Permit (CUP #1183) has been approved to construct the first phase at the northwest corner of the site.
- **Wathen Commercial –** This approved project is located at the northeast corner of East Yosemite Avenue and G Street. It consists of approximately 110,000 square feet of office space, a bank, a restaurant, a pharmacy, and a hotel.
- **Shoppes at University Village –** This approved project is located at the southeast corner of East Yosemite Avenue and McKee road. This project consists of a shopping center totaling 64,000 square feet.

Trips to and from buildout of the Moraga subdivision were estimated using the Institute of Transportation Engineers (ITE) Trip Generation 9th Edition trip rates. Based on the published trip rates, the additional 502 homes would generate approximately 377 trips during the AM peak hour and 502 trips during the PM peak hour. Trips to and from the three remaining projects were generated and distributed consistent with the traffic studies prepared for the projects provided by the City. In cases where the individual study area for a project was different than the study area being used in this analysis the distribution of the approved project's trips was extrapolated.

Figure 9 shows the locations of approved projects and **Figure 10** shows the added AM and PM peak hour volumes associated with the approved projects at each of the study intersections. **Table 8** and **Table 9** compare study intersection LOS under Existing and Existing Plus Approved Projects (EPAP) conditions, during the AM and PM peak hour, respectively. The tables show that the peak hour volumes added with the approved projects would increase delay at a number of intersections.

