DRAFT ENVIRONMENTAL IMPACT REPORT

FOR THE

UC VILLAGES PROJECT
(SCH #2024031198)

MARCH 2025

Prepared for:

City of Merced
Development Services
678 W. 18th Street
Merced, CA 95340

Prepared by:

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El Dorado Hills, CA 95762

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A Land Use Planning, Design, and Environmental Firm

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ES.1 PURPOSE

This Draft Environmental Impact Report (Draft EIR) was prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. As described in CEQA Guidelines Section 15121(a), an EIR is a public information document that assesses the potentially significant environmental impacts of a project. CEQA requires that an EIR be prepared by the agency with primary responsibility over the approval of a project (the lead agency). The City of Merced (City) is the lead agency for the proposed UC Villages EIR. Public agencies are charged with the duty to consider and minimize environmental impacts of proposed development where feasible and have the obligation to balance economic, environmental, and social factors.

This Draft EIR has been prepared according to CEQA requirements to evaluate the potential environmental impacts associated with the implementation of UC Villages. This Draft EIR also discusses alternatives to the proposed Project and proposes mitigation measures that would offset, minimize, or otherwise avoid potentially significant environmental impacts. This Draft EIR is intended to provide decision-makers and the public with information that enables consideration of the environmental consequences of UC Villages, and has been prepared in accordance with CEQA (California Public Resources Code [PRC] § 21000 et seq.) and the CEQA Guidelines (California Code of Regulations [CCR] Title 14, Division 6, Chapter 3).

ES.2 PROJECT LOCATION

The City of Merced is located in the Central Valley region of Northern California, along the Highway 99 freeway corridor in Merced County, with the cities of Atwater located approximately nine miles to the north and Chowchilla located approximately 20 miles to the south, as shown on **Figure ES-1**.

The UC Villages project site is located in unincorporated Merced County, to the northeast of the City of Merced's city limits. The site is at the southwestern corner of the Bellevue Road and Lake Road intersection, as shown on **Figure ES-2**. The project site is bounded by existing Bellevue Road, ranchette parcels, vacant land, the Merced Irrigation District (MID) Yosemite Lateral and the future University Vista Project to the north; Lake Road and the University of California, Merced (UC Merced) parking lot (Bellevue Lot) to the east; open vacant land parcels designated Mixed Use and Low Density to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west.

The annexation area is approximately 37.2 acres and is comprised of APNs 060-590-016, -017, -019, -025, -026, and 060-020-016. These six parcels would be annexed to the City of Merced. Development of the UC Villages urban uses would occur only on five of those parcels (excludes APN 060-590-026) and comprises approximately 35.5 acres (Project site). The annexation area, including the Project site, is within the Bellevue Community Plan area, as shown on **Figure ES-3**.

ES.3 INTRODUCTION

The City of Merced, as the lead agency, determined that the proposed UC Villages Project (proposed Project) is a "project" within the definition of CEQA. CEQA requires the preparation of an environmental impact report (EIR) prior to approving any project, which may have a significant impact on the

environment. For the purposes of CEQA, the term "project" refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]).

The EIR contains a description of the Project, description of the environmental setting, identification of Project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of Project alternatives, identification of significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. This EIR identifies issues determined to have no impact or a less-than-significant impact, and provides detailed analysis of potentially significant and significant impacts. Comments received in response to the Notice of Preparation (NOP) were considered in preparing the analysis in this EIR.

ES.4 PROJECT OBJECTIVES

California Environmental Quality Act (CEQA) Guidelines Section 15124(b) requires that an EIR project description include a statement of the objectives intended to be achieved by the Project. The objectives describe the purpose of the Project and are intended to assist the lead agency in developing a reasonable range of alternatives for consideration in the EIR, and to assist the decision makers in assessing the feasibility of mitigation measures and alternatives. The objectives of UC Villages Project are:

1. Provide a mix of residential and commercial land uses that can be implemented in financially-feasible phases that will support the projected growth of the UC Merced campus and surrounding community;
2. Provide a mixed-use master planned community, including apartments, retail, and a hotel, with community amenities that will attract and serve students, UC employees, campus visitors, and the general public;
3. Provide quality student and/or multi-family housing units and on-site recreational amenities (such as fitness centers, work/study areas, and areas for recreational activities) that will appeal to residents;
4. Create a cohesive, easily comprehensible circulation system that supports project phasing and on- and off-site circulation, and to the extent feasible, aligns with UC Merced's existing and planned circulation facilities;
5. Take advantage of the proximity to UC Merced and existing transit to promote alternative modes of transportation (e.g., bicycles, pedestrian, scooters, etc.) which allow for a reduced number of off-street parking for the Master Plan;
6. Create clearly defined routes for bicycle and pedestrian networks to improve on- and off-site safety and connectivity to UC Merced;
7. Provide a gateway to the UC Merced campus on the corner of Bellevue Road and Campus Parkway; and
8. Accommodate the planned improvements to Campus Parkway Segment 4, Bellevue Road, Mandeville Road and the signalized intersection of Bellevue Road and Campus Parkway (Lake Road), consistent with the City of Merced General Plan.

ES.5 PROJECT DESCRIPTION

BACKGROUND

Assembly Bill 3312 (AB 3312) allows the City to annex the main UC Merced campus through a "road strip" (Bellevue Road) and places certain restrictions on future annexations along the "road strip." Following annexation of the UC Merced campus (which was approved by the Merced County Local Agency Formation Commission in July, 2024), other properties either along Bellevue Road or adjacent to UC Merced would be eligible for annexation, including the UC Villages project site. The proposed Annexation includes approximately 37.2 acres of land and includes logical boundaries, contiguous with the UC Merced campus annexation area, as shown on **Figure ES-4**.

On July 26, 2021, the City of Merced City Council approved an Annexation Pre-Application Process to allow for early input from the City Council into individual annexation projects pursuant to AB 3312. In 2022, the Project Applicant, UC Villages LLC, submitted an Annexation Preapplication. On August 15, 2022, the Merced City Council voted unanimously to offer "general support" for the project moving forward with an official annexation and development application.

PROPOSED PROJECT

The UC Villages Planned Development Master Plan (UC Villages or proposed project) proposes an approximately 35-acre development of mixed-use commercial and housing located across from the UC Merced campus. The proposed project would include up to 700 multi-family and/or student housing residential units with approximately 18,000 square feet (sf) of amenity buildings (recreational centers), approximately 30,000 sf of commercial/retail, and an approximately 75,000-sf hotel with up to 200 guest rooms.

Land Uses and Pre-zoning

The project site is designated in the City of Merced's General Plan as "Community Plan," which has been established in the form of the Bellevue Community Plan. The Bellevue Community Plan designates the project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office.

Although the project site has not been zoned by the City of Merced, it is proposed to be pre-zoned Planned Development (P-D), as shown in **Figure ES-5**. P-D zoning allows for a variety of development types that carry out the objectives of the General Plan. Chapter 20.20.020 of the City's Municipal Code provides the framework for development within the P-D zone. Pre-zoning in the Planned Development zoning district would establish project specific development standards, architectural guidelines, phasing, permitted uses, signage standards, landscaping, and off-street parking standards consistent with the Merced Municipal Code (MMC), specifically Section 20.20.020, unless otherwise noted in the UC Villages Master Plan.

The project site is designated in the Merced County General Plan as "Merced Rural Residential Center" No. 1 Rural-Residential (R-R) (see **Figure ES-6)** and zoned in the County as Rural Residential/Single Family Residential (see **Figure ES-7**). If approved and annexed, however, the proposed project would be governed by the City of Merced General Plan, P-D Zoning and Pre-Annexation Development Agreement (described

below), and not the County's R-R designation or zoning. The Merced County Local Area Formation Commission's (LAFCo) decision would be based upon the proposed project's pre-zoning and not the County's land use regulations.

The UC Villages project is proposed to include the development of two types of land uses – Commercial and Residential – as shown on the Conceptual Site Plan (see **Figure ES-8**). The Commercial area is located in the northeast corner of the site and west of Lake Road. The vision for this area is to include approximately 105,000 sf of retail and commercial uses, including a potential 75,000-sf hotel with 200 guest rooms. Also included in this area is a landmark artistic feature, such as a water tower-style feature, at or near the northeast corner, showcasing a pedestrian-friendly entrance into the retail/commercial center that would be inviting to pedestrian and bicycle traffic from the UC Merced campus in particular. It is anticipated that the Commercial area would include neighborhood retail serving commercial, such as restaurants, retail stores, bank, personal services, a hotel and/or other commercial uses typically associated with a mixed-use retail/commercial center.

The Residential area is located west of Lake Road and southeast of the MID Yosemite Lateral and east of Los Olivos Road extension. The vision for this area is to take advantage of the project's close proximity to the UC Merced campus and develop high-quality off-campus housing. The housing component would be complemented with a social hub and recreational amenity spaces, potentially one associated with each phase, or shared by multiple phases. The recreational spaces may include a variety of amenities including, but not limited to, work/study areas, a fitness center, areas of recreational activities such as cornhole, bocce ball, pickleball, bike repair stations and a recreational pool.

Site Development and Phasing

The project site is anticipated to be a walkable neighborhood, with buildings oriented toward the street, as shown on Figure ES-8. The proposed project would develop a mix of uses over an anticipated six phases of development, with each phase expected to occur over 2-3 years and which may be developed in any order, depending on market conditions. **Figure ES-9** and **Table ES-1** identify the phases of development and the proposed land uses.

TABLE ES-1: UC VILLAGES CONCEPTUAL MASTER PLAN PROGRAM

PHASE/ BUILDING	*PROGRAM USE*	*AREA (GSF)*	*HOTEL KEYS*	*UNITS*	*PARKING RATIO[1]*	*PARKING REQUIRED*	*PARKING PROVIDED*
PHASE 1							
R1	Retail/Commercial	5,845			4/1,000 sf	23	
R2	Retail/Commercial	4,835			4/1,000 sf	19	
R3	Retail/Commercial	4,400			4/1,000 sf	18	
R4	Retail/Commercial	3,685			4/1,000 sf	15	
R5	Retail/Commercial	7,495			4/1,000 sf	30	
R6	Retail/Commercial	3,060			4/1,000 sf	12	
Totals		*29,320*				*117*	*120*

PHASE/ BUILDING	*PROGRAM USE*	*AREA (GSF)*	*HOTEL KEYS*	*UNITS*	*PARKING RATIO[1]*	*PARKING REQUIRED*	*PARKING PROVIDED*
PHASE 2							
A	Amenity	4,000					
B	Residential	82,200		43	1 per unit	43	
C	Residential	112,600		59	1 per unit	59	
D	Residential	96,000		51	1 per unit	51	
E	Residential	76,150		40	1 per unit	40	
Totals		*370,950*		*193*		*193*	*195*
PHASE 3							
G	Residential	48,000		25	1 per unit	25	
H	Residential	60,000		32	1 per unit	32	
I	Residential	63,300		33	1 per unit	33	
J	Residential	73,000		38	1 per unit	38	
K	Amenity	4,250					
Totals		*248,550*		*128*		*128*	*138*
PHASE 4							
L	Amenity	4,250					
M	Residential	79,500		42	1 per unit	42	
N	Residential	79,500		42	1 per unit	42	
O	Residential	79,500		42	1 per unit	42	
Totals		*242,750*		*126*		*126*	*126*
PHASE 5							
P	Residential	102,375		54	1 per unit	54	
Q	Residential	86,000		45	1 per unit	45	
R	Residential	102,200		54	1 per unit	54	
S	Residential	102,200		54	1 per unit	54	
T	Amenity	4,860					
Totals		*397,635*		*207*		*207*	*216*
PHASE 6							
F	Hotel Retail/Commercial	75,000	200		0.75 per key	150	
Totals		*75,000*	*200*			*150*	*150*
DEVELOPMENT TOTALS		**1,364,205**	**200**	**654**		**921**	**945**

1. PARKING RATIO FOR RESIDENTIAL PHASES BASED ON STUDENT HOUSING REQUIREMENTS.
SOURCE: UC VILLAGES, LLC 2023.

PHASE 0 – SITE ACTIVATION

"Phase 0" interim commercial/retail uses may be implemented to quickly bring people to the UC Villages site at the corner of Bellevue Road and Lake Road by offering informal food and beverage options, retail vendors, and/or community events. The focus would be to offer interim, temporary uses that support the

long-term vision of UC Villages, build community, and create an immediate draw prior to the development of permanent site uses. Phase 0 interim uses may include, but shall not be limited to: pop-up retail, food and beverage trucks/vendors, artisan fairs, farmers markets, holiday or seasonal events, outdoor movie series, live music, and local community events.

PHASE 1 – COMMERCIAL

The Commercial area is located in the northeast corner of the Master Plan area and serves as the key entryway into the UC Villages project site from the UC Merced campus, located northeast of the project area. It is anticipated that approximately 30,000 sf of commercial/retail land uses would be developed as part of this phase. Each building may include multiple tenants and a variety of commercial/retail uses.

PHASES 2 THROUGH 5 – RESIDENTIAL

The Residential area is located west of Lake Road and east of the MID Yosemite Lateral and Los Olivos Road. The Residential area is comprised of five-story residential buildings including up to 700 units at full build-out, which would be built in phases based on market demand. The Residential area would support development of multi-family residential units and student housing, with the mix of residential units dependent on market demand. Student housing units are each anticipated to be, on average, approximately 1,500 sf and include four beds with a common area. The housing component may be complemented by an approximately 4,000-sf, on-site amenity building for each phase of residential development. The recreational space may include a variety of amenities including, but not limited to, work/study areas, a fitness center, areas of recreational activities such as cornhole, bocce ball, pickleball, bike repair stations, and/or a recreational pool.

PHASE 6 – COMMERCIAL

The Commercial area is located west of Lake Road and south of Phase 1. An approximately 75,000-sf hotel with up to 200 guest rooms is anticipated to be developed during this phase of development. The vision for the hotel is to provide temporary accommodations to the community at large as well as provide additional offsite conference space. Based on market demand, this area may be developed as Commercial/Retail or other allowed uses.

Transportation

The UC Villages Master Plan provides for internal circulation areas and points of access to surrounding roadways, such as Bellevue Road, Lake Road, Mandeville Lane, and Los Olivos Road, as shown in **Figure ES-10**.

Bellevue Road is a major east-west arterial that is currently within the County of Merced. However, as noted above, the UC Merced annexation included Bellevue Road as the "Road Strip" under AB 3312 into the City of Merced. According to the Bellevue Community Plan, Bellevue Road is classified as a Major Arterial with a right-of-way of 150 feet to 200 feet dependent on side access roads and would have signalized intersections at 1⁄4-mile intervals. Although the BCP indicates that Bellevue Road is planned for six (6) lanes with one- or two-way frontage roads, Bellevue Road would be built as a four (4) lane arterial

with one- or two-way frontage roads based upon a current agreement between the Regents of the University of California and the City.

Lake Road is a north-south collector roadway within the County of Merced that begins at the E. Yosemite Avenue to the south and extends north towards Yosemite Lake, northwest of the UC Merced Campus. Lake Road is adjacent to the eastern boundary of the project site. Lake Road would eventually be part of Campus Parkway, a major expressway within the County that currently begins at State Route 99 (SR 99) and ends at E. Yosemite Avenue. The University is responsible for the design and funding the improvements of Campus Parkway to Bellevue Road. The proposed project's circulation system would tie into the intersection of Bellevue Road and Lake Road, which is currently being designed by UC Merced.

Mandeville Lane would be developed in accordance with the BCP as a two-lane collector road that would connect from Lake Road to Los Olivos Road. According to the BCP, Mandeville Lane is classified as a "Transit Avenue," which is a recommended transit route that would accommodate one lane of traffic in each direction, bicycle lanes and a potential dedicated bus guideway. Los Olivos Road is located along the western boundary of the project site and would be improved to City of Merced Standards.

Los Olivos Road is currently a collector roadway servicing single-family dwellings to the west of the Master Plan area. In the future, Los Olivos Road would be a collector road connecting Bellevue Road with Mandeville Lane. There are no direct entries or egress points for private vehicles to/from Los Olivos Road.

An internal private roadway would be developed to allow access from Bellevue Road through the project site to an intersection at Mandeville Lane. Surface off-street parking facilities would be provided via each phase pursuant to the off-street parking requirements detailed in the proposed UC Villages Master Plan.

Proposed access to the project site would be provided via a driveway along Bellevue Road, two intersections along Lake Road, and Los Olivos Road. The two driveways along Lake Road would be located between the Commercial/Retail and Hotel uses (Phases 1 and 6) and at the intersection of Mandeville Lane and Lake Road. At Los Olivos Road, two driveways would be located at the northwest corner of the project site. As noted above, Mandeville Lane bisects the project site between Phases 3, 4 and 5.

The UC Villages project would also provide a bike-friendly community, consistent with the standards set forth in the City's General Plan. A Class I off-roadway bikeway is already anticipated along Bellevue Road, while project would construct a Class I bikeway on the new Mandeville Lane that would run east-west through the project site, as shown on **Figure ES-11**. The project would also construct Class II, on-roadway, separated (striped) bike lane along the internal private roadway connecting Bellevue Road through the project site to an intersection at Mandeville Lane. Bike racks would be strategically located onsite near amenity buildings, the hotel, and the Commercial area.

Utilities

WATER SUPPLY

The City of Merced currently depends on groundwater supplied from various wells throughout the water service area. Currently a 16-inch water main exists in Bellevue Road and is supplied by Well No. 17 lying within the UC Merced campus, as shown on **Figure ES-12**. The proposed project would be served by the

above referenced 16-inch water main in Bellevue Road and a future 16-inch water main in Lake Road as part of the 2030 water pipelines identified in the City of Merced Water Master Plan. Twelve-inch water mains would be installed in Mandeville Lane and Los Olivos Road. On-site development would be served by looped 10-inch backbone water lines.

WASTEWATER

The project site is within the area served by the City of Merced's North Merced Sewer Master Plan. Currently a 21-inch sewer main exists in Bellevue Road servicing UC Merced which is tributary to the G Street sewer trunk line, as shown in **Figure ES-13**. A recent flow analysis was performed for the City of Merced and determined there was excess capacity in the G Street trunk line which would service the UC Villages project as well as the 21-inch sewer line along Bellevue Road.

STORMWATER

Due to the hydrologic soil group rating for the project site, only moderate percolation of stormwater occurs onsite. This would limit the ability to capture stormwater on site, and a pump station would be necessary to remove excess water from the site.

All stormwater generated by development of the site would be handled by a "cascading" basin system, which would interconnect the proposed basins throughout the site (see **Figure ES-14**). Prior to entering the basin system, the stormwater would be treated through a combination of treatment devices including, but not limited to drainage swales, small bioretention basins, inlet filters, interception trees, permeable concrete pavers, stormwater planters, and rain gardens. If necessary, underground storage and treatment can be utilized to assist with any additional treatment or storage.

There are four planned detention basins located throughout the site, with the lowest basin being located at the natural low point of the project site in the southeast corner. These basins would be designed as detention basins with a non-interruptible outlet draining to the nearby Yosemite Lateral, owned, and maintained by the Merced Irrigation District.

Development Standards

As noted above, the Proposed Project is zoned Planned Development (P-D), which allows for the creation of customized development standards. In this regard, due to the unique nature of the Proposed Project (e.g., commercial/retail, housing, and hotel mixed-use project), the UC Villages Master Plan includes varied development standards for height (up to 5-story residential buildings), lot area, lot coverage, setbacks, off-street parking, and signage.

Architectural Design Concepts

Conceptual architectural concepts are presented for the commercial/retail, housing, and hotel land uses within the UC Villages Master Plan. High-quality materials, varied roof materials, roof plane, and massing are promoted with each phase of development.

Landscape Plan

The landscape concept of the Proposed Project includes areas of groundcover, low shrubbery, and tree plantings. Landscaping will be consistent with City of Merced and State standards, including the Model Water Efficient Landscape Ordinance (MWELO). A combination of native and non-native tree species will be utilized to provide shade and create a strong sense of place. Street trees, ground cover, and shrubs will be utilized along Bellevue Road, Lake Road, Mandeville Lane, and internal roadways.

Signage

Signage on the UC Villages project site would seek to provide a cohesive character and identity. Proposed signage would include monument signs, building signage for the commercial/retail and hotel land uses (e.g., shopping center signage), wayfinding and directional signs. Unique signage would be installed for the phases of housing (e.g., monument signs indicating the residential building/name/area and wayfinding signs within each housing phase).