FIGURE 9: LOCATIONS OF APPROVED PROJECTS

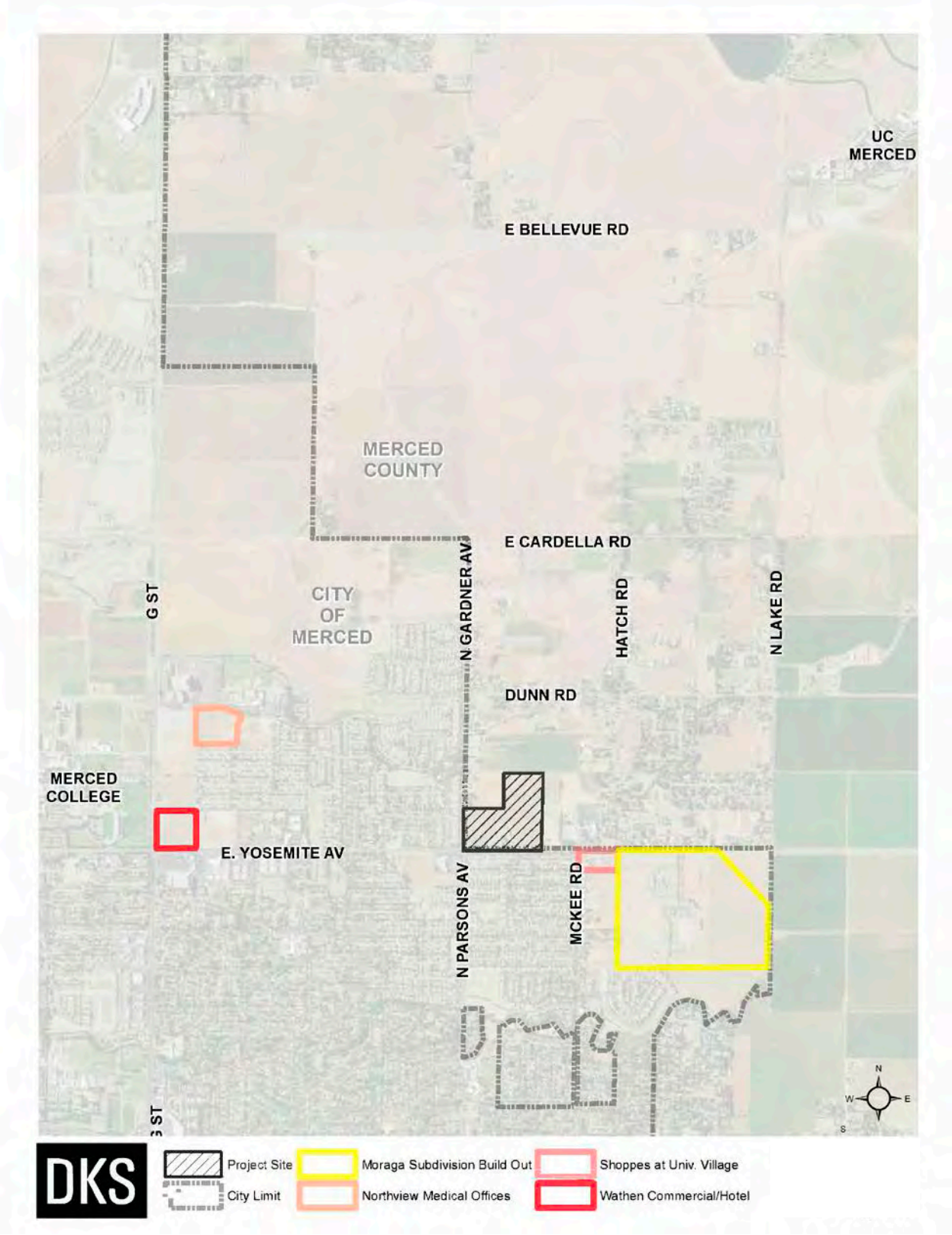


FIGURE 10: APPROVED PROJECTS PEAK HOUR ADDED VOLUMES

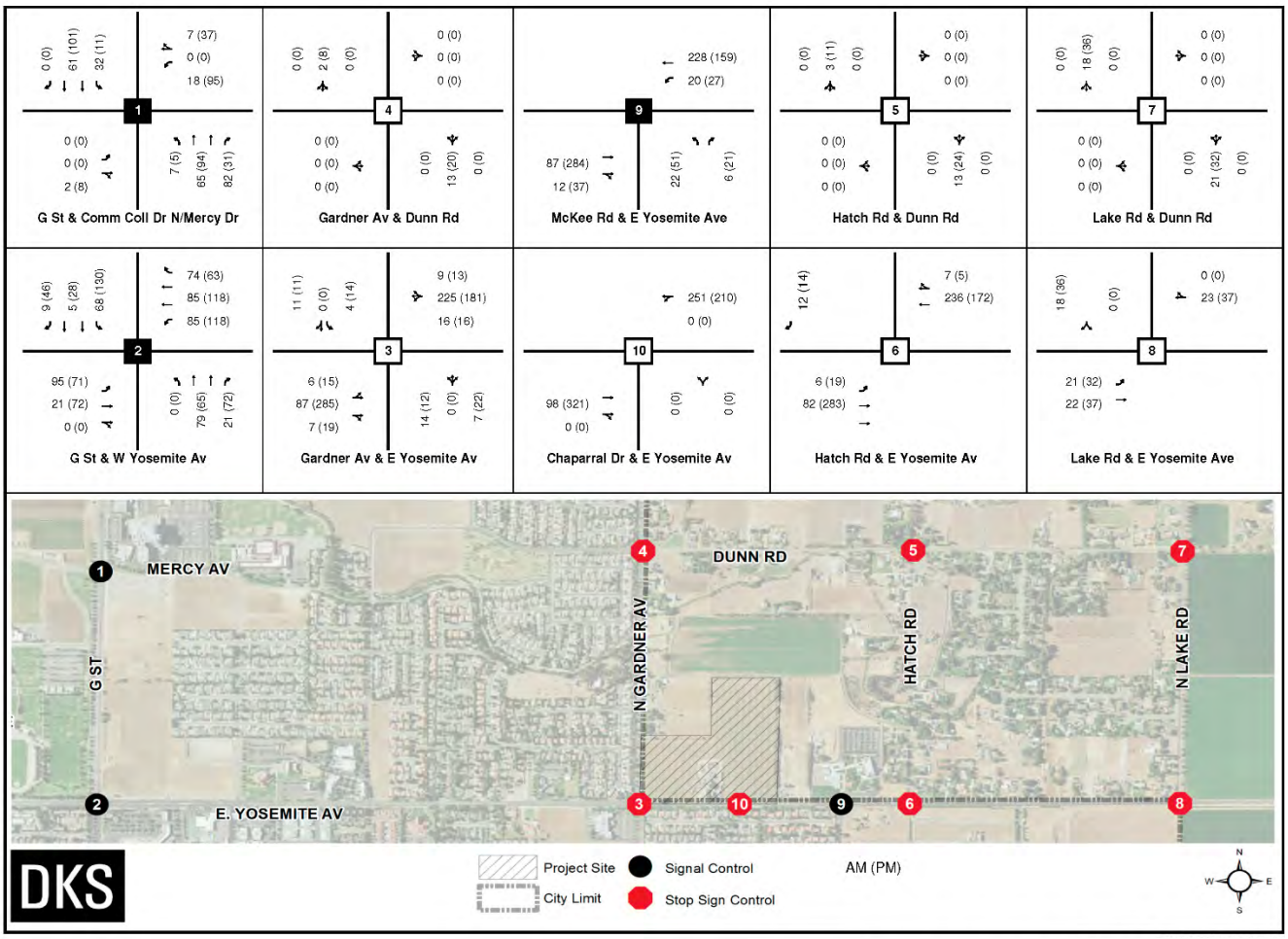


TABLE 8: EXISTING PLUS APPROVED PROJECTS CONDITIONS INTERSECTION LEVEL OF SERVICE – AM

INTERSECTION	JURISDICTION	LOS POLICY	INTERSECTION CONTROL	AM PEAK HOUR			
				Existing		EPAP	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	21.1	C	23.6	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	36.2	D	47.3	D
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	33.7 (62.2)	D	**132.5 (288.2)**	**F**
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	7.1 (10.1)	A	6.7 (10.2)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	7.0 (9.6)	A	6.4 (9.7)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.9 (9.2)	A	0.8 (10.2)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	1.5 (14.1)	A	1.5 (14.8)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	6.2 (16.9)	A	6.4 (17.8)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	11.5	B	12.2	B
CHAPARRAL DRIVE / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (16.9)	A	0.9 (26.2)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
DKS Associates, 2020.

During the AM peak hour, the all-way stop controlled intersection of North Gardner Avenue and East Yosemite Avenue degrades to LOS F (based on both average intersection delay and worst movement delay). Average intersection delay increases to more than 100 seconds per vehicle and worst movement delay increases to more than 200 seconds per vehicle. During the PM peak hour, this same intersection degrades from LOS C (based on average and worst movement delay) to LOS F (based on both average intersection delay and worst movement delay). Average intersection delay increases to more than 80 seconds per vehicle and worst movement delay increases to more than 170 seconds per vehicle.