Pre-Annexation Development Agreement

The Project will be developed in accordance with a development and execution of a Pre-Annexation Development Agreement. Potential issues to be covered in the agreement include, but are not limited to, timing of development, phasing, project obligations including on- and off-site improvements, etc. The City and the project applicant would prepare this agreement and have it in place before the proposed project is considered for approval.

Vesting Tentative Parcel Map

The Proposed Project includes submittal of a Vesting Tentative Parcel Map to subdivide the subject parcels to allow for the financing of UC Villages development. Specifically, the Vesting Tentative Parcel Map would subdivide approximately 27.2 acres into four (4) parcels and one (1) designated remainder parcel, as shown in **Figure ES-15**. The proposed Vesting Tentative Parcel Map includes the following parcels: Parcel 1 (4.1± acres), Parcel 2 (7.2± acres), Parcel 3 (2.3± acres), and Parcel 4 (4.9± acres). The Designated Remainder Parcel will be 5.5± in size). The Vesting Tentative Parcel map will allow for the development of commercial and residential land uses as described in detail in the UC Villages Master Plan.

ES.6 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Implementation of the proposed Project would not result in any significant and unavoidable impacts. The environmental effects of the proposed Project on various aspects of the environment are discussed in detail in Chapter 3, Environmental Impacts, Setting, and Mitigation Measures. There would be no project-specific or cumulative significant and unavoidable impacts if the proposed Project is approved.

ES.7 SUMMARY OF ALTERNATIVES TO THE UC VILLAGES PROJECT

ALTERNATIVE 1

CEQA Guidelines Section 15126.6(e) requires an EIR to evaluate a "no project" alternative, which is defined as what would be reasonably expected to occur in the foreseeable future if the project were not approved. Under Alternative 1, the Project site would remain under Merced County's jurisdiction and would not be annexed to the City of Merced. The Project site would remain as a Rural Residential Center as defined in the Merced County General Plan. Development of the Project site would occur through Merced County pursuant to the Development Standards of the Rural Residential/Single Family Residential Zoning District. The Rural Residential Center designation includes existing areas with concentrations of suburban residential parcels on a minimum of one acre, and up to three units per acre, which are typically adjacent to cities. These areas lack public sewer and/or water systems, have a stable or slowly increasing population, and have no commercial services.

Approximately 35 to 105 single-family dwelling units could be constructed on the site. Only minor infrastructure improvements would be made to serve the site. Roadway improvements along Bellevue Road and Lake Road would not be included under this alternative.

ALTERNATIVE 2

Under this Alternative, the Project would be modified to allow for the development of a single-family detached residential subdivision, consistent with the Low-Medium Density Residential (LMD) Land Use Designation in the Bellevue Community Plan (BCP) and a Commercial retail shopping center with an average Floor Area Ratio (FAR) of 0.35, consistent with the Neighborhood Commercial (CN) Land Use Designation in the BCP. Under Alternative 2, it is assumed that up to 300 single-family units would be developed with a density of 9.5 dwelling units per acre. Additionally, the Commercial site would be reduced in acreage from 4.1 acres to 2 acres and would allow for the development of up to 30,000 square feet of Neighborhood Commercial uses.

ALTERNATIVE 3

Under Alternative 3, the same types of commercial and multi-family and/or student housing uses as described under the proposed Project would be developed, yielding 654 residential units and approximately 30,000 square feet of commercial uses. The 200-key hotel included in the proposed Project would be replaced with additional residential buildings and an amenity building. Specifically, Phase 6 would include the development of two multi-family and/or student housing buildings approximately 100,000 square feet in size each, and would include approximately 54 units each. An additional amenity building would be developed in Phase 6, approximately 4,000 square feet in size. Alternative 3 would result in up to 800 multi-family and/or student housing residential units, approximately 30,000 square feet of commercial uses, and 22,000 square feet of Amenity buildings. A hotel is not included.

The circulation and utility infrastructure would remain largely the same as under the proposed Project, making minor onsite changes to provide access to each of the residential buildings.

ES.8 PROJECT APPROVALS AND ENTITLEMENTS

The UC Villages project includes the following proposed entitlement applications to the City, requiring Planning Commission review with final action by the City Council:

- Annexation approval and the annexation of the subject parcels by the City of Merced and Merced Local Agency Formation Commission;
- Pre-zoning of the project site to Planned Development (P-D);
- Vesting Tentative Parcel Map; and
- Pre-Annexation Development Agreement.

Following approval of the project, the City would submit an application to the Merced County Local Agency Formation Commission (LAFCo) to annex the project site from Merced County to the City of Merced.

ES.9 RESPONSIBLE AGENCIES

This EIR is intended to be used by responsible and trustee agencies (as defined by Sections 15381 and 15386 of the CEQA Guidelines) that may have review or discretionary authority over subsequent individual projects implemented under the proposed Project. Agencies other than the lead agency that also may use this EIR in their review of subsequent individual projects, or that may have responsibility for approval of certain Project elements, may include but are not limited to the following:

- California Department of Fish and Wildlife (CDFW)
- Central Valley Regional Water Quality Control Board
- Merced County Local Agency Formation Commission (LAFCo)
- Merced Irrigation District (MID)
- San Joaquin Valley Air Pollution Control District (SJVAPCD)

ES.10 AREAS OF CONTROVERSY

Pursuant to CEQA Guidelines Section 15123(b), a summary section must address areas of controversy known to the lead agency, including issues raised by agencies and the public, and it must also address issues to be resolved, including the choice among alternatives and whether or how to mitigate significant effects.

In accordance with CEQA Guidelines Section 15082, the City of Merced circulated a Notice of Preparation (NOP) of an EIR for the proposed Project on March 29, 2024 to the State Clearinghouse, State Responsible Agencies, State Trustee Agencies, Other Public Agencies, Organizations and Interested Persons. A public scoping meeting was held on April 9, 2024 to present the project description to the public and interested agencies, and to receive comments from the public and interested agencies regarding the scope of the environmental analysis to be included in the Draft EIR. The 30-day NOP public comment period concluded on April 29, 2024. Concerns raised in response to the NOP were considered during preparation of the Draft EIR. The NOP and comments received on the NOP by interested parties are presented in Appendix A.

The NOP identified potential for significant impacts on the environment related to the following topical areas:

- Aesthetics and Visual Resources
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population, Employment and Housing
- Public Services and Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The NOP also identified certain topical areas where impacts were found to be less than significant because implementation of the proposed Project would not create such impacts. These topical areas include forestry resources and mineral resources, and are discussed in Chapter 6, Effects Found not to be Significant, in this Draft EIR.

DISAGREEMENT AMONG EXPERTS

This Draft EIR contains substantial evidence to support all conclusions presented herein. It is possible that there will be disagreement among various parties regarding these conclusions, although the City of Merced is not aware of any disputed conclusions at the time of this writing. Both the CEQA Guidelines and case law clearly provide standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize conflicting opinions of the experts, and include sufficient information to allow the public and decision makers to make an informed judgment about environmental consequences of the proposed Project.

POTENTIALLY CONTROVERSIAL ISSUES

It is also possible that evidence will be presented during the 45-day statutory Draft EIR public review period that may create disagreement. Decision makers would consider this evidence during the public hearing process.

In rendering a decision on a project where there is disagreement among experts, decision makers are not obligated to select the most environmentally preferable viewpoint. Decision makers are vested with the ability to choose whatever viewpoint is preferable and need not resolve a dispute among experts. In their proceedings, decision makers must consider comments received concerning adequacy of the Draft EIR and address any objections raised in these comments. However, decision makers are not obligated to follow any directives, recommendations, or suggestions presented in comments on the Draft EIR, and can certify the Final EIR without needing to resolve disagreements among experts.

ES.11 PUBLIC NOTICE/PUBLIC REVIEW

The City of Merced will provide a public notice of availability for the Draft EIR, and invite comment from the general public, agencies, organizations, and other interested parties. Consistent with CEQA, the review period for this Draft EIR is forty-five (45) days from the date of Draft EIR publication. Public comment on the Draft EIR will be accepted in written form only. All comments or questions regarding the Draft EIR should be addressed to:

City of Merced Planning Division
678 West 18th Street, Merced, CA 95340
Phone: (209) 385-6858

Attn: Diana Lowrance, Deputy Director of Development Services
Email: lowranced@cityofmerced.org
or
Attn: Jonnie Lan, Principal Planner
Email: lanj@cityofmerced.org

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period of the Draft EIR, a Final EIR will be prepared. The Final EIR will respond to written comments received during the public review period and to oral comments received at any public hearing that may be held during such review period.

CERTIFICATION OF THE EIR/PROJECT CONSIDERATION

The City of Merced will review and consider the Final EIR. If the City of Merced finds that the Final EIR is "adequate and complete," the City of Merced will certify the Final EIR in accordance with CEQA. The rule of adequacy generally holds that an EIR can be certified if:

1) The EIR shows a good faith effort at full disclosure of environmental information; and

2) The EIR provides sufficient analysis to allow decisions to be made regarding the proposed project in contemplation of environmental considerations.

Following review and consideration of the Final EIR, the City of Merced may take action to approve, modify, or reject the proposed Project. A Mitigation Monitoring and Reporting Program, as described below, would also be adopted in accordance with Public Resources Code Section 21081.6(a) and CEQA Guidelines Section 15097 for mitigation measures that have been incorporated into or imposed upon the proposed Project to reduce or avoid significant effects on the environment. This Mitigation Monitoring and Reporting Program will be designed to ensure that these measures are carried out during project implementation, in a manner that is consistent with the EIR. Further, the City of Merced must prepare a Findings of Fact to summarize the environmental effects of the proposed Project. If significant and unavoidable impacts are identified in the EIR, the City must also prepare a Statement of Overriding Considerations which provides rationale for overriding the significant environmental impacts in light of other identified benefits, such as social or economic reasons.

TABLE ES-2: PROJECT IMPACTS AND PROPOSED MITIGATION MEASURES

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
SECTION 3.1—AESTHETICS			
Impact 3.1-1: Development of the proposed Project would not have a substantial adverse effect on a scenic vista.	Less Than Significant	None required.	Less Than Significant
Impact 3.1-2: Development of the proposed Project would not substantially degrade the existing visual character or quality of public views in non-urbanized area, nor conflict with applicable zoning and other regulations governing scenic quality in urbanized areas.	Less Than Significant	None required.	Less Than Significant
Impact 3.1-3: Implementation of the proposed Project would not create a new source of substantial light or glare which could adversely affect day or nighttime views in the area.	Less Than Significant	None required.	Less Than Significant
Impact 3.1-4: The proposed Project, in combination with other cumulative development, would not result in substantial adverse effects on scenic vistas.	Less Than Significant	None required.	Less Than Significant
Impact 3.1-5: The proposed Project, in combination with other cumulative development, would not substantially degrade the existing visual character or quality of public views of the site and its surroundings or conflict with applicable zoning and other regulations governing scenic quality.	Less Than Significant	None required.	Less Than Significant
Impact 3.1-6: The proposed Project, in combination with other cumulative development, would not result in light and glare impacts.	Less Than Significant	None required.	Less Than Significant
SECTION 3.2—AGRICULTURAL RESOURCES			
Impact 3.2-1: Implementation of the proposed Project would not 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.	Less Than Significant	None required.	Less Than Significant
Impact 3.2-2: Implementation of the proposed Project would not 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.	Less Than Significant	None required.	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.2-3: Implementation of the proposed Project, in combination with other cumulative development, would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use	Less Than Significant	None required.	Less Than Significant
SECTION 3.3—AIR QUALITY			
Impact 3.3-1: Project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment, or conflict with or obstruct implementation of the District's air quality plan.	Less Than Significant	None required.	Less Than Significant
Impact 3.3-2: Proposed Project construction activities would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment, or conflict with or obstruct implementation of the District's air quality plan.	Less Than Significant	None required.	Less Than Significant
Impact 3.3-3: The proposed Project would not cause public exposure to toxic air contaminants.	Less Than Significant	None required.	Less Than Significant
Impact 3.3-4: The proposed Project would not cause exposure to other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less Than Significant	None required.	Less Than Significant
Impact 3.3-5: Operation of the proposed Project, in combination with other cumulative development, would not conflict with or obstruct implementation of the applicable air quality plan, or result in a cumulatively considerable net increase of criteria pollutants.	Less Than Significant	None required.	Less Than Significant
Impact 3.3-6: Construction of the proposed Project, in combination with other cumulative development, would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment, or conflict or obstruct implementation of the District's air quality plan.	Less Than Significant	None required.	Less Than Significant
Impact 3.3-7: The proposed Project, in combination with other cumulative development, would not generate cumulative public exposure to toxic air contaminants.	Less Than Significant	None required.	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.3-8: The proposed Project, in combination with other cumulative development, would not cause exposure to other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less Than Significant	None required.	Less Than Significant
SECTION 3.4—BIOLOGICAL RESOURCES			
Impact 3.4-1: Implementation of the proposed Project could result in direct or indirect effects on an invertebrate species.	Potentially Significant	**Mitigation Measure 3.4-1(a):** If the Crotch bumble bee is no longer a Candidate or formally Listed species under the California ESA at the time ground-disturbing activities occur, then no additional protection measures are required. **Mitigation Measure 3.4-1(b):** If the Crotch bumble bee is legally protected under the California ESA as a Candidate or Listed species and ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's Survey Considerations for CESA Candidate Bumble Bee Species (CDFW 2023), it is recommended that three Crotch bumble bee surveys be conducted at two to four week intervals during the colony active period (April-August) if possible. If Crotch bumble bees are detected, any remaining surveys shall focus on nest location. If no nests are found but the species is observed during preconstruction surveys, work crews shall be informed of the possibility of Crotch bumble bees or their nests being present onsite. If a Crotch bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch bumble bee nest is detected on or immediately adjacent to the Project site, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active. If initial grading is phased or delayed for any reason, preconstruction surveys shall be repeated prior to ground-disturbing activities if nesting habitat is still present or has re-established and will be affected.	
Impact 3.4-2: Implementation of the proposed Project could result in direct or indirect effects on special-status reptile and amphibian species.	Potentially Significant	**Mitigation Measure 3.4-2(a)**: A qualified biologist shall conduct a preconstruction survey for western spadefoot within all suitable upland habitat in the Project work area 48 hours prior to the start of vegetation removal or ground disturbing activities. Any individuals discovered in the Project work area immediately prior to Project construction shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found. If no western spadefoot are found during the preconstruction survey, the Project applicant shall install exclusionary fencing around the entire Project footprint to prevent dispersing spadefoots and salamanders from entering. **Mitigation Measure 3.4-2(b)**: A qualified biologist shall conduct a preconstruction survey for California tiger salamanders within all suitable upland habitat in the Project work area 48 hours prior to the start of vegetation removal or ground disturbing activities.	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		If California tiger salamanders are found during the preconstruction survey, the Project applicant shall notify CDFW immediately and initiate consultation to develop appropriate actions before construction begins. If no California tiger salamanders are found during the preconstruction survey, the Project applicant shall install exclusionary fencing around the entire Project footprint to prevent dispersing salamanders and spadefoots from entering. **Mitigation Measure 3.4-2(c):** A qualified biologist shall conduct a preconstruction survey for northwestern pond turtle within all suitable upland habitat in the Project work area 48 hours prior to the start of vegetation removal or ground disturbing activities. Any individuals discovered in the Project work area immediately prior to Project construction shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.	
Impact 3.4-3: Implementation of the proposed Project could result in direct or indirect effects on special-status bird species.	Potentially Significant	**Mitigation Measure 3.4-3(a):** The Project proponent shall implement the following measure to avoid or minimize impacts on Swainson's hawk: 1) If construction activities will begin during the Swainson's hawk nesting season (March 20 to September 15), a qualified biologist should conduct at least the minimum number of surveys called for within at least two survey	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		periods prior to the initiation of construction in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000) or the current CDFW-approved protocol. Current survey periods specified by the Guidelines are March 20 to April 5, April 5 to April 20, April 21 to June 10, and June 10 to July 30. All potential nest trees within 0.5-mile of the proposed Project footprint shall be visually examined for potential Swainson's hawk nests, as accessible. At a minimum, a qualified biologist shall conduct surveys during Survey Periods II and III which will total 6 surveys (3 for each Survey Period). 2) If no active Swainson's hawk nests are identified on or within 0.5-mile of the proposed Project, the Project applicant shall prepare a letter report documenting the survey methodology and findings and submit it to the City. No additional mitigation measures are recommended. 3) If active Swainson's hawk nests (a nest becomes active once the first egg is laid and remains active until the fledged young are no longer dependent on the nest [USFWS 2018]) are found within 0.5-mile of the Project footprint, a survey report should be submitted to CDFW, and an avoidance and minimization plan should be developed for approval by CDFW prior to the start of construction. The avoidance plan should identify measures to minimize impacts to the active Swainson's hawk nest depending on the	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		location of the nest relative to the project footprint. These measures may include: ▪ Conduct a worker awareness training program prior to the start of construction; ▪ Establish a buffer zone and work schedule to avoid impacting the nest during critical periods. If possible, no work will occur within 200 yards of the nest while it is in active use. If work will occur within 200 yards of the nest, then construction will be monitored by a qualified biologist to ensure that no work occurs within 50 yards of the nest during incubation or within 10 days after hatching (Swainson's Hawk Technical Advisory Committee 2000); ▪ Have a biological monitor conduct regular monitoring of the nest during construction activities; and ▪ Should the project biologist determine that the construction activities are disturbing the nest; the biologist should halt construction activities until the CDFW is consulted. 4) The Project site contains 33.55 acres of annual grassland habitat which provide suitable foraging habitat for Swainson's hawks. CDFW has provided guidelines for mitigating impacts to Swainson's hawk foraging habitat as summarized below (CDFW 1994): i. Projects within 1 mile of an active nest tree shall provide: • One acre of foraging habitat for each acre of development at a ratio of 1:1. Mitigated lands shall consist of 10	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		percent of the land requirements met by fee title acquisition or a conservation easement allowing for the active management of the habitat, and the remaining 90 percent of the land protected by a conservation easement on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk (grasslands, rangeland, etc.) and no requirements for active management of the habitat; or • One-half acre of foraging habitat for each acre of development authorized at a ratio of 0.5:1. All the land requirements shall be met by fee title acquisition or a conservation easement, which allows for the active management of the habitat for prey production on the land. Prey abundance and availability is determined by land and farming patterns including crop types, agricultural practices, and harvesting regimes. Actively managed land for prey production may result in the land becoming less valuable for crop production due to management limitations but increases the value for Swainson's hawk through functional lift. ii. Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acre of foraging	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		habitat for each acre of urban development at a ratio of 0.75:1. All foraging habitat may be protected through fee title acquisition or conservation easement on agricultural lands or other suitable habitats. iii. Projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree shall provide 0.5 acre of Habitat Management land for each acre of urban development at a ratio of 0.5:1. All foraging habitat may be protected through fee title acquisition or a conservation easement on agricultural lands or other suitable habitat. The City of Merced as the CEQA lead agency shall make the final determination as to the extent of the proposed Project's impacts to Swainson's hawk foraging habitat and any appropriate mitigation that might be necessary associated with project development. Mitigation bank credits may also be used to satisfy Swainson's hawk mitigation requirements as approved by the City and CDFW. **Mitigation Measure 3.4-3(b):** The Project proponent shall implement the following measure to avoid or minimize impacts on burrowing owl: 1) A qualified biologist shall conduct focused burrowing owl surveys in the Project area and surrounding 500 feet, where accessible, in accordance with the CDFW's Staff Report on Burrowing Owl Mitigation (Staff Report), published March 7, 2012. Surveys shall be	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		repeated if project activities are suspended or delayed more than 14 days. i. According to the Staff Report, four survey visits shall be conducted during the breeding season (February 1 to August 31): 1) at least one site visit between February 15 and April 15, and 2) a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after June 15. ii. Non-breeding season surveys shall be conducted during four site visits, spread evenly apart. iii. Take avoidance surveys may also be conducted. An initial take avoidance survey shall be conducted no less than 14 days prior to initiating ground disturbance activities using the methods outlined in the Staff Report. Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls. Burrowing owls may re-colonize a site after only a few	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance. 2) If no burrowing owls are detected, no further measures are required. If active burrowing owl burrows are detected, the avoidance, minimization, and mitigation methodologies outlined in the CDFW's Staff Report on Burrowing Owl Mitigation shall be followed prior to initiating Project related activities that may impact burrowing owls. **Mitigation Measure 3.4-3(c):** The Project proponent shall implement the following measure to avoid or minimize impacts on white-tailed kite, Cooper's hawk, and other protected raptors: Active nests and nesting raptors are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513 and the MBTA. Ground-disturbing and other development activities including grading, vegetation clearing, tree removal/trim, and construction could impact nesting raptors if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting raptors, all ground disturbing activity shall be completed between September 1 and January 31, if feasible. If construction cannot occur outside of the	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		nesting season, the following measures are recommended: • If construction activities occur during the nesting season, a qualified biologist shall conduct a nesting raptor survey to determine the presence of any active nests within the Project site. Additionally, the surrounding 500 feet of the Project site shall be surveyed for active raptor nests, where accessible. The nesting raptor survey shall be conducted within 14 days prior to commencement of ground-disturbing or other development activities. If the nesting raptor survey shows that there is no evidence of active nests, then a letter report shall be prepared to document the survey and be provided to the project proponent and no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required prior to starting or resuming work within the nesting season. o If active nests are found, then the qualified biologist shall establish a species-specific buffer to prohibit development activities near the nest to and minimize nest disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		for some songbirds and 0.5 mile for some raptors. Nest monitoring may also be warranted during certain phases of construction to ensure nesting birds are not adversely impacted. If active nests are found within any trees slated for removal, then an appropriate buffer shall be established around the tree and all trees within the buffer shall not be removed until a qualified biologist determines that the nest has successfully fledged and/or is no longer active. • A qualified biologist shall conduct environmental awareness training that is given to all onsite personnel prior to the initiation of work. • If construction occurs outside of the nesting bird season (September 1 to January 31) a nesting raptor survey and environmental training for nesting birds would not be required. **Mitigation Measure 3.4-3(d):** The Project proponent shall implement the following measure to avoid or minimize impacts on yellow-billed magpie, Bullock's oriole, and other nesting birds (non-raptors): Active nests and nesting birds are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513 and the MBTA. Ground-disturbing and other development activities including grading, vegetation clearing, tree removal/trim, and	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		construction could impact nesting birds if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting birds, all ground disturbing activity shall be completed between September 1 and January 31, if feasible. If construction cannot occur outside of the nesting season, the following measures are recommended: • If construction activities occur during the nesting season, a qualified biologist shall conduct a nesting bird survey to determine the presence of any active nests within the Project site. Additionally, the surrounding 100 feet of the Project site shall be surveyed for active raptor nests, where accessible. The nesting bird survey shall be conducted within 14 days prior to commencement of ground-disturbing or other development activities. If the nesting bird survey shows that there is no evidence of active nests, then a letter report shall be prepared to document the survey and be provided to the project proponent and no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required prior to starting or resuming work within the nesting season. o If active nests are found, then the qualified biologist shall establish a species-specific buffer to prohibit development activities near the nest to and minimize nest	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet for some songbirds and 0.5 mile for some raptors. Nest monitoring may also be warranted during certain phases of construction to ensure nesting birds are not adversely impacted. If active nests are found within any trees slated for removal, then an appropriate buffer shall be established around the tree and all trees within the buffer shall not be removed until a qualified biologist determines that the nest has successfully fledged and/or is no longer active. • A qualified biologist shall conduct environmental awareness training that is given to all onsite personnel prior to the initiation of work. • If construction occurs outside of the nesting bird season (September 1 to January 31) a nesting bird survey and environmental training for nesting birds would not be required.	
Impact 3.4-4: Implementation of the proposed Project would result in direct or indirect effects on special-status mammal species.	Potentially Significant	**Mitigation Measure 3.4-4(a):** The Project proponent shall implement the following measure to avoid or minimize impacts on San Joaquin kit fox:	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		• A qualified biologist shall conduct a preconstruction survey within 7 days on the initiation of ground disturbance. If a kit fox or suitable burrow with sign of kit fox is observed onsite, the Applicant shall implement standardized measures adopted by CDFW or USFWS. • If no kit fox or suitable burrows are found, the Applicant shall prepare a letter report of findings and submit it to City. No further measures pertaining to this species are required. **Mitigation Measure 3.4-4(b):** The Project proponent shall implement the following measure to avoid or minimize impacts on western red bat: • A western red bat roosting habitat assessment shall be conducted by a qualified bat biologist within 15 days of commencement of Project construction/tree removal. This assessment will focus on trees proposed for removal and within 50 feet of proposed construction activity. If no potential western red bat roosting sites are found, the Applicant shall prepare a letter report documenting findings and submit it to the City. No further measures pertaining to western red bat are required. • If potential roosting sites are found, the Applicant shall conduct further surveys to determine whether roosting bats are present. If construction will occur during the maternity roosting season, and an active western red bat maternity roost is detected, a qualified biologist, in consultation with CDFW, shall delineate an avoidance buffer around the roost. The avoidance buffer shall be maintained until	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		young are capable of flight. The avoidance buffer can be removed when a qualified biologist determines that the roost is no longer occupied. • If a non-breeding roost is found, a qualified biologist shall delineate an avoidance buffer, if feasible. If avoidance of the occupied non-breeding roost is not feasible, a qualified biologist, in consultation with CDFW, shall develop an exclusion or tree removal plan. Removal of a tree with roosting bats will proceed only upon CDFW approval.	
Impact 3.4-5: Implementation of the proposed Project would result in direct or indirect effects on candidate, sensitive, or special-status plant species.	Potentially Significant	**Mitigation Measure 3.4-5(a):** Prior to ground-disturbing activities in the Project Area, the applicant shall perform special-status plant surveys according to CDFW, CNPS, and USFWS protocols (CDFW 2018; CNPS 2001; USFWS 2000). Surveys shall be conducted throughout all suitable habitat within the Project footprint and a 50-foot buffer, where accessible, to address potential direct and indirect impacts of the Project. Surveys shall be conducted by a qualified biologist and timed according to the identifiable period for target species (typically the blooming period). To the extent feasible, known reference populations will be visited prior to surveys to confirm target species are evident and identifiable at the time of the survey. If no special-status plants are found, no further measures pertaining to special-status plants are necessary. **Mitigation Measure 3.4-5(b):** If special-status plants are identified onsite, the Project shall be modified to the extent feasible to prevent disturbance or loss of special-status plants. No-disturbance buffers shall be	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		established around sensitive plant populations to be preserved in or adjacent to the Project Area. A 50-foot buffer should be maintained between project activities and sensitive plant populations, unless otherwise determined by a qualified biologist. Buffer distances may vary between species depending on listing status, rarity, and other factors. Buffer areas will be clearly demarcated in the field, and no construction or ground-disturbing activities will occur within the boundaries of the delineated area. **Mitigation Measure 3.4-5(c):** If a special-status plant species is found and avoidance is not feasible, additional measures may be developed in consultation with CDFW and/or the CEQA Lead Agency. Appropriate measures should consider factors such as the listing status or rare plant rank of the species, degree of threat, local rarity, distribution and condition of occurrences, and vulnerability of those occurrences. Mitigation measures may include, but are not limited to, restoration or permanent preservation of habitat for the special-status plant species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat. If a state or federally listed threatened or endangered plant or a plant that is a candidate for state listing is found onsite, the applicant shall consult with CDFW and/or USFWS, as applicable, to determine appropriate avoidance and minimization measures. If the plants cannot be avoided, an incidental take permit and compensatory mitigation may be required.	