In addition, the signalized intersection of G Street and East Yosemite Avenue degrades from LOS D to LOS E with the addition of traffic from approved projects in the PM peak hour.

A signal warrant analysis of the intersection of North Gardner Avenue and East Yosemite Avenue indicates that, under existing conditions, this intersection carries sufficient traffic to meet the 8-hour volume signal warrant. Therefore, this intersection also meets signal warrants under EPAP conditions.

TABLE 9: EXISTING PLUS APPROVED PROJECTS CONDITIONS INTERSECTION LEVEL OF SERVICE – PM

INTERSECTION	JURISDICTION	LOS POLICY	INTERSECTION CONTROL	PM PEAK HOUR			
				Existing		EPAP	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	20.8	C	27.2	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	43.0	D	**72.8**	**E**
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	24.7 (40.4)	C	**104.0 (217.3)**	**F**
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	7.2 (10.9)	A	6.5 (11.2)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	6.6 (9.4)	A	5.2 (9.6)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (9.5)	A	0.8 (10.2)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	0.7 (13.2)	A	0.7 (14.1)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	7.9 (14.5)	A	8.8 (17.5)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	10.3	B	12.3	B
CHAPARRAL DRIVE / EAST YOSEMITE AVENUE	City	D	TWSC	0.6 (18.0)	A	0.8 (38.9)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
DKS Associates, 2020.

EXISTING PLUS APPROVED PROJECTS (EPAP) PLUS PROJECT CONDITIONS

Table 10 and **Table 11** show the LOS changes resulting from adding the proposed Project to EPAP conditions, during the AM and PM peak hours, respectively. The main Project driveways (on East Yosemite Avenue at Chaparral Drive and on North Gardner Avenue north of East Yosemite Avenue) would both operate at LOS A. Intersections operating at a LOS E or LOS F include:

- **North Gardner Avenue and East Yosemite Avenue.** This all-way stop controlled intersection would operate at a LOS F without and with the proposed Project under EPAP Plus Project conditions in both the AM and PM peak hours. However, the average intersection delay with the Project is substantially lower than under EPAP conditions alone. This is because the LOS with the Project assumes Project-related improvements to westbound East Yosemite Avenue. As stated earlier, construction of the proposed Project would include the required frontage improvements on the Project's side of the East Yosemite Avenue and North Gardner Avenue (see Project Description). Implementing the frontage improvements on East Yosemite Avenue would result in the westbound approach of this intersection providing a exclusive left turn lane, a through lane and a shared through-right turn lane. These required improvements result in the improvement in the average intersection delay presented in the tables.
- **G Street and East Yosemite Avenue.** This signalized intersection would operate at LOS D in the AM peak hour with minimal change in delay with the addition of Project traffic to EPAP conditions, meeting City of Merced LOS standards. Minor adjustments were made to signal timing with the addition of project trips to EPAP conditions in the PM peak hour. By reducing the cycle length from 190 seconds (EPAP no build cycle length) to 140 seconds, there is minimal change in delay when Project traffic is added to EPAP conditions. In the PM peak hour, this intersection fails to meet the City of Merced's LOS standards under both EPAP and EPAP Plus Project conditions.
- **East Yosemite Avenue/ Chaparral Drive.** This side-street stop controlled intersection would serve as the main project entry and exit point. It would operate at LOS A without and with the proposed Project, during both the AM and PM peak hours. The delay for the worst movement (the existing northbound approach of Chaparral Drive) would increase substantially during the AM and PM peak hours. The worst movement increases by over 30 seconds (LOS F) in the AM peak hour and by over 165 seconds (LOS F), during the PM peak hour. However, this intersection does not meet traffic signal warrants under Existing or EPAP conditions with or without the Project, and therefore the added minor/side street delay is not be considered a significant operational issue.

TABLE 10: EPAP PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE – AM

INTERSECTION	JURISDICTION	LOS POLICY	INTERSECTION CONTROL	AM PEAK HOUR			
				EPAP		Plus Project	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	23.6	C	24.1	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	47.3	D	46.9	D
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	**132.5 (288.2)**	**F**	**76.3 (111.9)**	**F**[1]
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	6.7 (10.2)	A	6.1 (10.7)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	6.4 (9.7)	A	6.6 (9.8)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (10.2)	A	0.8 (10.3)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	1.5 (14.8)	A	1.8 (16.6)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	6.4 (17.8)	A	6.9 (19.5)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	12.2	B	12.4	B
CHAPARRAL DRIVE / PROJECT ACCESS / EAST YOSEMITE AVENUE	City	D	TWSC	0.9 (26.2)	A	6.6 (57.7)	A
NORTH GARDNER AVENUE / PROJECT ACCESS	City	D	TWSC	Not Applicable		0.9 (8.7)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.[1]
Under EPAP + Project conditions, the north and east legs (westbound approach and northbound departure) of intersection assumed built out per proposed Project frontage improvement requirements as specified in the General Plan.
DKS Associates, 2020.