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.4-6: Implementation of the proposed Project would not result in conflicts with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less Than Significant	None required.	Less Than Significant
Impact 3.4-7: The proposed Project, in combination with other cumulative development, could result in the loss of biological resources including habitats and special status species.	Potentially Significant	**Mitigation Measure 3.4-7:** Implement Mitigation Measure 3.4-3(a).	Less Than Significant
SECTION 3.5—CULTURAL RESOURCES			
Impact 3.5-1: Implementation of the proposed Project has potential to cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines section 15064.5.	Potentially Significant	**Mitigation Measure 3.5-1**: Post-Review Discoveries of Historical Resources and Archaeological Resources. If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the CEQA lead agency and, if required, the Section 106 lead agency. The lead agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under CEQA, as defined by CEQA or a Historic Property under Section 106 NHPA, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction.	
Impact 3.5-2: Implementation of the proposed Project has potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5.	Potentially Significant	**Mitigation Measure 3.5-2:** Implement Mitigation Measure 3.5-1.	Less Than Significant
Impact 3.5-3: Implementation of the proposed Project has potential to disturb undiscovered human remains, including those interred outside of dedicated cemeteries.	Potentially Significant	**Mitigation Measure 3.5-3**: Post-Review Discoveries of Human Remains. If the find includes human remains, or remains that are potentially human, the landowner, shall ensure that reasonable measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Merced County Coroner (per Section 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California PRC, and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project Section 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or	Less Than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.	
Impact 3.5-4: Implementation of the proposed Project, in combination with other cumulative development, has potential to result in a substantial adverse change in the significance of a historical resource, archaeological resource, or disturb human remains in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.	Potentially Significant	**Mitigation Measure 3.5-4:** Implement Mitigation Measure 3.5-1a.	Less Than Significant
SECTION 3.6—ENERGY			
Impact 3.6-1: Project implementation would not result in the inefficient, wasteful, or unnecessary use of energy resources during operation or construction, and would not conflict with or obstruct plans for renewable energy or energy efficiency.	Less Than Significant	None required.	Less Than Significant
Impact 3.6-2: Implementation of the proposed Project, in combination with other cumulative development, would not result in the inefficient, wasteful, or unnecessary use of energy resources during operation or construction, and would not conflict with or obstruct plans for renewable energy or energy efficiency.	Less Than Significant	None required.	Less Than Significant
SECTION 3.7—GEOLOGY, SOILS, AND SEISMICITY			
Impact 3.7-1: Implementation of the proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic related ground failure, or landslides.	Less than Significant	None required.	Less than Significant
Impact 3.7-2: Implementation of the proposed Project would not result in substantial soil erosion or the loss of topsoil.	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.7-3: Implementation of the proposed Project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of Project implementation, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	Less than Significant	None required.	Less than Significant
Impact 3.7-4: Implementation of the proposed Project would not result in development on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	Less than Significant	None required.	Less than Significant
Impact 3.7-5: Implementation of the proposed Project, with mitigation, would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant	**Mitigation Measure 3.7-5**: If fossils or fossil-bearing deposits are encountered during ground-disturbing activities, work within a 25-foot radius of the find shall halt, the Merced Planning Division shall be notified, and a professional vertebrate paleontologist (as defined by the Society for Vertebrate Paleontology) shall be contacted immediately to evaluate the find. The paleontologist shall have the authority to stop or divert construction, as necessary. Documentation and treatment of the discovery shall occur in accordance with Society of Vertebrate Paleontology standards. The significance of the find shall be evaluated pursuant to the CEQA Guidelines. If the discovery proves to be significant, before construction activities resume at the location of the find, additional work such as data recovery excavation may be warranted, as deemed necessary by the paleontologist.	Less than Significant
Impact 3.7-6: Implementation of the proposed Project, in combination with other cumulative development, would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure, including liquefaction.	Less than Significant	None required.	Less than Significant
Impact 3.7-7: Implementation of the proposed Project, in combination with other cumulative development, would not result in substantial soil erosion or the loss of topsoil.	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.7-8: Implementation of the proposed Project, in combination with other cumulative development, would not 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.	Less than Significant	None required.	Less than Significant
Impact 3.7-9: Implementation of the proposed Project, in combination with other cumulative development, would not be located on expansive soil, as defined in Tables 18-1-D of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	Less than Significant	None required.	Less than Significant
Impact 3.7-10: Implementation of the proposed Project, in combination with other cumulative development, would not or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant.	**Mitigation Measure 3.7-10**: Implement Mitigation Measure 3.7-5.	Less than Significant
SECTION 3.8—GREENHOUSE GAS EMISSIONS			
Impact 3.7-1: Project implementation would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment and 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
SECTION 3.9—HAZARDS AND HAZARDOUS MATERIALS			
Impact 3.9-1: Implementation of the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less than Significant	None required.	Less than Significant
Impact 3.9-2: Implementation of the proposed Project, with mitigation, 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.	Potentially Significant	**Mitigation Measure 3.9-2a**: Prior to initiation of any ground disturbance activities, evenly distributed soil samples shall be conducted throughout the Project site for analysis of pesticides and heavy metals. The samples shall be submitted for laboratory analysis of pesticides and heavy metals per DTSC and EPA protocols. The results of the soil sampling shall be submitted to the City of Merced. If elevated levels of pesticides or heavy metals are detected during the laboratory analysis of the soils, a soil cleanup and	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		remediation plan shall be prepared and implemented prior to the commencement of grading activities. **Mitigation Measure 3.9-2b**: In the event that hazardous materials are encountered during construction, a Soils Management Plan (SMP) shall be submitted and approved by the Merced County Department of Environmental Health. The SMP shall establish management practices for handling hazardous materials, including fuels, paints, cleaners, solvents, etc., during construction. The approved SMP shall be posted and maintained onsite during construction activities and all construction personnel shall acknowledge that they have reviewed and understand the plan.	
Impact 3.9-3: Implementation of the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	No Impact	None Required	No Impact
Impact 3.9-4: Implementation of the proposed Project would not result in impacts from being included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5	No Impact	None Required	No Impact
Impact 3.9-5: The proposed Project would not be 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, resulting in a safety hazard or excessive noise for people residing or working in the Project site.	No Impact	None Required	No Impact
Impact 3.9-6: Implementation of the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	Less than Significant	None required.	Less than Significant
Impact 3.9-7: The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.9-8: Implementation of the proposed Project, in combination with other cumulative development, would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less than Significant	None required.	Less than Significant
Impact 3.9-9: Implementation of the proposed Project, in combination with other cumulative development, 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.	Less than Significant	None required.	Less than Significant
Impact 3.9-10: Implementation of the proposed Project, in combination with other cumulative development, could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.	Less than Significant	None required.	Less than Significant
Impact 3.9-11: The proposed Project, in combination with other cumulative development, would not be 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, resulting in a safety hazard or excessive noise for people residing or working in the Project site.	Less than Significant	None required.	Less than Significant
Impact 3.9-12: Implementation of the proposed Project, in combination with other cumulative development, would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than Significant	None required.	Less than Significant
Impact 3.9-13: Implementation of the proposed Project, in combination with other cumulative development, wound not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	Less than Significant	None required.	Less than Significant
SECTION 3.10—HYDROLOGY AND WATER QUALITY			
Impact 3.10-1: Implementation of the proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.10-2: Implementation of the proposed Project would not 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
Impact 3.10-3: Implementation of the proposed Project would not 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 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; 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 impede or redirect flood flows.	Less than Significant	None required.	Less than Significant
Impact 3.10-4: Implementation of the proposed Project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	Less than Significant	None required.	Less than Significant
Impact 3.10-5: Implementation of the proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than Significant	None required.	Less than Significant
Impact 3.10-6: Implementation of the proposed Project, in combination with other cumulative development, would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Less than Significant	None required.	Less than Significant
Impact 3.10-7: Implementation of the proposed Project, in combination with other cumulative development, would not 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
Impact 3.10-8: Implementation of the proposed Project, in combination with other cumulative development, would not 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	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
surfaces, in a manner which would result in flooding on- or offsite; 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 impede or redirect flood flows.			
Impact 3.10-9: Implementation of the proposed Project, in combination with other cumulative development, would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	Less than Significant	None required.	Less than Significant
SECTION 3.11—LAND USE			
Impact 3.11-1: The proposed Project would not result in the physical division of an established community.	Less than Significant	None required.	Less than Significant
Impact 3.11-2: The proposed Project would not conflict with an existing land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than Significant	None required.	Less than Significant
Impact 3.11-3: The proposed Project, in combination with cumulative development, would not physically divide an established community.	Less than Significant	None required.	Less than Significant
Impact 3.11-4: The proposed Project, in combination with cumulative development, would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than Significant	None required.	Less than Significant
SECTION 3.12—NOISE			
Impact 3.12-1: The proposed Project would generate 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.	Potentially Significant	**Mitigation Measure 3.12-1:** Prior to approval of grading and/or building permits, the City shall establish the following as conditions of approval for any permit that results in the use of construction equipment:	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		• Construction shall be limited to the hours between 7:00 a.m. and 6:00 p.m. • All construction equipment powered by internal combustion engines shall be properly muffled and maintained. • Quiet construction equipment, particularly air compressors, are to be selected whenever possible. • All stationary noise-generating construction equipment such as generators or air compressors are to be located as far as is practical from existing residences. In addition, the Project contractor shall place such stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the Project site. • Unnecessary idling of internal combustion engines is prohibited. • The construction contractor shall, to the maximum extent practical, locate on-site equipment staging areas to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the Project site during all project construction activities.	
Impact 3.12-2: Implementation of the proposed Project would not generate excessive groundborne vibration or groundborne noise levels.	Less than Significant	None required.	Less than Significant
Impact 3.12-3: Implementation of the proposed Project, combined with cumulative development, could expose existing noise-sensitive land uses to increased noise.	Less than Significant	None required.	Less than Significant

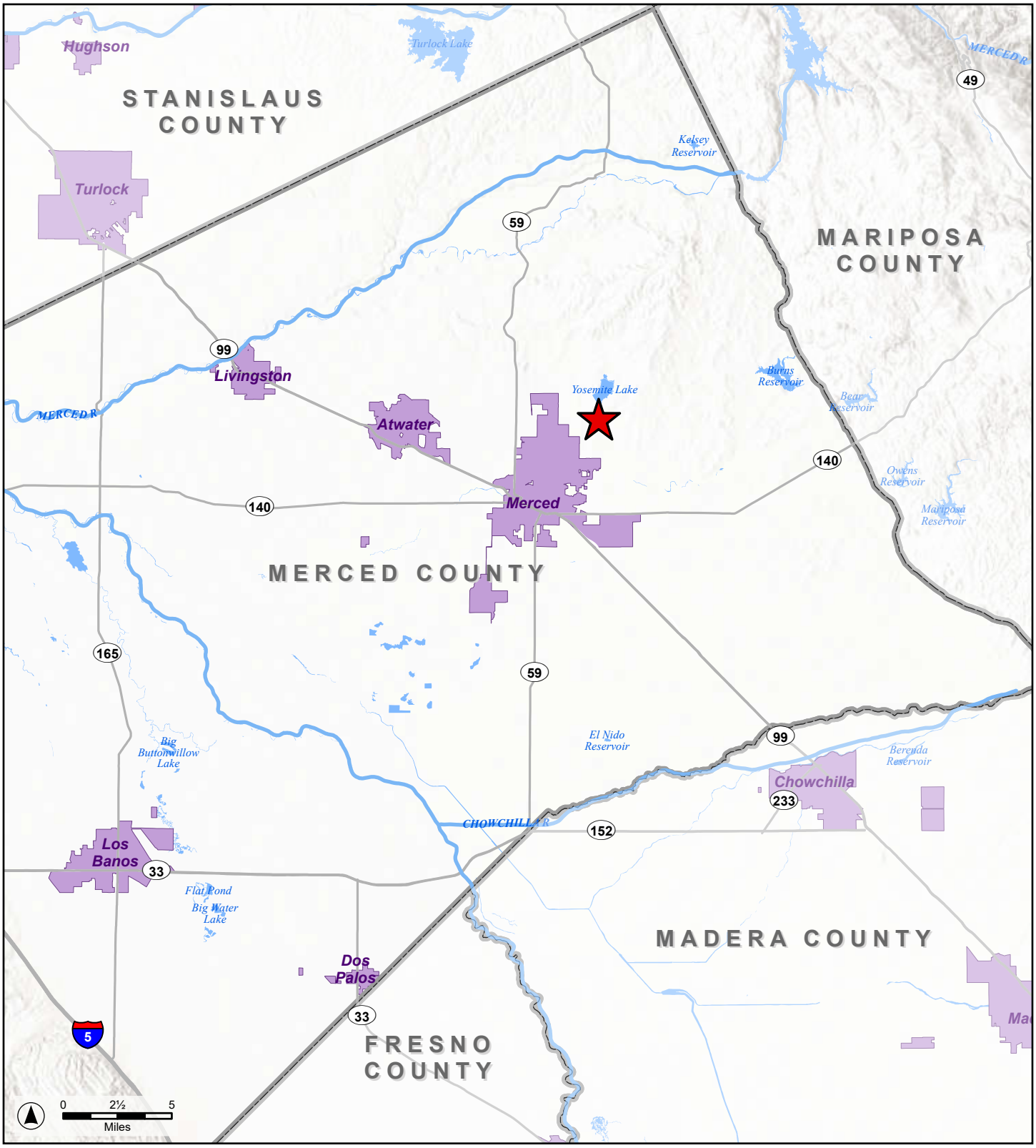
IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
SECTION 3.13—POPULATION, EMPLOYMENT, AND HOUSING			
Impact 3.13-1: Implementation of the proposed Project would not induce substantial population growth in the area either directly or indirectly.	Less than Significant	None required.	Less than Significant
Impact 3.13-2: Implementation of the proposed Project would not displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere.	Less than Significant	None required.	Less than Significant
Impact 3.13-3: Implementation of the proposed Project, in combination with other cumulative development, would not induce significant population growth in the area, either directly or indirectly.	Less than Significant	None required.	Less than Significant
Impact 3.13-4: Implementation of the proposed Project, in combination with other cumulative development, would not displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere.	Less than Significant	None required.	Less than Significant
SECTION 3.14—PUBLIC SERVICES AND RECREATION			
Impact 3.14-1: Implementation of the Project would not 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.	Less than Significant	None required.	Less than Significant
Impact 3.14-2: Implementation of the Project would not result in a substantial 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.	Less than Significant	None required.	Less than Significant
Impact 3.14-3: Implementation of the Project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Less than Significant	None required.	Less than Significant
Impact 3.14-4: Implementation of the Project, in combination with cumulative development, would not result in substantial adverse physical	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
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, or other public facilities.			
SECTION 3.15—TRANSPORTATION			
Impact 3.15-1: Implementation of the proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	Less than Significant	None required.	Less than Significant
Impact 3.15-2: Implementation of the proposed Project would not be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding Vehicle Miles Traveled (VMT).	Less than Significant	None required.	Less than Significant
Impact 3.15-3: Implementation of the proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses.	Less than Significant	None required.	Less than Significant
Impact 3.15-4: Implementation of the proposed Project would not result in inadequate emergency access.	Less than Significant	None required.	Less than Significant
Impact 3.15-5: Implementation of the proposed Project, in combination with other cumulative development, would not be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding Vehicle Miles Traveled (VMT).	Less than Significant	None required.	Less than Significant
SECTION 3.16—TRIBAL CULTURAL RESOURCES			
Impact 3.16-1: The proposed Project could result in a substantial adverse change in the significance of a TCR listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(K), or by the lead agency pursuant to criteria set forth in PRC Section 5024.1(c).	Potentially Significant	**Mitigation Measure 3.16-1(a):** Unanticipated Discovery of TCRs. If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 100 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American tribe shall be immediately contacted and invited to assess the significance of the find, make recommendations for further evaluation and treatment, and may be	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
		requested to provide additional worker training to recognize sensitive cultural resources, as necessary. If deemed necessary by the City of Merced, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that tribal values are considered. Work at the discovery location cannot resume until the City of Merced, in consultation, as appropriate, and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated. **Mitigation Measure 3.16-1(b):** Implement Mitigation Measure 3.5-3.	
Impact 3.16-2: The proposed Project, in combination with cumulative development, could result in a substantial adverse change in the significance of a TCR listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(K), or by the lead agency pursuant to criteria set forth in PRC Section 5024.1(c).	Potentially Significant	**Mitigation Measure 3.16-2:** Implement Mitigation Measure 3.16-1(a) and (b).	Less than Significant
SECTION 3.17—UTILITIES AND SERVICE SYSTEMS			
Impact 3.17-1: The proposed Project would not result in a determination by the wastewater treatment and/or collection provider which serves the project that the provider does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	Less than Significant	None required.	Less than Significant
Impact 3.17-2: The proposed Project would not result in the construction of new wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Impact 3.17-3: The proposed Project, in combination with other cumulative development, would not exceed the provider's capacity to serve future projected demand in addition to the provider's existing commitments.	Less than Significant	None required.	Less than Significant
Impact 3.17-4: The proposed Project would not require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	None required.	Less than Significant
Impact 3.17-5: The proposed Project has sufficient water supplies available to serve the Project from existing entitlements and resources.	Less than Significant	None required.	Less than Significant
Impact 3.17-6: The proposed Project, in combination with cumulative development, would not require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, or have inadequate water supply.	Less than Significant	None required.	Less than Significant
Impact 3.17-7: The proposed Project would not have the potential to require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	None required.	Less than Significant
Impact 3.17-8: The proposed Project, in combination with other cumulative development, would not have the potential to require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	None required.	Less than Significant
Impact 3.17-9: The landfills that would serve the proposed Project have sufficient permitted capacity to accommodate the Project's solid waste disposal needs, and the proposed Project will comply with federal, State, and local statutes and regulations related to solid waste.	Less than Significant	None required.	Less than Significant
Impact 3.17-10: The landfills that would serve the proposed Project, in combination with other cumulative development, have sufficient permitted capacity to accommodate the Project's and cumulative developments' solid waste disposal needs, and will comply with federal, State, and local statutes and regulations related to solid waste.	Less than Significant	None required.	Less than Significant

IMPACTS	*LEVEL OF SIGNIFICANCE BEFORE MITIGATION*	*MITIGATION MEASURES*	*LEVEL OF SIGNIFICANCE AFTER MITIGATION*
Section 3.18—Wildfire			
Impact 3.18-1: Development of the proposed Project would not result in the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less than Significant	None required.	Less than Significant
Impact 3.18-2: Development of the proposed Project in or near State responsibility areas or lands classified as very high fire hazard severity zones would not substantially impair an adopted emergency response plan or emergency evacuation plan.	Less than Significant	None required.	Less than Significant
Impact 3.18-3: Development of the proposed Project in areas located in or near State responsibility areas or lands classified as very high fire hazard severity zones would not 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 wildfire, due to slope, prevailing winds, and other factors.	Less than Significant	None required.	Less than Significant
Impact 3.18-4: Development of the proposed Project in areas located in or near State responsibility areas or lands classified as very high fire hazard severity zones would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) and would not substantially exacerbate fire risk or result in significant temporary or ongoing impacts to the environment.	Less than Significant	None required.	Less than Significant
Impact 3.18-5 Development of the proposed Project in areas located in or near State responsibility areas or lands classified as very high fire hazard severity zones would not substantially 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.	Less than Significant	None required.	Less than Significant
Impact 3.18-6 Development of the proposed Project, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to wildfire.	Less than Significant	None required.	Less than Significant



Legend

- Project Location
- Incorporated Area
- County Boundary

UC VILLAGES

ES-1. Regional Location

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; ArcGIS Online hillshade service. Map date: July 10, 2024.

Legend

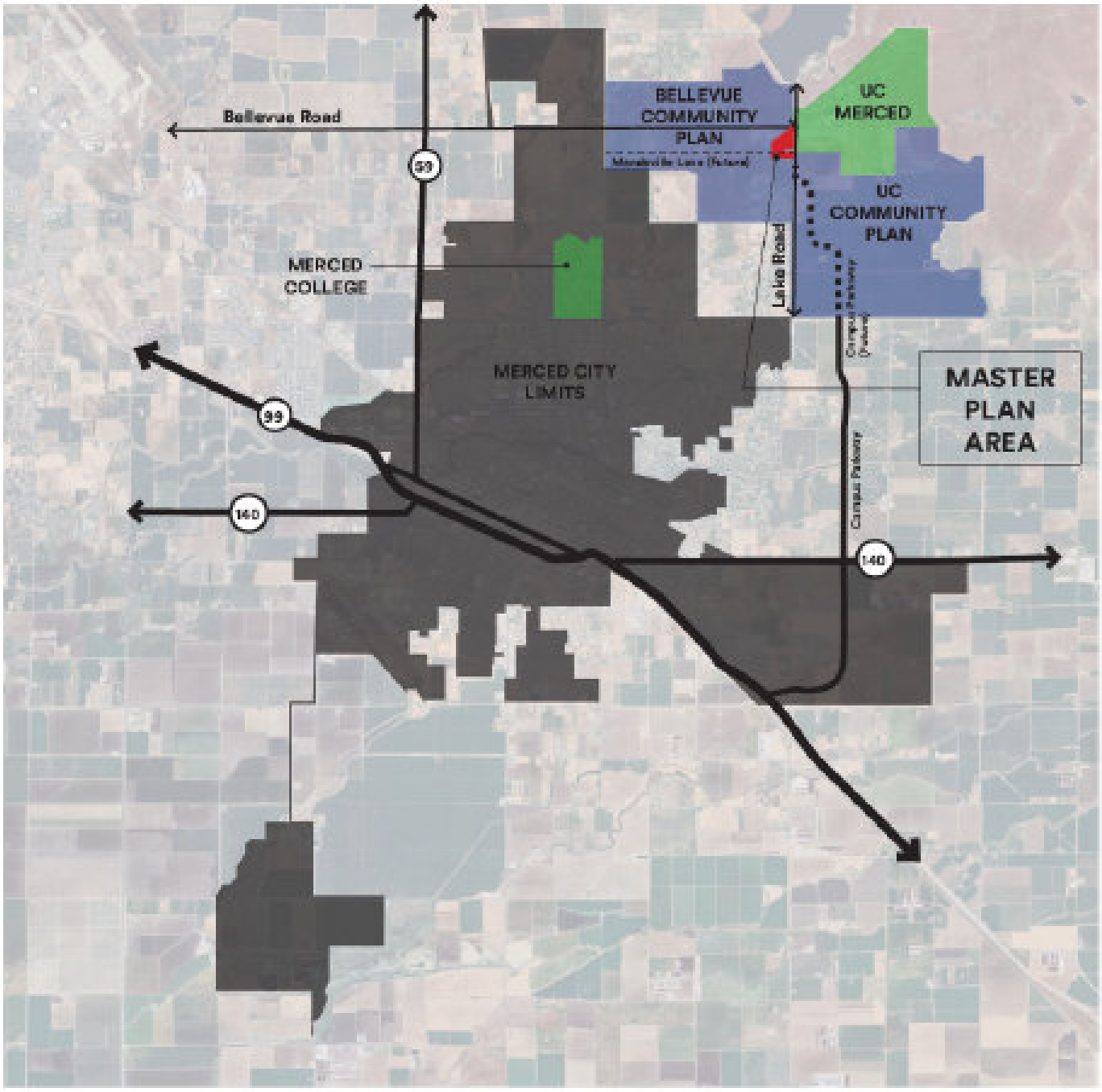
Project Boundary

City of Merced

UC VILLAGES

ES-2. Proposed Project Site

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date: July 10, 2024.



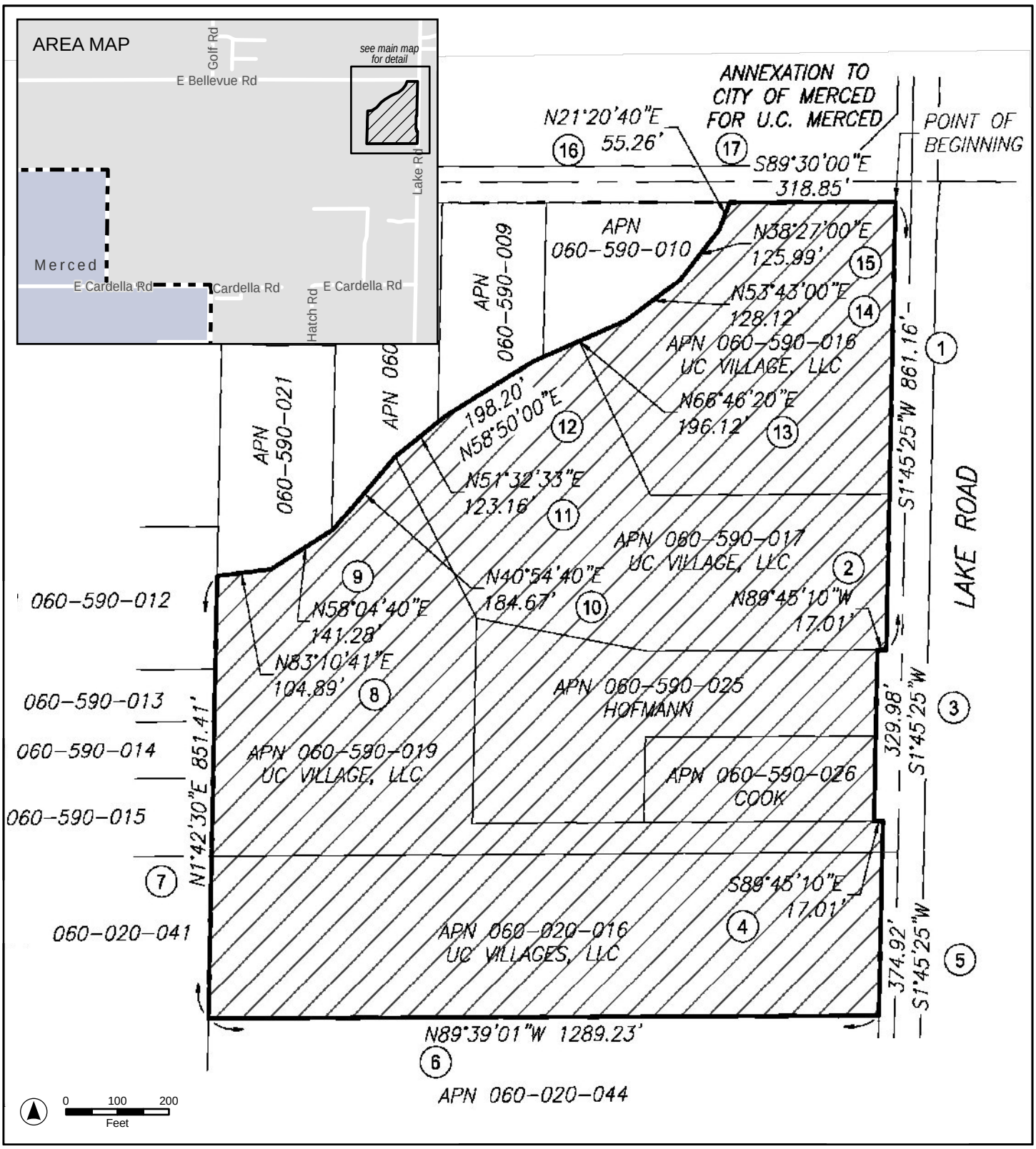
Legend

- Community Plan
- College/University
- Merced City Limits
- Master Plan Area
- Project Boundary

UC VILLAGES

ES-3. Community Plan Areas

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



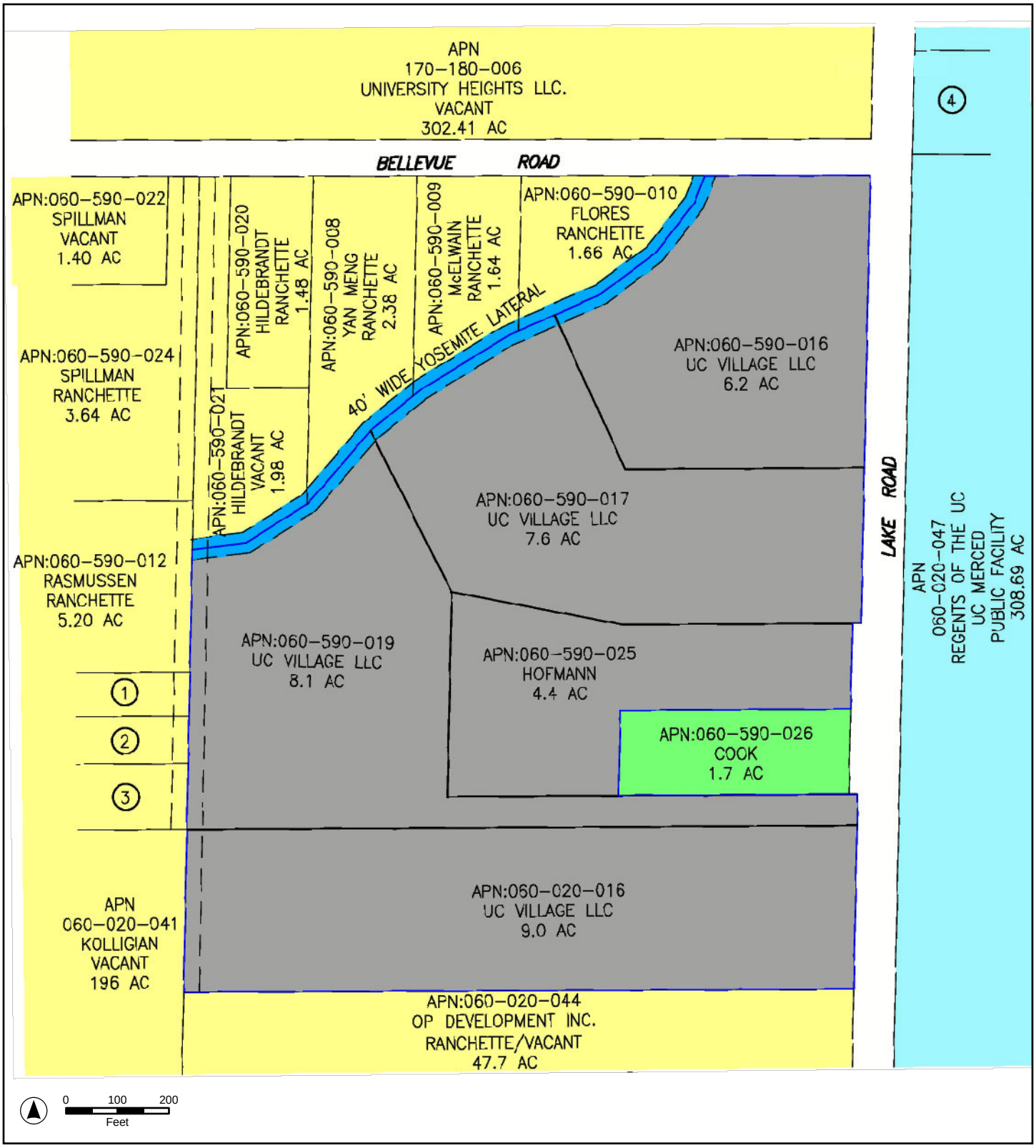
Legend

- Existing Property Line
- Annexation Boundary
- X Course Number
- Area to be Annexed to City of Merced
- City of Merced

UC VILLAGES

ES-4. Proposed Annexation

Sources: Benchmark Engineering, Inc., 11/3/2023; California State Geoportal; USGS Transportation; Merced County GIS. Map date: September 30, 2024.