TABLE 11: EPAP PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE – PM

INTERSECTION	JURISDICTION	LOS POLICY	INTERSECTION CONTROL	PM PEAK HOUR			
				EPAP		Plus Project	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	27.2	C	29.1	C
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	**72.8**	**E**	**74**	**E**
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	AWSC	**104.0 (217.3)**	**F**	**100.4 (152.5)**	**F**[1]
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	6.5 (11.2)	A	6.1 (12.1)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	5.2 (9.6)	A	5.5 (9.7)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (10.2)	A	0.8 (10.5)	A
LAKE ROAD / DUNN ROAD	County	C	TWSC	0.7 (14.1)	A	0.8 (15.3)	A
LAKE ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	8.8 (17.5)	A	10.6 (21.3)	B
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	12.3	B	12.6	B
CHAPARRAL DRIVE / PROJECT ACCESS / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (38.9)	A	19.7 (205.4)	C
NORTH GARDNER AVENUE / PROJECT ACCESS	City	D	TWSC	Not Applicable		1.7 (9.2)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
[1] Under EPAP + Project conditions, the north and east legs (westbound approach and northbound departure) of intersection assumed built out per proposed Project frontage improvement requirements as specified in the General Plan.
DKS Associates, 2020.

Project Impact 7: The proposed Project could cause potentially significant impacts to study area intersections under Existing plus Approved Projects plus Project conditions. This impact is considered to be *significant and unavoidable*.

As stated above, the proposed Project traffic added to EPAP conditions would increase delay at study area intersections, however none of these increases in delay would increase average delay at a study intersection enough to result in significant operational issues based on the City of Merced and County of Merced criteria.

Mitigation Measure: None Required

CUMULATIVE (2030) CONDITIONS

For this analysis, a horizon year of 2030 has been chosen based on the horizon years of the City and County general plans, as well as other projects that have been approved in recent years. The Merced Vision 2030 General Plan includes an expansion of the City's Specific Urban Development Plan (SUDP) area and Sphere of Influence to include the University Community area east of Lake Road.

The General Plan also includes a number of roadway improvements in the vicinity of the proposed project, as depicted in **Figure 11**. The figure shows that a number of existing study area roadways would be widened, including the following roadways:

- East Yosemite Avenue
- North Parsons Avenue
- East Cardella Road
- East Bellevue Avenue
- G Street, and North Gardner Avenue

The figure also shows a number of new roadways to be constructed, including:

- Campus Parkway from its current terminus to the UC Merced campus
- North Gardner Avenue from its current terminus to East Bellevue Road
- East Cardella Road to Campus Parkway
- Dunn Road to Campus Parkway

The General Plan also assumes that with the construction of Campus Parkway, Lake Road, which is currently a collector roadway connecting East Yosemite Avenue to East Bellevue Road and the UC Merced campus, would be downgraded to a local roadway providing local access only. Therefore Campus Parkway would essentially replace Lake Road as the primary north-south access to the UC Merced campus.

It is assumed that existing stop sign controlled intersections would be signalized under cumulative conditions where they include four lane arterial roadways in both directions. This assumption is made for the intersection of East Yosemite Avenue and North Gardner Avenue, directly adjacent to the proposed Project. It is also assumed that new intersections connecting roadways with four or more lanes would also be signalized. This includes intersections along Campus Parkway and the extension of North Gardner Avenue.

Cumulative (2030) traffic volumes forecasts are based on traffic volumes contained in the EIR/EIS from the *UC Merced and University Community Project Long Range Development Plan (LRDP)* approved in 2009 and updated in 2013. The forecast volumes in this analysis are not the same turning movement volumes presented on the previous analysis for UC Merced. Instead, the volumes have been re-estimated using the peak hour counts conducted for this analysis in 2016 and adjusting those movements using a "furness" method to generally match segment approach and departure volumes contained in the 2030 sections of the UC Merced and University Community documents. **Figure 12** shows the resultant Cumulative (2030) No Project AM and PM peak hour volumes and assumed lane geometrics and intersection control at study intersections. It should be noted that intersections along Lake Road have been replaced with new intersections along Campus Parkway for the Cumulative analysis.

There is a lack of information regarding the intersection lane configurations on streets which will be constructed in the future. As a result, this study was required to make assumptions about the number of through and turning lanes at intersections on streets that have not yet been designed. For purposes of this study, the number of lanes necessary to achieve a reasonably acceptable LOS have been assumed in both the 2030 No Project and 2030 With Project scenarios.

Table 12 shows the Cumulative No Project Level of Service during the AM and PM peak hour without the proposed project. As stated previously the intersection of East Yosemite Avenue and North Gardner Avenue is assumed to be signalized, with both roadways being four lanes. Two new intersections along Campus Parkway (at East Yosemite Ave and Dunn Road) have been added to the analysis and replace the previous intersections along Lake Road.

The table shows that based on average intersection delay, most intersections operate at LOS D or better with the following exceptions:

- **G Street / East Yosemite Avenue** operates at LOS E during the AM peak hour and LOS F during the PM peak hour.
- **North Gardner Avenue / East Yosemite Avenue** operates at LOS E during the PM peak hour.

The table also shows that two intersections operate at LOS D or better based on average intersection delay but have individual movements with higher than desired level of delay:

- **North Gardner Avenue / Dunn Road** operates at LOS A but has greater than 100 seconds of delay for westbound left turning vehicles on Dunn Road during the PM peak hour.
- **East Yosemite Avenue / Chaparral Drive** operates at LOS A but has 34.5 seconds of delay for northbound left turning vehicles during the PM peak hour.

FIGURE 11: ASSUMED GENERAL PLAN ROADWAY IMPROVEMENTS

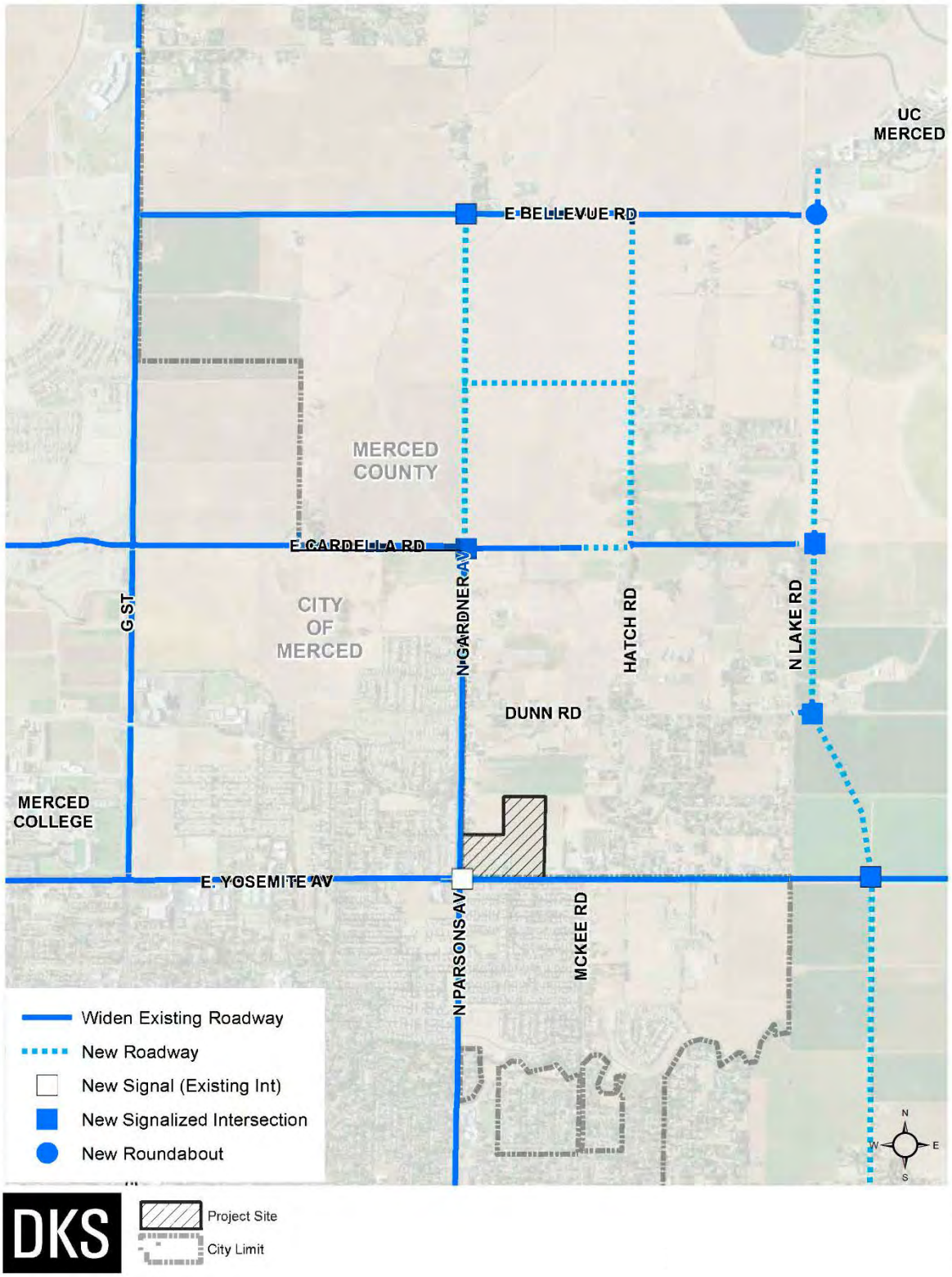
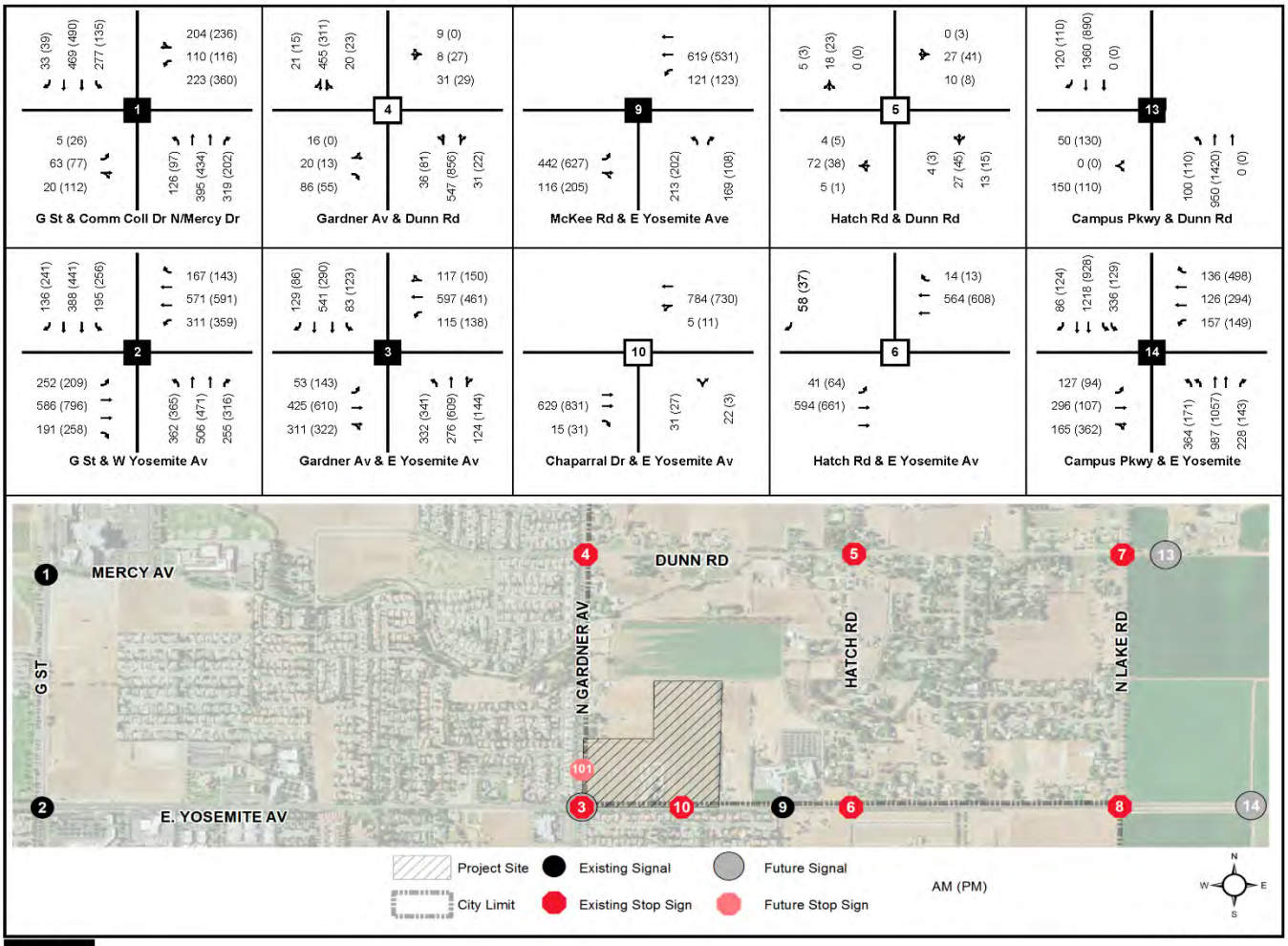