Legend

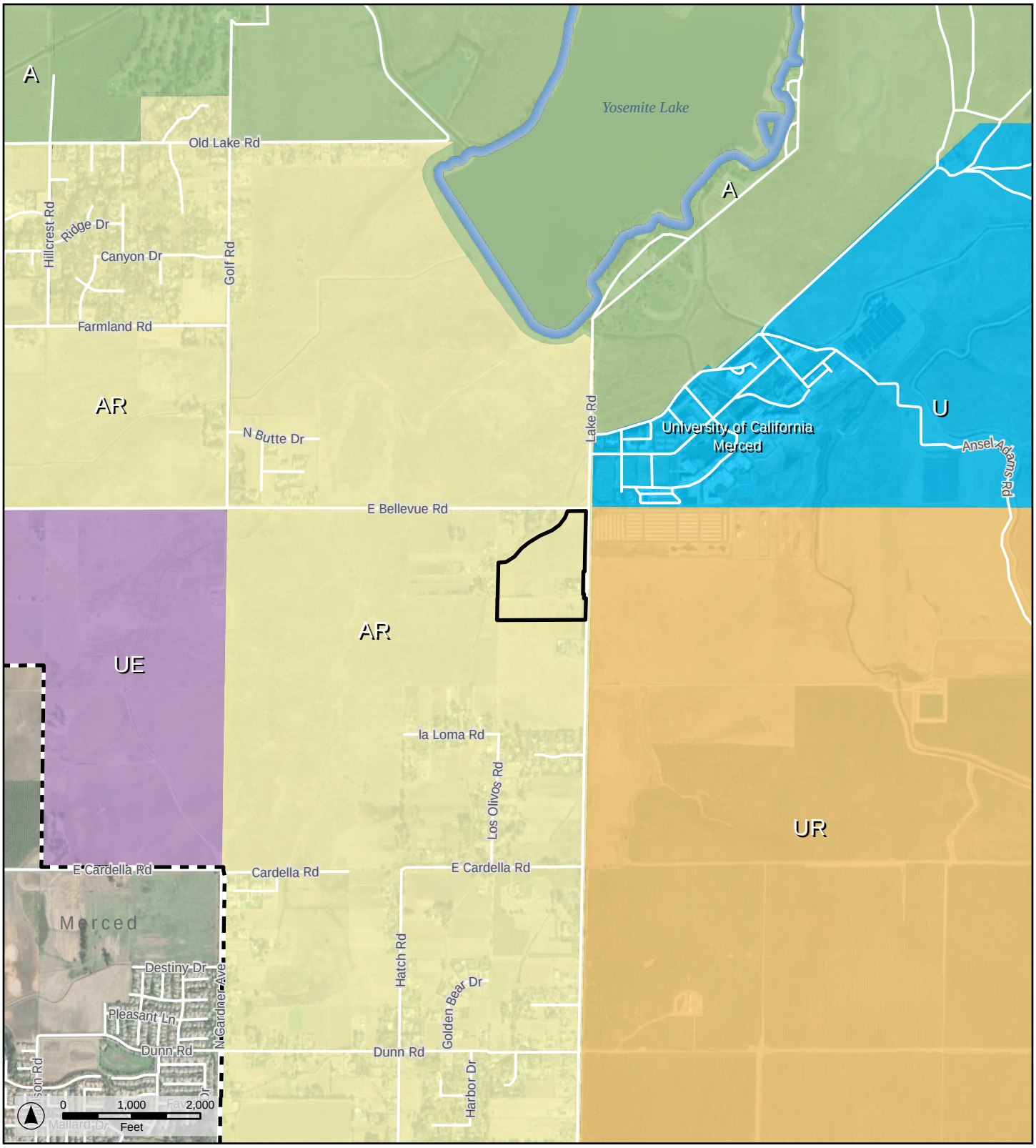
- Planned Development (P-D)
- Urban Transition (U-T)
- Public Facility (P-F)
- Agricultural Residential (Merced County Zoning)

1. APN:060-590-013 CARTER RANCHETTE 4.60 AC
2. APN:060-590-014 MORENO RANCHETTE 4.60 AC
3. APN:060-590-015 McCURDY RANCHETTE 4.90 AC
4. APN:170-220-007 REGENTS OF THE UC UC MERCED 267.00 AC

UC VILLAGES

ES-5. Pre-Zoning

Sources: Benchmark Engineering, Inc., 11/3/2023. Map date: September 30, 2024.



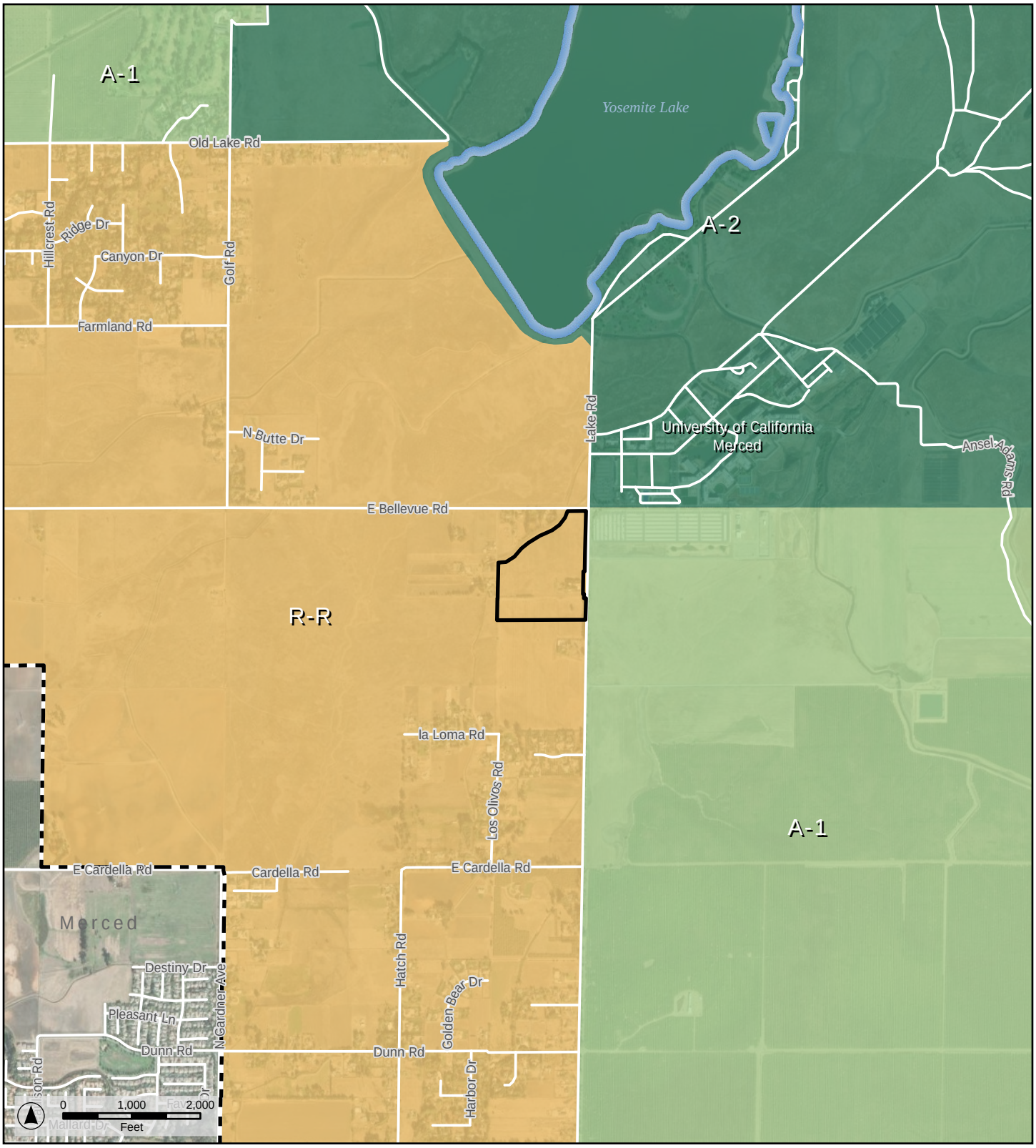
Legend

- Project Boundary
- City of Merced
- A: Agricultural
- AR: Agricultural-Residential
- U: University
- UE: Urban Expansion Area
- UR: Urban Reserve

UC VILLAGES

ES-6. Merced County Land Use Designations

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date: September 30, 2024.



Legend

- Project Boundary
- City of Merced
- A-1: General Agriculture
- A-2: Exclusive Agriculture
- R-R: Rural Residential

UC VILLAGES

ES-7. Merced County Zoning

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date: September 30, 2024.

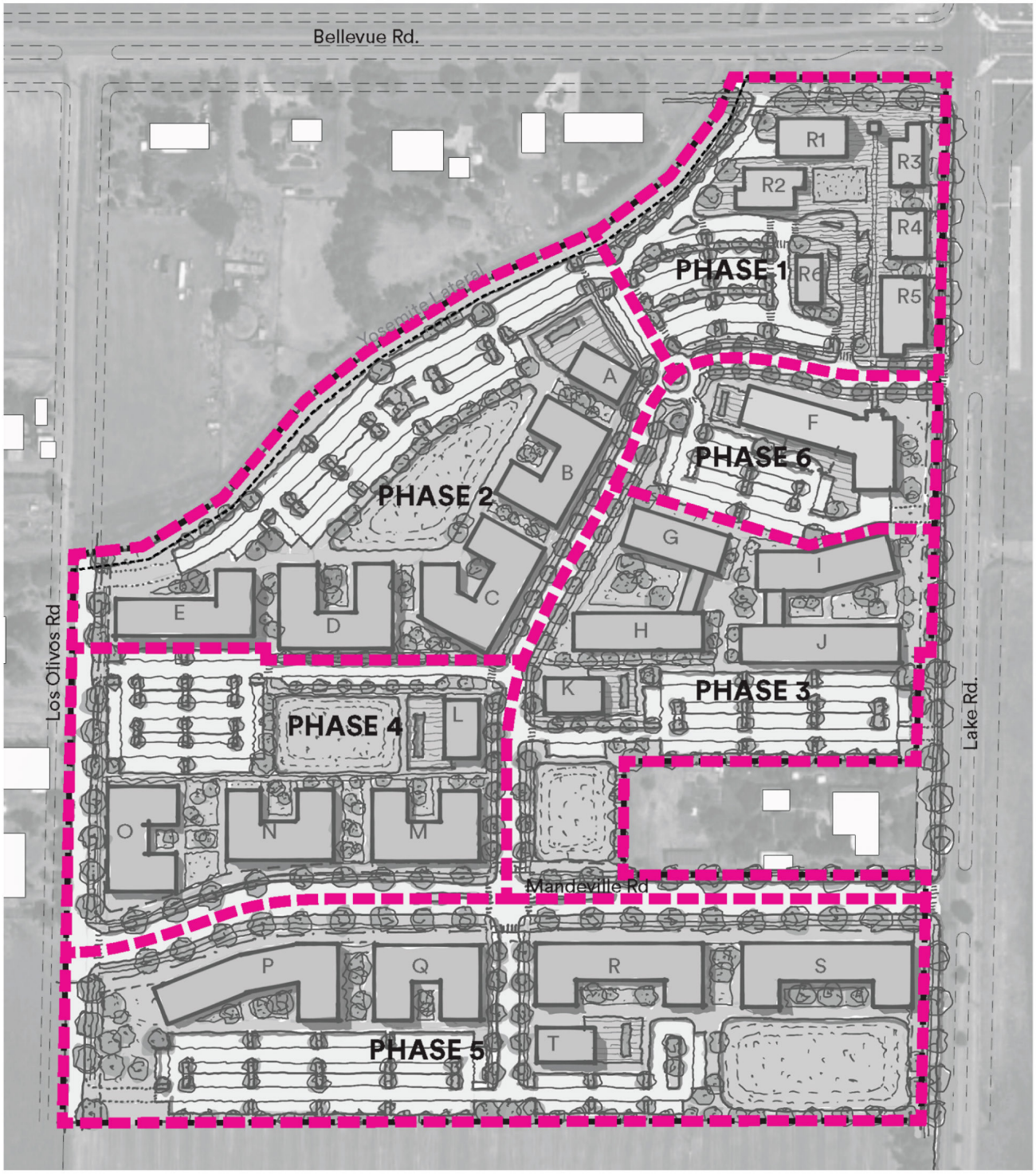
Legend

- Residential
- Hotel/Commercial
- Retail/Commercial
- Amenity
- Parking

UC VILLAGES

ES-8. Conceptual Site Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: July 10, 2024.



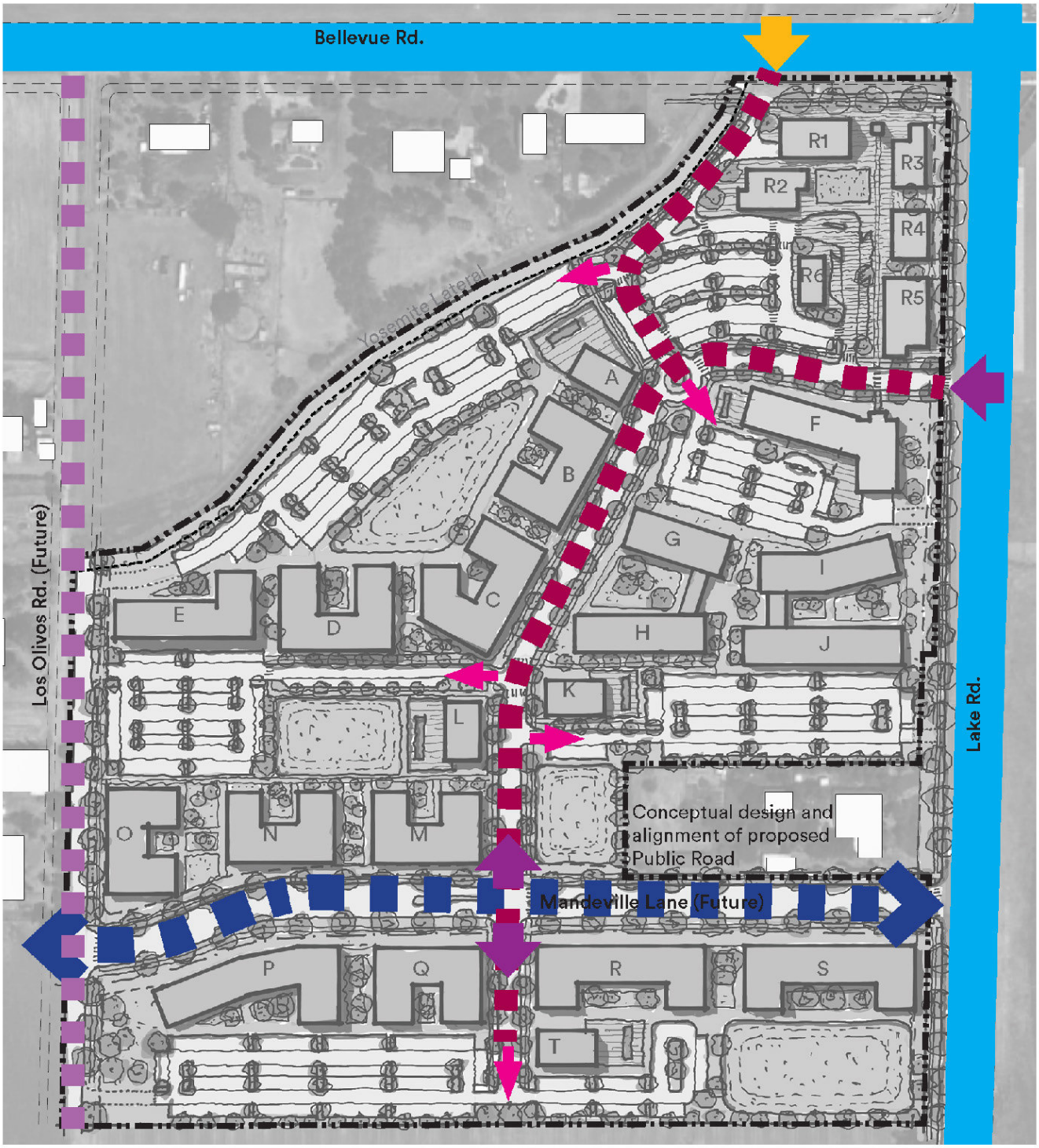
Legend

Phase Boundary

UC VILLAGES

ES-9. Conceptual Phasing Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



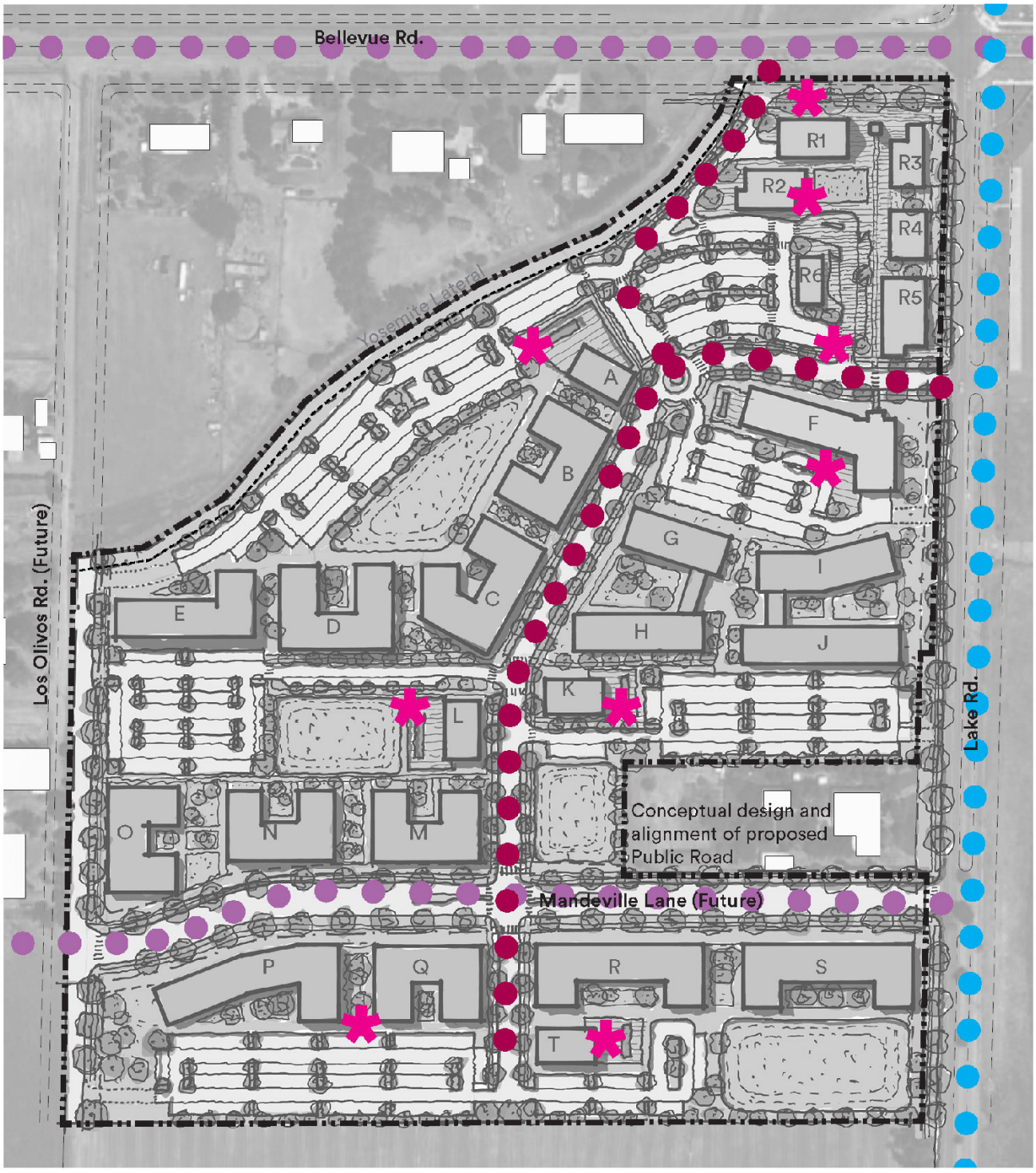
Legend

- Divided Arterial
- Proposed Public Arterial Road
- Proposed Local Road
- Proposed Onsite Road
- Access
- Right-In-Right-Out Access
- Phase Access

UC VILLAGES

ES-10. Conceptual Circulation Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



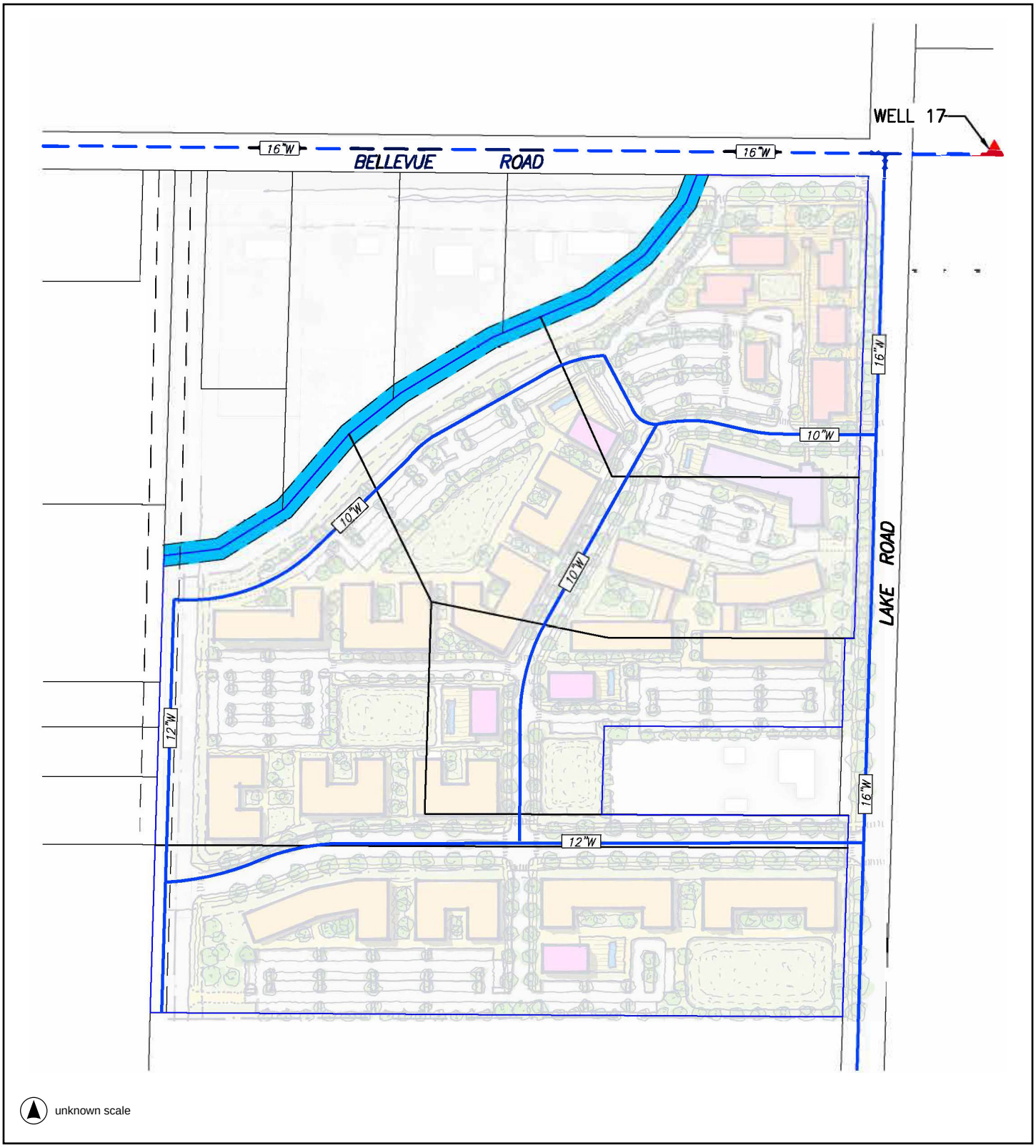
Legend

- Proposed Class I
- Existing Class I Relocation (Road Widening)
- Proposed Class II
- Proposed Bike Rack Location