FIGURE 12: CUMULATIVE (2030) INTERSECTION VOLUMES, GEOMETRICS AND CONTROL



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TABLE 12: CUMULATIVE (2030) CONDITION INTERSECTION LEVEL OF SERVICE

INTERSECTION	JURISDICTION	LOS POLICY	CUMULATIVE (2030) NO PROJECT CONDITIONS				
			Intersection Control	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	37.5	D	36.0	D
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	**56.5**	**E**	**82.6**	**F**
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	Signal	41.5	D	**56.0**	**E**
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	3.5 (35.0)	A	6.5 (119.4)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	6.4 (9.9)	A	5.2 (9.8)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (10.8)	A	0.8 (10.8)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	11.5	B	12.4	B
CHAPARRAL DRIVE / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (21.3)	D	0.7 (34.5)	A
CAMPUS PARKWAY / DUNN ROAD	County	C	Signal	7.7	A	8.1	A
CAMPUS PARKWAY / EAST YOSEMITE AVENUE	County	C	Signal	**43.7**	**D**	**51.2**	**D**

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
DKS Associates, 2020.

CUMULATIVE (2030) PLUS PROJECT CONDITIONS

Table 13 and **Table 14** show the LOS changes resulting from adding the proposed project to Cumulative conditions, during the AM and PM peak hours, respectively. The tables show that all but one intersection operate at LOS D or better during the AM peak hour and all but two intersections operate at LOS D or better during the PM peak hour under both Cumulative No Project and Cumulative Plus Project conditions. The following intersections are projected to operate at LOS E or LOS F:

- **G Street and East Yosemite Avenue** operates at LOS E during the AM peak hour and LOS F in the PM peak hour under both Cumulative No Project and Cumulative Plus Project conditions. Average delay increases by less than 3 seconds in both peak hours.
- **North Gardner Avenue and East Yosemite Avenue** operates at LOS E during the PM peak hour and LOS in the PM peak hour under both Cumulative No Project and Cumulative Plus Project conditions. Average delay increases by approximately 3 seconds in both peak hours.

The table also shows that two intersections operate at LOS D or better based on average intersection delay but have individual movements with higher than desired level of delay:

- **North Gardner Avenue/ Dunn Road** operates at LOS B but has greater than 200 seconds of delay for westbound left turning vehicles on Dunn Road during the PM peak hour.
- **East Yosemite Avenue/ Chaparral Drive** operates at LOS C but has 200 seconds of delay for northbound left turning vehicles during the PM peak hour.