UC VILLAGES

ES-11. Conceptual Bikeway Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



Legend

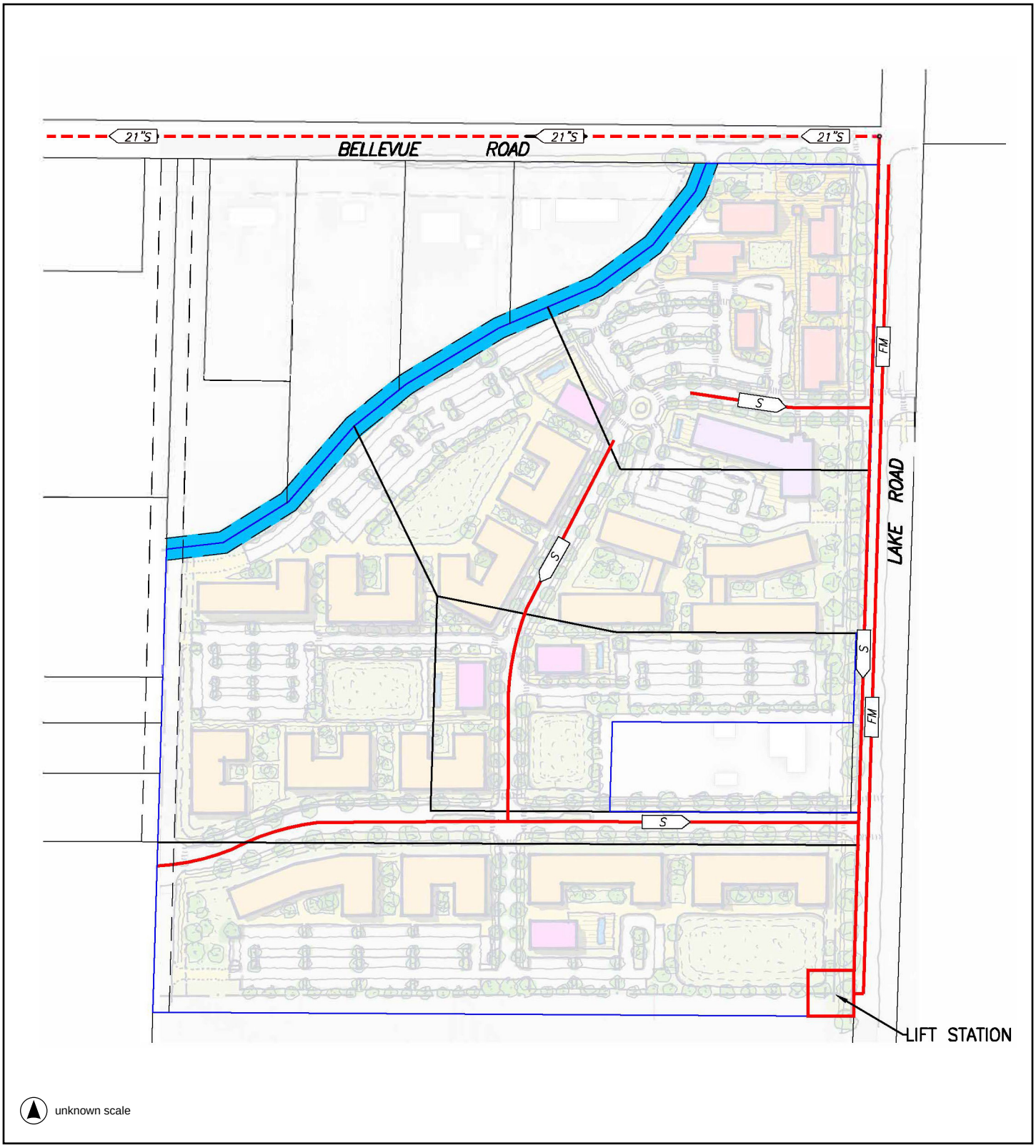
Existing Water

Proposed Water

UC VILLAGES

ES-12. Existing and Proposed Water Facilities

Sources: Benchmark Engineering, Inc., 11/10/23. Map date: September 30, 2024.



Legend

Existing Sewer

Proposed Sewer

UC VILLAGES

ES-13. Existing and Proposed Sewer Facilities

Sources: Benchmark Engineering, Inc., 11/10/23. Map date: September 30, 2024.

unknown scale

Legend

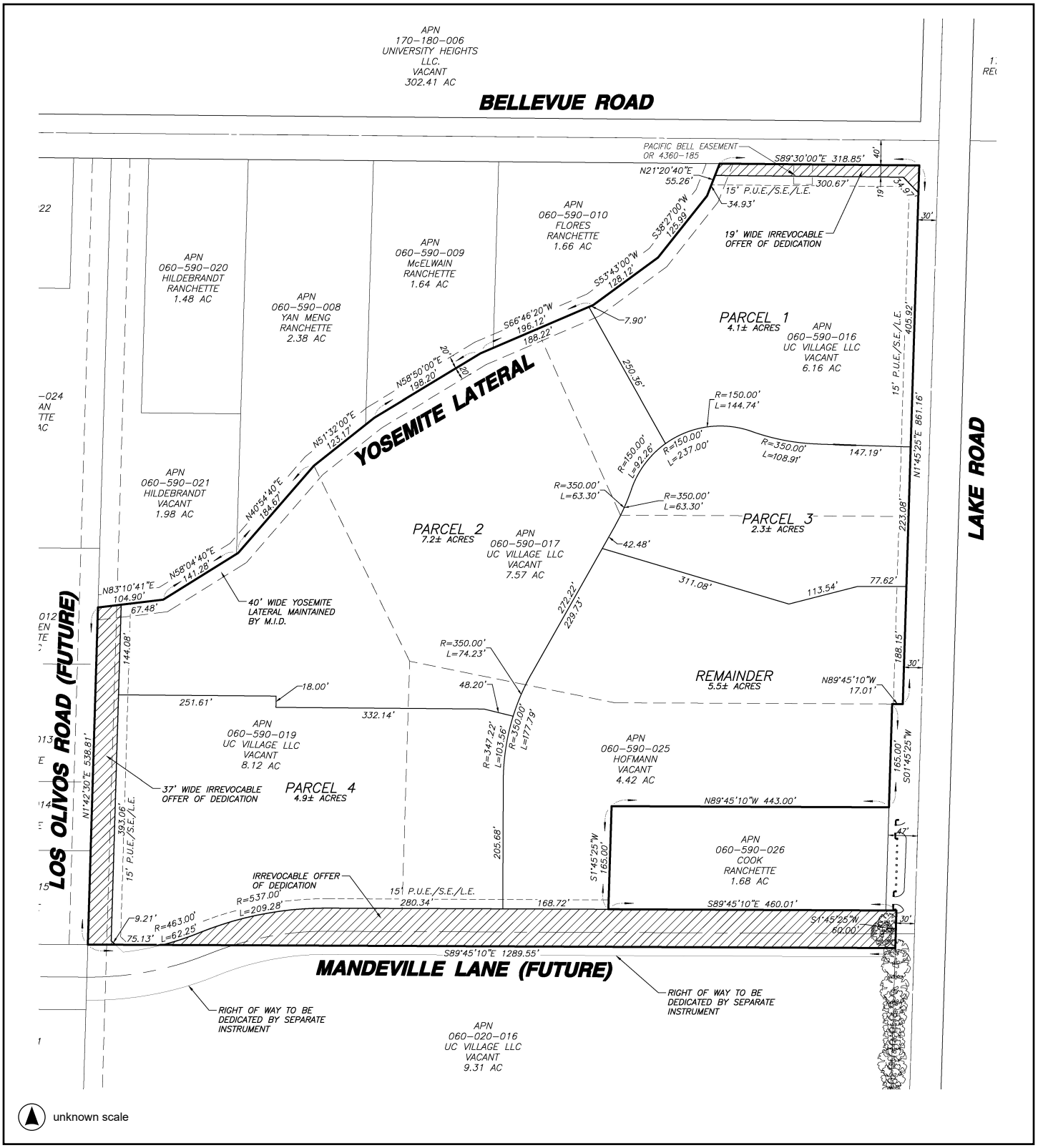
1 Potential Storm Treatment

2 Detention Basin

UC VILLAGES

ES-14. Proposed Storm Drainage Facilities

Map date: September 30, 2024.



UC VILLAGES

ES-15. Vesting Tentative Parcel Map

Sources: Benchmark Engineering, 11/28/2023. Map date: July 10, 2024.

1.1 PURPOSE AND INTENDED USES OF THE ENVIRONMENTAL IMPACT REPORT (EIR)

An EIR must disclose the expected environmental impacts, including impacts that cannot be avoided, growth-inducing effects, impacts found not to be significant, and significant cumulative impacts, as well as identify mitigation measures and alternatives to the proposed Project that could reduce or avoid its significant adverse environmental impacts. CEQA requires government agencies to consider and, where feasible, minimize environmental impacts of proposed development.

The City of Merced, as the lead agency, has prepared this Draft EIR to provide the decisionmakers, the public and the responsible and trustee agencies with an objective analysis of the potential environmental impacts resulting from implementation of the proposed Project. The environmental review process enables interested parties to evaluate the proposed Project in terms of its environmental consequences, to examine and recommend methods to eliminate or reduce potentially significant adverse impacts, and to consider a reasonable range of alternatives to the proposed Project. This EIR is an informational document only and does not by itself approve or deny a project. The EIR will be used as the primary environmental document to evaluate full development, all associated infrastructure improvements, and permitting actions associated with the proposed Project. The decision to certify the EIR is based on compliance with the requirements specified in CEQA Guidelines Section 15090, as determined by the City of Merced. The decision to approve or deny the Project is a separate action from certifying the EIR, and the EIR will be used by the City of Merced to determine whether to approve, modify, or deny the proposed Project and associated approvals in light of the Project's environmental effects. All of the actions and components of the proposed Project are described in detail in Chapter 2.0, Project Description.

1.2 TYPE OF EIR

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a Project-level EIR, described in CEQA Guidelines Section 15161 as: "The most common type of EIR (which) examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation." The Project-level analysis considers the broad environmental effects of the proposed Project.

1.3 KNOWN RESPONSIBLE AND TRUSTEE AGENCIES

The term "Responsible Agency" includes all public agencies other than the Lead Agency that have discretionary approval power over the proposed Project or an aspect of the proposed Project (CEQA Guidelines Section 15381). For the purpose of CEQA, a "Trustee" agency has jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California (CEQA Guidelines Section 15386).

The following agencies are considered "Responsible Agencies" or "Trustee Agencies" for the proposed Project, and may be required to issue permits or approve certain aspects of the proposed Project:

- Central Valley Regional Water Quality Control Board
- Merced County Local Agency Formation Commission (LAFCo)
- Merced Irrigation District (MID)
- San Joaquin Valley Air Pollution Control District (SJVAPCD)
- U.S. Army Corps of Engineers

1.4 ENVIRONMENTAL REVIEW PROCESS

The review and certification process for the EIR has involved, or will involve, the following general procedural steps:

NOTICE OF PREPARATION AND INITIAL STUDY

The City of Merced circulated a Notice of Preparation (NOP) of an EIR for the proposed Project on March 29, 2024 to the State Clearinghouse, State Responsible Agencies, State Trustee Agencies, Other Public Agencies, Organizations and Interested Persons. A public scoping meeting was held on April 9, 2024 to present the project description to the public and interested agencies, and to receive comments from the public and interested agencies regarding the scope of the environmental analysis to be included in the Draft EIR. The 30-day NOP public comment period concluded on April 29, 2024. Concerns raised in response to the NOP were considered during preparation of the Draft EIR. The NOP and comments received on the NOP by interested parties are presented in Appendix A.

DRAFT EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the proposed Project, description of the environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives, identification of significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. This Draft EIR identifies issues determined to have no impact or a less than significant impact, and provides detailed analysis of potentially significant and significant impacts. Comments received in response to the NOP were considered in preparing the analysis in this EIR. Upon completion of the Draft EIR, the City of Merced will file the Notice of Completion (NOC) with the State Clearinghouse of the Governor's Office of Planning and Research to begin the public review period. Additionally, the City of Merced will file the Notice of Availability with the County Clerk and have it published in a newspaper of regional circulation to begin the local public review period.

PUBLIC NOTICE/PUBLIC REVIEW

The City of Merced will provide a public notice of availability for the Draft EIR, and invite comment from the general public, agencies, organizations, and other interested parties. Consistent with CEQA, the review period for this Draft EIR is forty-five (45) days from the date of Draft EIR publication. Public comment on the Draft EIR will be accepted in written form only. All comments or questions regarding the Draft EIR should be addressed to:

City of Merced Planning Division
678 West 18th Street, Merced, CA 95340
Phone: (209) 385-6858

Attn: Diana Lowrance, Deputy Director of Development Services
Email: lowranced@cityofmerced.org
or
Attn: Jonnie Lan, Principal Planner
Email: lanj@cityofmerced.org

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period of the Draft EIR, a Final EIR will be prepared. The Final EIR will respond to written comments received during the public review period and to oral comments received at any public hearing that may be held during such review period.

CERTIFICATION OF THE EIR/PROJECT CONSIDERATION

The City of Merced will review and consider the Final EIR. If the City of Merced finds that the Final EIR is "adequate and complete," the City of Merced will certify the Final EIR in accordance with CEQA. The rule of adequacy generally holds that an EIR can be certified if:

1) The EIR shows a good faith effort at full disclosure of environmental information; and

2) The EIR provides sufficient analysis to allow decisions to be made regarding the proposed project in contemplation of environmental considerations.

Following review and consideration of the Final EIR, the City of Merced may take action to approve, modify, or reject the proposed Project. A Mitigation Monitoring and Reporting Program, as described below, would also be adopted in accordance with Public Resources Code Section 21081.6(a) and CEQA Guidelines Section 15097 for mitigation measures that have been incorporated into or imposed upon the proposed Project to reduce or avoid significant effects on the environment. This Mitigation Monitoring and Reporting Program will be designed to ensure that these measures are carried out during project implementation, in a manner that is consistent with the EIR. Further, the City of Merced must prepare a Findings of Fact to summarize the environmental effects of the proposed Project. If significant and unavoidable impacts are identified in the EIR, the City must also prepare a Statement of Overriding Considerations which provides rationale for

overriding the significant environmental impacts in light of other identified benefits, such as social or economic reasons.

1.5 ORGANIZATION AND SCOPE

Sections 15122 through 15132 of the CEQA Guidelines identify the content requirements for Draft and Final EIRs. An EIR must include a description of the project and its environmental setting, an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. Discussion of the environmental issues addressed in the Draft EIR was established through review of environmental and planning documentation developed for the proposed Project, environmental and planning documentation prepared for recent projects located within the City of Merced, applicable local and regional planning documents, and responses to the Notice of Preparation (NOP).

This Draft EIR is organized in the following manner:

EXECUTIVE SUMMARY

The Executive Summary summarizes the characteristics of the proposed Project, known areas of controversy and issues to be resolved, and provides a concise summary matrix of the proposed Project's environmental impacts and possible mitigation measures. The Executive Summary also identifies the alternatives that reduce or avoid at least one significant environmental effect of the proposed Project.

CHAPTER 1.0 – INTRODUCTION

Chapter 1.0 briefly describes the purpose of the environmental evaluation, identifies the lead, trustee, and responsible agencies, summarizes the process associated with preparation and certification of an EIR, and identifies the scope and organization of the Draft EIR.

CHAPTER 2.0 – PROJECT DESCRIPTION

Chapter 2.0 provides a detailed description of the proposed Project, including the location, intended objectives, background information, the physical and technical characteristics, including the decisions subject to CEQA, related improvements, and a list of related agency action requirements.

CHAPTER 3.0 – ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Chapter 3.0 contains an analysis of environmental topic areas as identified below. Each subchapter addresses a topical area and is organized as follows:

Environmental Setting. A description of the existing environment as it pertains to the topical area.

Regulatory Setting. A description of the regulatory environment that may be applicable to the proposed Project.

Impacts and Mitigation Measures. Identification of the thresholds of significance by which impacts are determined, a description of project-related impacts associated with the environmental topic, identification of appropriate mitigation measures, and a conclusion as to the significance of each impact.

The following environmental topics are addressed in this section:

- Aesthetics and Visual Resources
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population, Employment, and Housing
- Public Services and Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

As discussed in Chapter 6.0, Effects Found Not To Be Significant, impacts related to Forestry Resources and Mineral Resources were determined to be less than significant.

CHAPTER 4.0 – OTHER CEQA-REQUIRED TOPICS

Chapter 4.0 evaluates and describes the following CEQA required topics: impacts considered less-than-significant, significant and irreversible impacts, growth-inducing effects, cumulative, and significant and unavoidable environmental effects.

CHAPTER 5.0 – ALTERNATIVES TO THE PROJECT

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the proposed Project, which could feasibly attain the basic objectives of the proposed Project and avoid and/or lessen any significant environmental effects of the proposed Project. Chapter 5.0 provides a comparative analysis between the environmental impacts of the proposed Project and the selected alternatives.

CHAPTER 6.0 – EFFECTS FOUND NOT TO BE SIGNIFICANT

This section presents information about the proposed Project's impact on specific environmental topic areas that were determined to have no impact. During this evaluation, certain impacts of the Project were found to have no impact or be less than significant due to the inability of the Project to create such impacts or the absence of Project characteristics producing effects of this type.

CHAPTER 7.0 – REPORT PREPARERS

This section lists all authors and agencies that assisted in the preparation of the EIR, by name, title, and company or agency affiliation.

APPENDICES

This section includes all notices and other procedural documents pertinent to the EIR, as well as technical material prepared to support the analysis.

1.6 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

The City of Merced received four written comment letters on the NOP for the proposed Project from the agencies listed below. Copies of those NOP comment letters are provided in Appendix A of this Draft EIR. The commenting agency/citizen is provided below. The City also held a public scoping meeting on April 9, 2024. No written or verbal comments were provided at that scoping meeting.

- California Department of Fish and Wildlife (CDFW)
- Merced Irrigation District (MID)
- Native American Heritage Commission (NAHC)
- San Joaquin Valley Air Pollution Control District (SJVAPCD)

1.7 POTENTIAL AREAS OF CONCERN

Aspects of the proposed Project that could be of public concern include the following:

- Potential impacts on biological species and habitat;
- Increased demand for public services;
- Potential localized traffic impacts; and
- Potential land use conflicts between existing offsite agricultural operations and residential uses proposed by the Project.

This chapter presents information regarding the components and characteristics of the proposed Project and the discretionary approvals anticipated to implement the Project. A concise outline of the Project's elements is provided in the Executive Summary. The Project analyzed in this draft environmental impact report (Draft EIR) is the proposed UC Villages Project. This Project description identifies all of the following:

- The location of the proposed UC Villages Project.
- Land uses proposed by the UC Villages Project.
- The scenario analyzed in this Draft EIR based on the allowed land uses.
- The off-site infrastructure required to support the proposed Project.
- Other components of Project implementation that are covered by this Draft EIR.
- The discretionary approvals required for implementation of the proposed Project.

2.1. PROJECT LOCATION

The City of Merced is located in the Central Valley region of Northern California, along the Highway 99 freeway corridor in Merced County, with the cities of Atwater located approximately nine miles to the north and Chowchilla located approximately 20 miles to the south, as shown on **Figure 2-1**.

The UC Villages project site is located in unincorporated Merced County, to the northeast of the City of Merced's city limits. The site is at the southwestern corner of the Bellevue Road and Lake Road intersection, as shown on **Figure 2-2**. The project site is bounded by existing Bellevue Road, ranchette parcels, vacant land, the Merced Irrigation District (MID) Yosemite Lateral and the future University Vista Project to the north; Lake Road and the University of California, Merced (UC Merced) parking lot (Bellevue Lot) to the east; open vacant land parcels designated Mixed Use and Low Density to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west.

The annexation area is approximately 37.2 acres and is comprised of APNs 060-590-016, -017, -019, -025, -026, and 060-020-016. These six parcels would be annexed to the City of Merced. Development of the UC Villages urban uses would occur only on five of those parcels (excludes APN 060-590-026) and comprises approximately 35.5 acres (Project site). The annexation area, including the Project site, is within the Bellevue Community Plan area, as shown on **Figure 2-3**.

2.2. PROJECT OBJECTIVES

California Environmental Quality Act (CEQA) Guidelines Section 15124(b) requires that an EIR project description include a statement of the objectives intended to be achieved by the Project. The objectives describe the purpose of the Project and are intended to assist the lead agency in developing a reasonable range of alternatives for consideration in the EIR, and to assist the decision makers in assessing the feasibility of mitigation measures and alternatives. The objectives of UC Villages Project are:

1. Provide a mix of residential and commercial land uses that can be implemented in financially-feasible phases that will support the projected growth of the UC Merced campus and surrounding community;

2. Provide a mixed-use master planned community, including apartments, retail, and a hotel, with community amenities that will attract and serve students, UC employees, campus visitors, and the general public;
3. Provide quality student and/or multi-family housing units and on-site recreational amenities (such as fitness centers, work/study areas, and areas for recreational activities) that will appeal to residents;
4. Create a cohesive, easily comprehensible circulation system that supports project phasing and on- and off-site circulation, and to the extent feasible, aligns with UC Merced's existing and planned circulation facilities;
5. Take advantage of the proximity to UC Merced and existing transit to promote alternative modes of transportation (e.g., bicycles, pedestrian, scooters, etc.) which allow for a reduced number of off-street parking for the Master Plan;
6. Create clearly defined routes for bicycle and pedestrian networks to improve on- and off-site safety and connectivity to UC Merced;
7. Provide a gateway to the UC Merced campus on the corner of Bellevue Road and Campus Parkway; and
8. Accommodate the planned improvements to Campus Parkway Segment 4, Bellevue Road, Mandeville Road and the signalized intersection of Bellevue Road and Campus Parkway (Lake Road), consistent with the City of Merced General Plan.

2.3. PROJECT DESCRIPTION

BACKGROUND

Assembly Bill 3312 (AB 3312) allows the City to annex the main UC Merced campus through a "road strip" (Bellevue Road) and places certain restrictions on future annexations along the "road strip." Following annexation of the UC Merced campus (which was approved by the Merced County Local Agency Formation Commission in July, 2024), other properties either along Bellevue Road or adjacent to UC Merced would be eligible for annexation, including the UC Villages project site. The proposed Annexation includes approximately 37.2 acres of land and includes logical boundaries, contiguous with the UC Merced campus annexation area, as shown on **Figure 2-4**.

On July 26, 2021, the City of Merced City Council approved an Annexation Pre-Application Process to allow for early input from the City Council into individual annexation projects pursuant to AB 3312. In 2022, the Project Applicant, UC Villages LLC, submitted an Annexation Preapplication. On August 15, 2022, the Merced City Council voted unanimously to offer "general support" for the project moving forward with an official annexation and development application.

PROPOSED PROJECT

The UC Villages Planned Development Master Plan (UC Villages or proposed project) proposes an approximately 35-acre development of mixed-use commercial and housing located across from the UC Merced campus. The proposed project would include up to 700 multi-family and/or student housing residential units with approximately 18,000 square feet (sf) of amenity buildings (recreational centers),

approximately 30,000 sf of commercial/retail, and an approximately 75,000-sf hotel with up to 200 guest rooms.

Land Uses and Pre-zoning

The project site is designated in the City of Merced's General Plan as "Community Plan," which has been established in the form of the Bellevue Community Plan. The Bellevue Community Plan designates the project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office.

Although the project site has not been zoned by the City of Merced, it is proposed to be pre-zoned Planned Development (P-D), as shown in **Figure 2-5**. P-D zoning allows for a variety of development types that carry out the objectives of the General Plan. Chapter 20.20.020 of the City's Municipal Code provides the framework for development within the P-D zone. Pre-zoning in the Planned Development zoning district would establish project specific development standards, architectural guidelines, phasing, permitted uses, signage standards, landscaping, and off-street parking standards consistent with the Merced Municipal Code (MMC), specifically Section 20.20.020, unless otherwise noted in the UC Villages Master Plan.

The project site is designated in the Merced County General Plan as "Merced Rural Residential Center" No. 1 Rural-Residential (R-R) (see **Figure 2-6)** and zoned in the County as Rural Residential/Single Family Residential (see **Figure 2-7**). If approved and annexed, however, the proposed project would be governed by the City of Merced General Plan, P-D Zoning and Pre-Annexation Development Agreement (described below), and not the County's R-R designation or zoning. The Merced County Local Area Formation Commission's (LAFCo) decision would be based upon the proposed project's pre-zoning and not the County's land use regulations.

The UC Villages project is proposed to include the development of two types of land uses – Commercial and Residential – as shown on the Conceptual Site Plan (see **Figure 2-8**). The Commercial area is located in the northeast corner of the site and west of Lake Road. The vision for this area is to include approximately 105,000 sf of retail and commercial uses, including a potential 75,000-sf hotel with 200 guest rooms. Also included in this area is a landmark artistic feature, such as a water tower-style feature, at or near the northeast corner, showcasing a pedestrian-friendly entrance into the retail/commercial center that would be inviting to pedestrian and bicycle traffic from the UC Merced campus in particular. It is anticipated that the Commercial area would include neighborhood retail serving commercial, such as restaurants, retail stores, bank, personal services, a hotel and/or other commercial uses typically associated with a mixed-use retail/commercial center.

The Residential area is located west of Lake Road and southeast of the MID Yosemite Lateral and east of Los Olivos Road extension. The vision for this area is to take advantage of the project's close proximity to the UC Merced campus and develop high-quality off-campus housing. The housing component would be complemented with a social hub and recreational amenity spaces, potentially one associated with each phase, or shared by multiple phases. The recreational spaces may include a variety of amenities including, but not limited to, work/study areas, a fitness center, areas of recreational activities such as cornhole, bocce ball, pickleball, bike repair stations and a recreational pool.

Site Development and Phasing

The project site is anticipated to be a walkable neighborhood, with buildings oriented toward the street, as shown on Figure 2-8. The proposed project would develop a mix of uses over an anticipated six phases of development, with each phase expected to occur over 2-3 years and which may be developed in any order, depending on market conditions. **Figure 2-9** and **Table 2-1** identify the phases of development and the proposed land uses.

TABLE 2-1: UC VILLAGES CONCEPTUAL MASTER PLAN PROGRAM

PHASE/ BUILDING	*PROGRAM USE*	*AREA (GSF)*	*HOTEL KEYS*	*UNITS*	*PARKING RATIO[1]*	*PARKING REQUIRED*	*PARKING PROVIDED*
PHASE 1							
R1	Retail/Commercial	5,845			4/1,000 sf	23	
R2	Retail/Commercial	4,835			4/1,000 sf	19	
R3	Retail/Commercial	4,400			4/1,000 sf	18	
R4	Retail/Commercial	3,685			4/1,000 sf	15	
R5	Retail/Commercial	7,495			4/1,000 sf	30	
R6	Retail/Commercial	3,060			4/1,000 sf	12	
Totals		*29,320*				*117*	*120*
PHASE 2							
A	Amenity	4,000					
B	Residential	82,200		43	1 per unit	43	
C	Residential	112,600		59	1 per unit	59	
D	Residential	96,000		51	1 per unit	51	
E	Residential	76,150		40	1 per unit	40	
Totals		*370,950*		*193*		*193*	*195*
PHASE 3							
G	Residential	48,000		25	1 per unit	25	
H	Residential	60,000		32	1 per unit	32	
I	Residential	63,300		33	1 per unit	33	
J	Residential	73,000		38	1 per unit	38	
K	Amenity	4,250					
Totals		*248,550*		*128*		*128*	*138*
PHASE 4							
L	Amenity	4,250					
M	Residential	79,500		42	1 per unit	42	
N	Residential	79,500		42	1 per unit	42	
O	Residential	79,500		42	1 per unit	42	
Totals		*242,750*		*126*		*126*	*126*
PHASE 5							
P	Residential	102,375		54	1 per unit	54	
Q	Residential	86,000		45	1 per unit	45	
R	Residential	102,200		54	1 per unit	54	

PHASE/ BUILDING	PROGRAM USE	AREA (GSF)	HOTEL KEYS	UNITS	PARKING RATIO[1]	PARKING REQUIRED	PARKING PROVIDED
S	Residential	102,200		54	1 per unit	54	
T	Amenity	4,860					
Totals		*397,635*		*207*		*207*	*216*
PHASE 6							
F	Hotel Retail/Commercial	75,000	200		0.75 per key	150	
Totals		*75,000*	*200*			*150*	*150*
DEVELOPMENT TOTALS		**1,364,205**	**200**	**654**		**921**	**945**

1. PARKING RATIO FOR RESIDENTIAL PHASES BASED ON STUDENT HOUSING REQUIREMENTS.
SOURCE: UC VILLAGES, LLC 2023.

PHASE 0 – SITE ACTIVATION

"Phase 0" interim commercial/retail uses may be implemented to quickly bring people to the UC Villages site at the corner of Bellevue Road and Lake Road by offering informal food and beverage options, retail vendors, and/or community events. The focus would be to offer interim, temporary uses that support the long-term vision of UC Villages, build community, and create an immediate draw prior to the development of permanent site uses. Phase 0 interim uses may include, but shall not be limited to: pop-up retail, food and beverage trucks/vendors, artisan fairs, farmers markets, holiday or seasonal events, outdoor movie series, live music, and local community events.

PHASE 1 – COMMERCIAL

The Commercial area is located in the northeast corner of the Master Plan area and serves as the key entryway into the UC Villages project site from the UC Merced campus, located northeast of the project area. It is anticipated that approximately 30,000 sf of commercial/retail land uses would be developed as part of this phase. Each building may include multiple tenants and a variety of commercial/retail uses.

PHASES 2 THROUGH 5 – RESIDENTIAL

The Residential area is located west of Lake Road and east of the MID Yosemite Lateral and Los Olivos Road. The Residential area is comprised of five-story residential buildings including up to 700 units at full build-out, which would be built in phases based on market demand. The Residential area would support development of multi-family residential units and student housing, with the mix of residential units dependent on market demand. Student housing units are each anticipated to be, on average, approximately 1,500 sf and include four beds with a common area. The housing component may be complemented by an approximately 4,000-sf, on-site amenity building for each phase of residential development. The recreational space may include a variety of amenities including, but not limited to, work/study areas, a fitness center, areas of recreational activities such as cornhole, bocce ball, pickleball, bike repair stations, and/or a recreational pool.

PHASE 6 – COMMERCIAL

The Commercial area is located west of Lake Road and south of Phase 1. An approximately 75,000-sf hotel with up to 200 guest rooms is anticipated to be developed during this phase of development. The vision for the hotel is to provide temporary accommodations to the community at large as well as provide additional offsite conference space. Based on market demand, this area may be developed as Commercial/Retail or other allowed uses.

Transportation

The UC Villages Master Plan provides for internal circulation areas and points of access to surrounding roadways, such as Bellevue Road, Lake Road, Mandeville Lane, and Los Olivos Road, as shown in **Figure 2-10**.

Bellevue Road is a major east-west arterial that is currently within the County of Merced. However, as noted above, the UC Merced annexation included Bellevue Road as the "Road Strip" under AB 3312 into the City of Merced. According to the Bellevue Community Plan, Bellevue Road is classified as a Major Arterial with a right-of-way of 150 feet to 200 feet dependent on side access roads and would have signalized intersections at 1⁄4-mile intervals. Although the BCP indicates that Bellevue Road is planned for six (6) lanes with one- or two-way frontage roads, Bellevue Road would be built as a four (4) lane arterial with one- or two-way frontage roads based upon a current agreement between the Regents of the University of California and the City.

Lake Road is a north-south collector roadway within the County of Merced that begins at the E. Yosemite Avenue to the south and extends north towards Yosemite Lake, northwest of the UC Merced Campus. Lake Road is adjacent to the eastern boundary of the project site. Lake Road would eventually be part of Campus Parkway, a major expressway within the County that currently begins at State Route 99 (SR 99) and ends at E. Yosemite Avenue. The University is responsible for the design and funding the improvements of Campus Parkway to Bellevue Road. The proposed project's circulation system would tie into the intersection of Bellevue Road and Lake Road, which is currently being designed by UC Merced.

Mandeville Lane would be developed in accordance with the BCP as a two-lane collector road that would connect from Lake Road to Los Olivos Road. According to the BCP, Mandeville Lane is classified as a "Transit Avenue," which is a recommended transit route that would accommodate one lane of traffic in each direction, bicycle lanes and a potential dedicated bus guideway. Los Olivos Road is located along the western boundary of the project site and would be improved to City of Merced Standards.

Los Olivos Road is currently a collector roadway servicing single-family dwellings to the west of the Master Plan area. In the future, Los Olivos Road would be a collector road connecting Bellevue Road with Mandeville Lane. There are no direct entries or egress points for private vehicles to/from Los Olivos Road.

An internal private roadway would be developed to allow access from Bellevue Road through the project site to an intersection at Mandeville Lane. Surface off-street parking facilities would be provided via each phase pursuant to the off-street parking requirements detailed in the proposed UC Villages Master Plan.

Proposed access to the project site would be provided via a driveway along Bellevue Road, two intersections along Lake Road, and Los Olivos Road. The two driveways along Lake Road would be located between the Commercial/Retail and Hotel uses (Phases 1 and 6) and at the intersection of Mandeville Lane and Lake Road. At Los Olivos Road, two driveways would be located at the northwest corner of the project site. As noted above, Mandeville Lane bisects the project site between Phases 3, 4 and 5.

The UC Villages project would also provide a bike-friendly community, consistent with the standards set forth in the City's General Plan. A Class I off-roadway bikeway is already anticipated along Bellevue Road, while project would construct a Class I bikeway on the new Mandeville Lane that would run east-west through the project site, as shown on **Figure 2-11**. The project would also construct Class II, on-roadway, separated (striped) bike lane along the internal private roadway connecting Bellevue Road through the project site to an intersection at Mandeville Lane. Bike racks would be strategically located onsite near amenity buildings, the hotel, and the Commercial area.

Utilities

WATER SUPPLY

The City of Merced currently depends on groundwater supplied from various wells throughout the water service area. Currently a 16-inch water main exists in Bellevue Road and is supplied by Well No. 17 lying within the UC Merced campus, as shown on **Figure 2-12**. The proposed project would be served by the above referenced 16-inch water main in Bellevue Road and a future 16-inch water main in Lake Road as part of the 2030 water pipelines identified in the City of Merced Water Master Plan. Twelve-inch water mains would be installed in Mandeville Lane and Los Olivos Road. On-site development would be served by looped 10-inch backbone water lines.

WASTEWATER

The project site is within the area served by the City of Merced's North Merced Sewer Master Plan. Currently a 21-inch sewer main exists in Bellevue Road servicing UC Merced which is tributary to the G Street sewer trunk line, as shown in **Figure 2-13**. A recent flow analysis was performed for the City of Merced and determined there was excess capacity in the G Street trunk line which would service the UC Villages project as well as the 21-inch sewer line along Bellevue Road.

STORMWATER

Due to the hydrologic soil group rating for the project site, only moderate percolation of stormwater occurs onsite. This would limit the ability to capture stormwater on site, and a pump station would be necessary to remove excess water from the site.

All stormwater generated by development of the site would be handled by a "cascading" basin system, which would interconnect the proposed basins throughout the site (see **Figure 2-14**). Prior to entering the basin system, the stormwater would be treated through a combination of treatment devices including, but not limited to drainage swales, small bioretention basins, inlet filters, interception trees, permeable concrete pavers, stormwater planters, and rain gardens. If necessary, underground storage and treatment can be utilized to assist with any additional treatment or storage.

There are four planned detention basins located throughout the site, with the lowest basin being located at the natural low point of the project site in the southeast corner. These basins would be designed as detention basins with a non-interruptible outlet draining to the nearby Yosemite Lateral, owned, and maintained by the Merced Irrigation District.

Development Standards

As noted above, the Proposed Project is zoned Planned Development (P-D), which allows for the creation of customized development standards. In this regard, due to the unique nature of the Proposed Project (e.g., commercial/retail, housing, and hotel mixed-use project), the UC Villages Master Plan includes varied development standards for height (up to 5-story residential buildings), lot area, lot coverage, setbacks, off-street parking, and signage.

Architectural Design Concepts

Conceptual architectural concepts are presented for the commercial/retail, housing, and hotel land uses within the UC Villages Master Plan. High-quality materials, varied roof materials, roof plane, and massing are promoted with each phase of development.

Landscape Plan

The landscape concept of the Proposed Project includes areas of groundcover, low shrubbery, and tree plantings. Landscaping will be consistent with City of Merced and State standards, including the Model Water Efficient Landscape Ordinance (MWELO). A combination of native and non-native tree species will be utilized to provide shade and create a strong sense of place. Street trees, ground cover, and shrubs will be utilized along Bellevue Road, Lake Road, Mandeville Lane, and internal roadways.

Signage

Signage on the UC Villages project site would seek to provide a cohesive character and identity. Proposed signage would include monument signs, building signage for the commercial/retail and hotel land uses (e.g., shopping center signage), wayfinding and directional signs. Unique signage would be installed for the phases of housing (e.g., monument signs indicating the residential building/name/area and wayfinding signs within each housing phase).

Pre-Annexation Development Agreement

The Project will be developed in accordance with a development and execution of a Pre-Annexation Development Agreement. Potential issues to be covered in the agreement include, but are not limited to, timing of development, phasing, project obligations including on- and off-site improvements, etc. The City and the project applicant would prepare this agreement and have it in place before the proposed project is considered for approval.

Vesting Tentative Parcel Map

The Proposed Project includes submittal of a Vesting Tentative Parcel Map to subdivide the subject parcels to allow for the financing of UC Villages development. Specifically, the Vesting Tentative Parcel Map would subdivide approximately 27.2 acres into four (4) parcels and one (1) designated remainder parcel, as

shown in **Figure 2-15**. The proposed Vesting Tentative Parcel Map includes the following parcels: Parcel 1 (4.1± acres), Parcel 2 (7.2± acres), Parcel 3 (2.3± acres), and Parcel 4 (4.9± acres). The Designated Remainder Parcel will be 5.5± in size). The Vesting Tentative Parcel map will allow for the development of commercial and residential land uses as described in detail in the UC Villages Master Plan.