Project Issue 8: The proposed project could potentially cause operational issues to study area intersections under cumulative (2030) plus project conditions. This issue is not considered *significant.*

As stated above, the proposed Project traffic added to cumulative conditions would increase delay at study area intersections, however none of these increases in delay would increase average delay at a study intersection enough to result in a operational issue based on the City of Merced and County of Merced criteria.

Mitigation Measure: None Required

STATE HIGHWAY FACILITIES

Project Impact 9: The proposed project could potentially cause operational issues to State Highway facilities. This issue is not considered *significant*.

The proposed Project is distant from the State Highway facilities providing regional access to the Merced Area. State highway interchanges in the vicinity of the proposed project include the following:

- SR 140 and Santa Fe Avenue (3.1 miles away)
- SR 140 and Kibby Road (4.4 miles away)
- SR 59 and West Yosemite Avenue (3.1 miles away)
- SR 59 and Santa Fe Avenue/ Olive Avenue (4.1 miles)

- SR 59 and 16th Street (5.0 miles)
- Interchanges along SR 99 (5+ miles)

While the proposed Project is not designed specifically as student housing, it is anticipated that a fairly large percentage of the residents of the project would either work at or attend one of the two local colleges. It can be assumed that some resident trips will travel west and north toward the State Highways, the project's relatively long distance from the State Highway system will likely result in relatively low numbers of trips extending all the way to the State Highway system.

TABLE 13: CUMULATIVE (2030) PLUS PROJECT CONDITION INTERSECTION LEVEL OF SERVICE - AM

INTERSECTION	JURISDICTION	LOS POLICY	AM PEAK HOUR				
			Intersection Control	No Project		Plus Project	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	37.5	D	40.0	D
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	**56.5**	**E**	**59.3**	**E**
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	Signal	41.5	D	44.7	D
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	3.5 (35.0)	A	3.9 (42.1)	A
HATCH ROAD / DUNN ROAD	County	C	TWSC	6.4 (9.9)	A	6.6 (10.0)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (10.8)	A	0.8 (10.9)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	11.5	B	11.8	B
CHAPARRAL DRIVE / PROJECT ACCESS / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (21.3)	D	5.8 (50.7)	A
CAMPUS PARKWAY / DUNN ROAD	County	C	Signal	7.7	A	8.0	A
CAMPUS PARKWAY / EAST YOSEMITE AVENUE	County	C	Signal	**43.7**	**D**	**44.9**	**D**
NORTH GARDNER AVENUE / PROJECT ACCESS	City	D	TWSC	Not Applicable		0.2 (9.8)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay are reported.
DKS Associates, 2020.

TABLE 14: CUMULATIVE (2030) PLUS PROJECT CONDITION INTERSECTION LEVEL OF SERVICE - PM

INTERSECTION	JURISDICTION	LOS POLICY	PM PEAK HOUR				
			Intersection Control	No Project		Plus Project	
				Delay	LOS	Delay	LOS
G STREET / MERCY AVENUE	City	D	Signal	36.0	D	37.9	D
G STREET / EAST YOSEMITE AVENUE	City	D	Signal	**82.6**	**F**	**84.0**	**F**
NORTH GARDNER AVENUE / EAST YOSEMITE AVENUE	City	D	Signal	**56.0**	**E**	**59.3**	**E**
NORTH GARDNER AVENUE / DUNN ROAD	City	D	TWSC	6.5 (119.4)	A	11.2 (208.5)	B
HATCH ROAD / DUNN ROAD	County	C	TWSC	5.2 (9.8)	A	5.4 (9.9)	A
HATCH ROAD / EAST YOSEMITE AVENUE	City	D	TWSC	0.8 (10.8)	A	0.8 (11.0)	A
MCKEE ROAD / EAST YOSEMITE AVENUE	City	D	Signal	12.4	B	12.9	B
CHAPARRAL DR / PROJECT ACCESS / EAST YOSEMITE AVENUE	City	D	TWSC	0.7 (34.5)	A	22.2 (207.2)	C
CAMPUS PARKWAY / DUNN ROAD	County	C	Signal	8.1	A	8.5	
CAMPUS PARKWAY / EAST YOSEMITE AVENUE	County	C	Signal	**51.2**	**D**	**53.3**	**D**
NORTH GARDNER AVENUE / PROJECT ACCESS	City	D	TWSC	Not Applicable		0.7 (12.4)	A

Notes:
Cells with bold text represent intersection conditions not meeting applicable Level of Service policies
Cells with shaded text represent Project-related impacts
LOS = Level of Service, Delay = Stopped control in Seconds per vehicle
For TWSC (Two-Way Stop Control) and AWSC (All-Way Stop Control), average Intersection and (worst movement) delay is reported.
DKS Associates, 2020.

In addition, the proposed commercial portion of the site is not likely to induce large amounts of long distance travel outside of Merced. The location and size of the commercial portion of the Project are best suited to local serving uses, and a large percentage of vehicles entering and exiting the commercial development are likely to be "pass-by" trips (motorists that are already passing the site and choosing to stop at the site as an interim stop along the route to their ultimate destination).

Of the approximately 239 AM peak hour trips and the 365 PM peak hour trips, five percent are estimated to travel down McKee Road, the main access between the Project site and SR 140. If all of that traffic were to continue onto SR 140, this would represent approximately six trips during the AM peak hour and seventeen trips during the PM peak hour accessing SR 140 by way of Santa Fe Avenue or Kibby Road. It is more likely that most of this five percent of trips would be destined to places within Merced prior to the connections with SR 140.

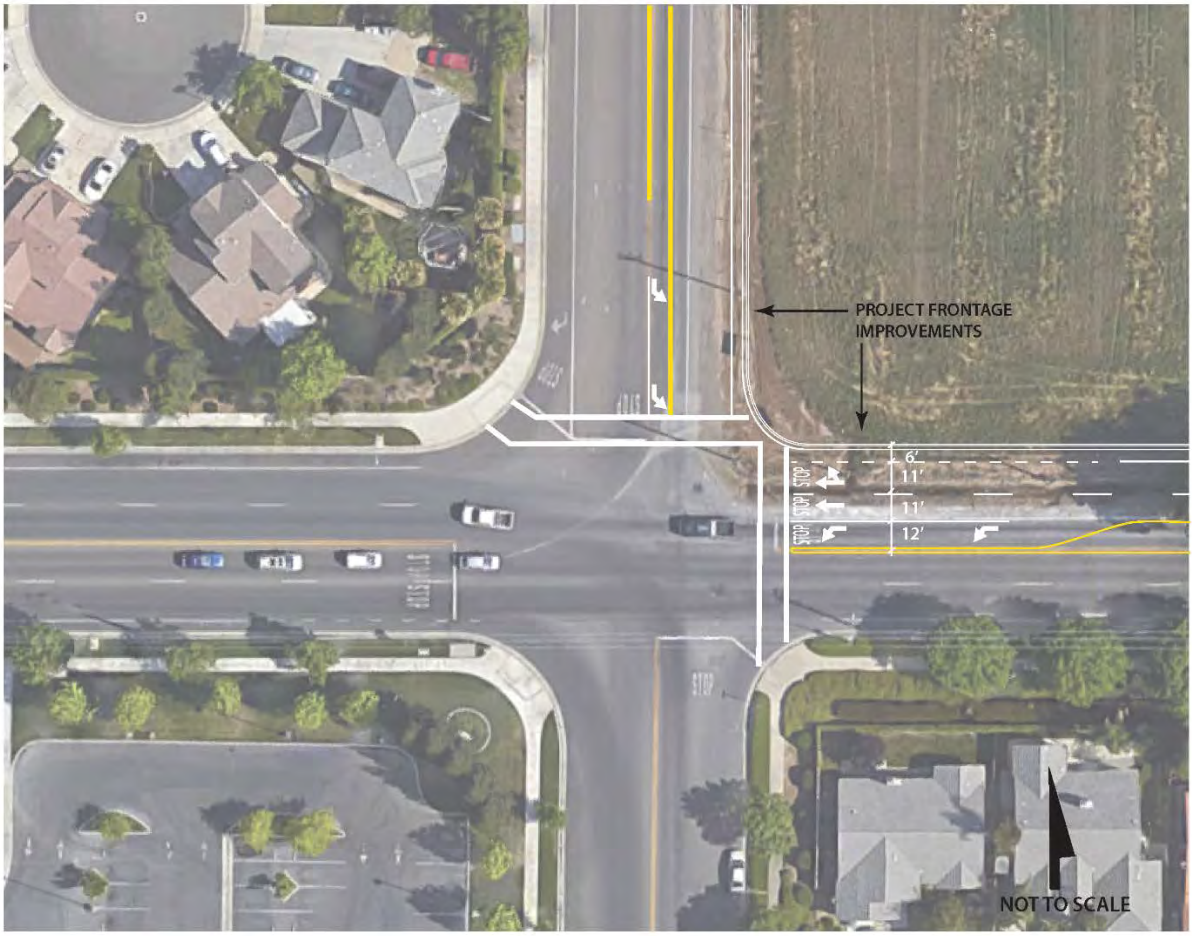
Approximately twenty percent of the trips are estimated to travel south on either Parsons Avenue or G Street. If all of these trips were to continue onto SR 99, this would represent approximately twenty four trips during the AM peak hour and sixty eight trips during the PM peak hour. It is more likely that a high percentage of these trips would be accessing businesses in downtown Merced, including restaurants, bars, and shopping such as Costco. A much smaller percentage of these trips would be expected to access SR 99 for longer distance trips.

Approximately twenty percent of the Project trips are estimated to travel west from the Project site to destinations west of G Street. Of these, the predominant destination would be the Merced College campus. Other destinations west of Merced College, but still east of SR 59, include Walmart, movie theaters, restaurants, and other establishments. It is unlikely that more than a handful of trips would travel further west to destinations west of or on SR 59.

Mitigation Measure: None Required

Appendix A
Level of Service Calculation Sheets

Appendix B
Recommended Near Term Configuration of Project Frontage Improvements at Gardner/ Yosemite Intersection



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Appendix B
Recommended Near-Term Configuration
of Project Frontage Improvements at Gardner / Yosemite Intersection