2.4. PROJECT APPROVALS AND ENTITLEMENTS

The UC Villages project includes the following proposed entitlement applications to the City, requiring Planning Commission review with final action by the City Council:

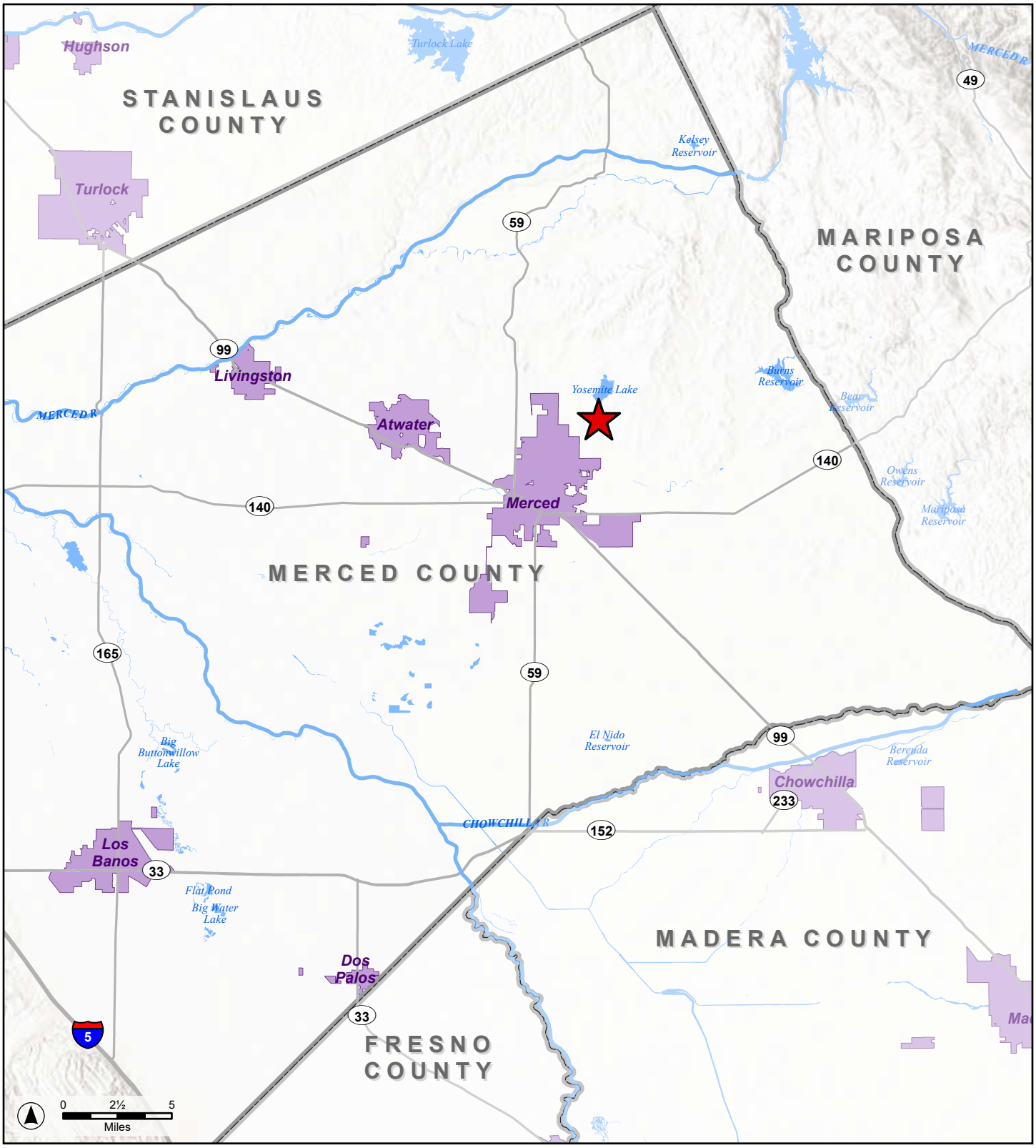
- Annexation approval and the annexation of the subject parcels by the City of Merced and Merced Local Agency Formation Commission;
- Pre-zoning of the project site to Planned Development (P-D);
- Vesting Tentative Parcel Map; and
- Pre-Annexation Development Agreement.

Following approval of the project, the City would submit an application to the Merced County Local Agency Formation Commission (LAFCo) to annex the project site from Merced County to the City of Merced.

2.5. RESPONSIBLE AGENCIES

This EIR is intended to be used by responsible and trustee agencies (as defined by Sections 15381 and 15386 of the CEQA Guidelines) that may have review or discretionary authority over subsequent individual projects implemented under the proposed Project. Agencies other than the lead agency that also may use this EIR in their review of subsequent individual projects, or that may have responsibility for approval of certain Project elements, may include but are not limited to the following:

- California Department of Fish and Wildlife (CDFW)
- Central Valley Regional Water Quality Control Board
- Merced County Local Agency Formation Commission (LAFCo)
- Merced Irrigation District (MID)
- San Joaquin Valley Air Pollution Control District (SJVAPCD)



Legend

- Project Location
- Incorporated Area
- County Boundary

UC VILLAGES

Figure 2-1. Regional Location

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; ArcGIS Online hillshade service. Map date: July 10, 2024.

Legend

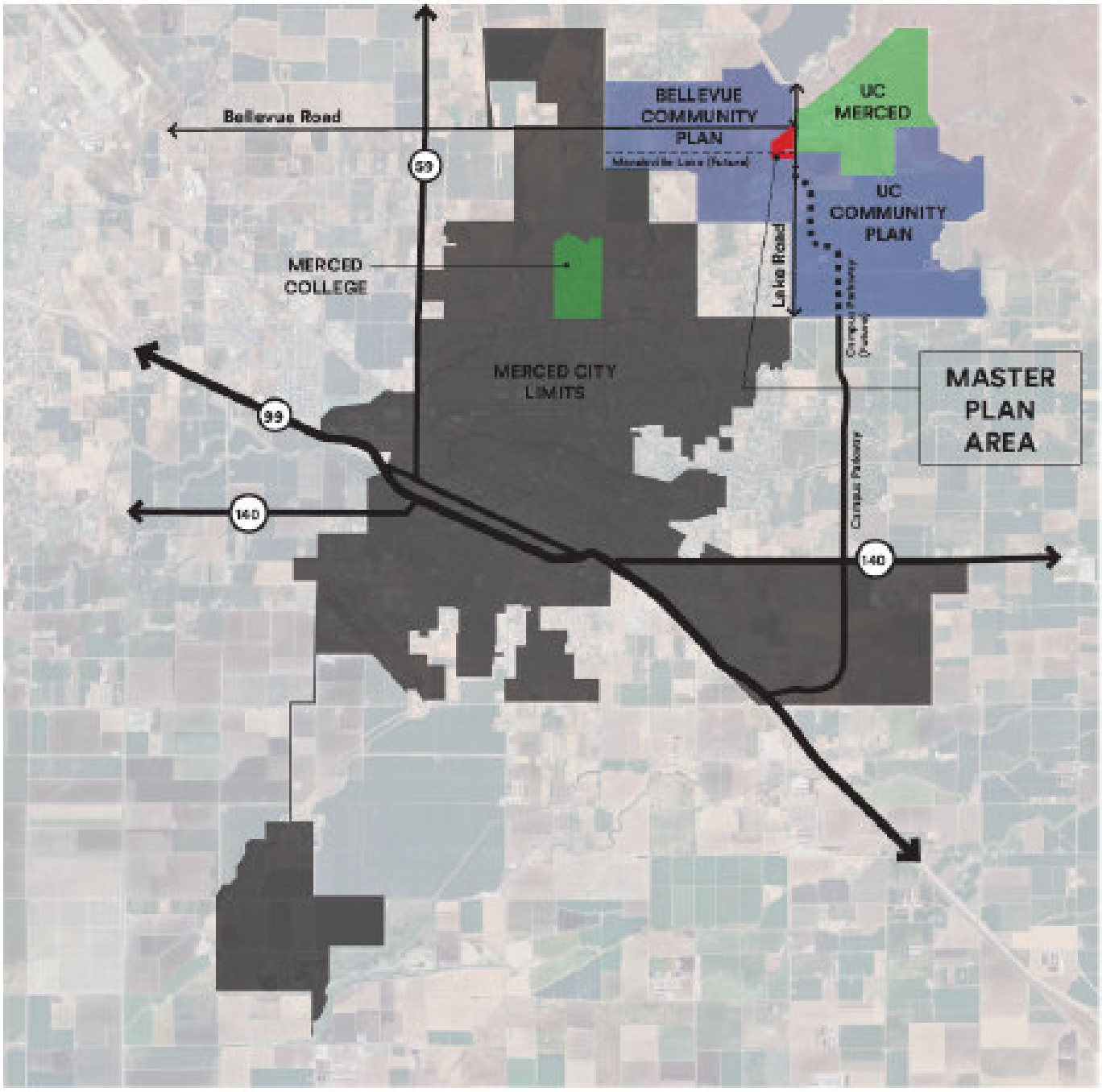
Project Boundary

City of Merced

UC VILLAGES

Figure 2-2. Proposed Project Site

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date: July 10, 2024.



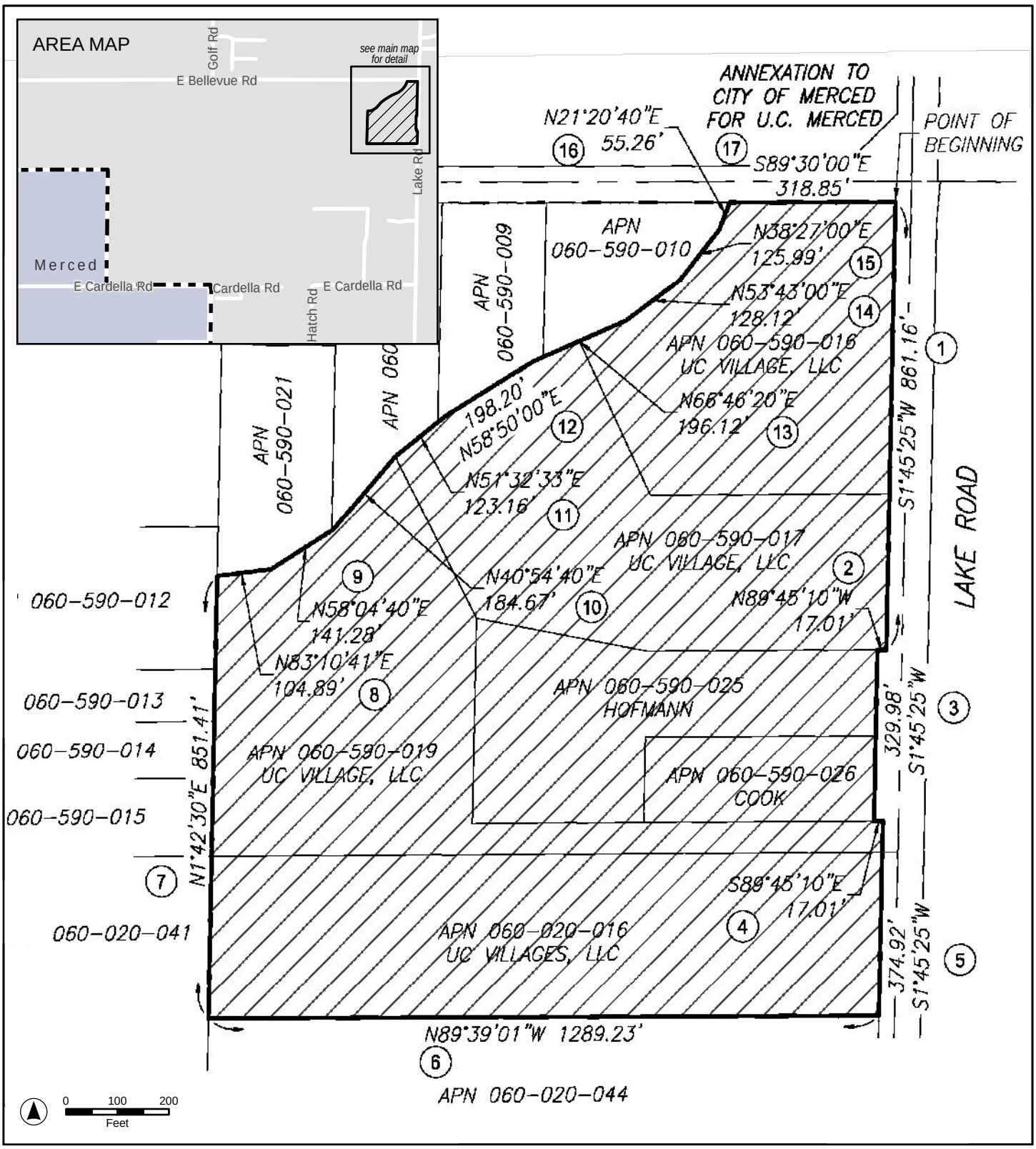
Legend

- Community Plan
- College/University
- Merced City Limits
- Master Plan Area
- Project Boundary

UC VILLAGES

Figure 2-3. Community Plan Areas

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



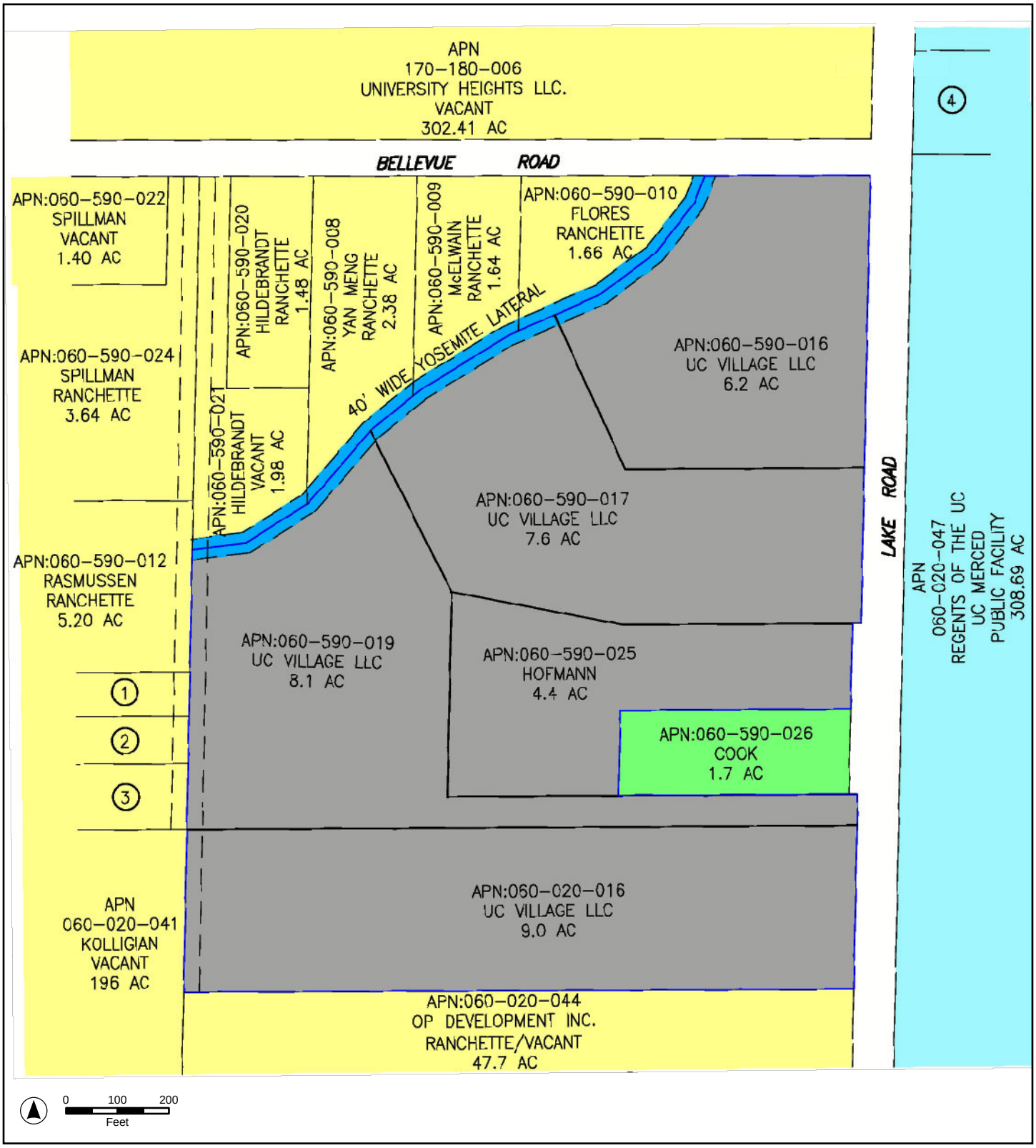
Legend

- Existing Property Line
- Annexation Boundary
- (X) Course Number
- Area to be Annexed to City of Merced
- City of Merced

UC VILLAGES

Figure 2-4. Proposed Annexation

Sources: Benchmark Engineering, Inc., 11/3/2023; California State Geoportal; USGS Transportation; Merced County GIS. Map date: September 30, 2024.



Legend

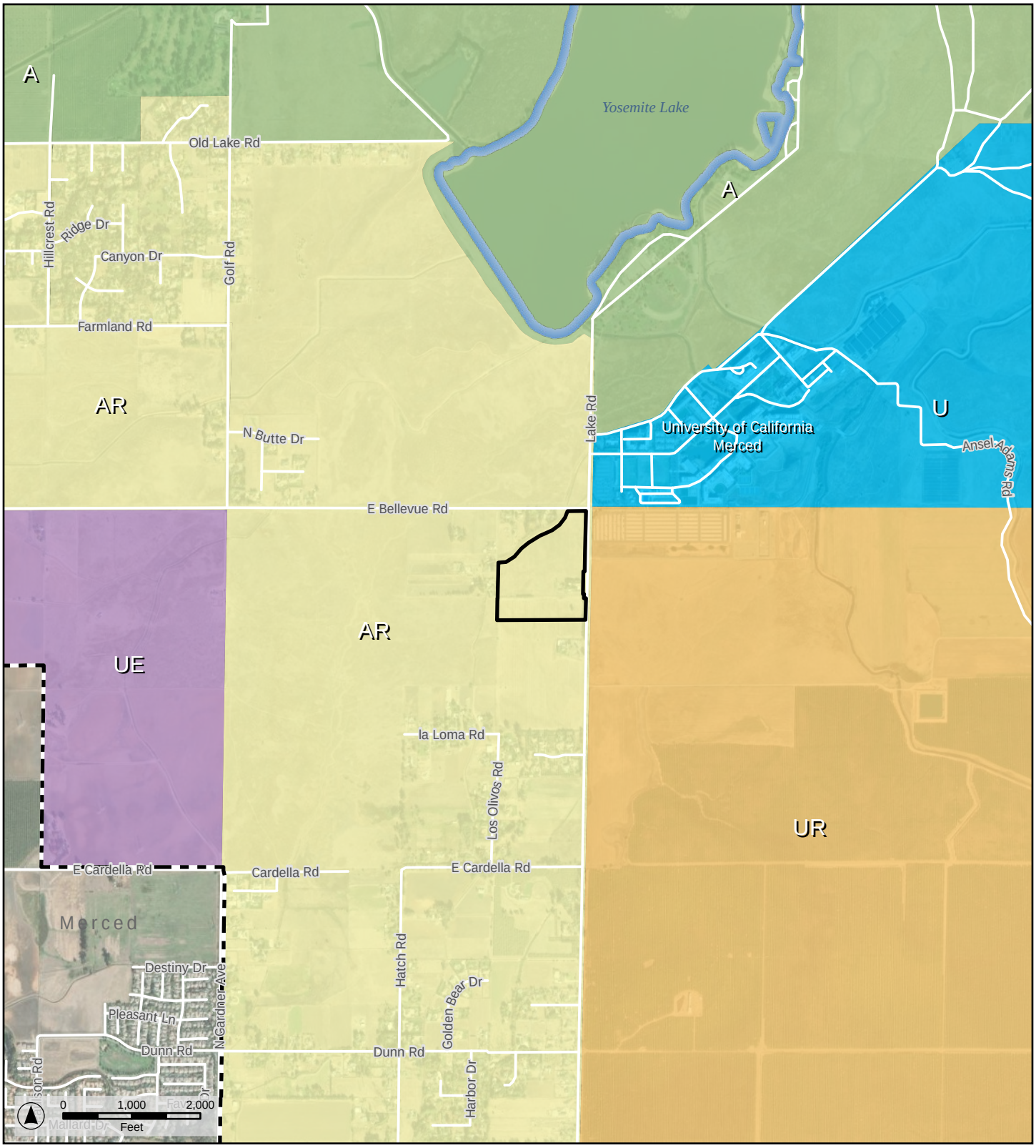
- Planned Development (P-D)
- Urban Transition (U-T)
- Public Facility (P-F)
- Agricultural Residential (Merced County Zoning)

1. APN:060-590-013 CARTER RANCHETTE 4.60 AC
2. APN:060-590-014 MORENO RANCHETTE 4.60 AC
3. APN:060-590-015 McCURDY RANCHETTE 4.90 AC
4. APN:170-220-007 REGENTS OF THE UC UC MERCED 267.00 AC

UC VILLAGES

Figure 2-5. Pre-Zoning

Sources: Benchmark Engineering, Inc., 11/3/2023. Map date: September 30, 2024.



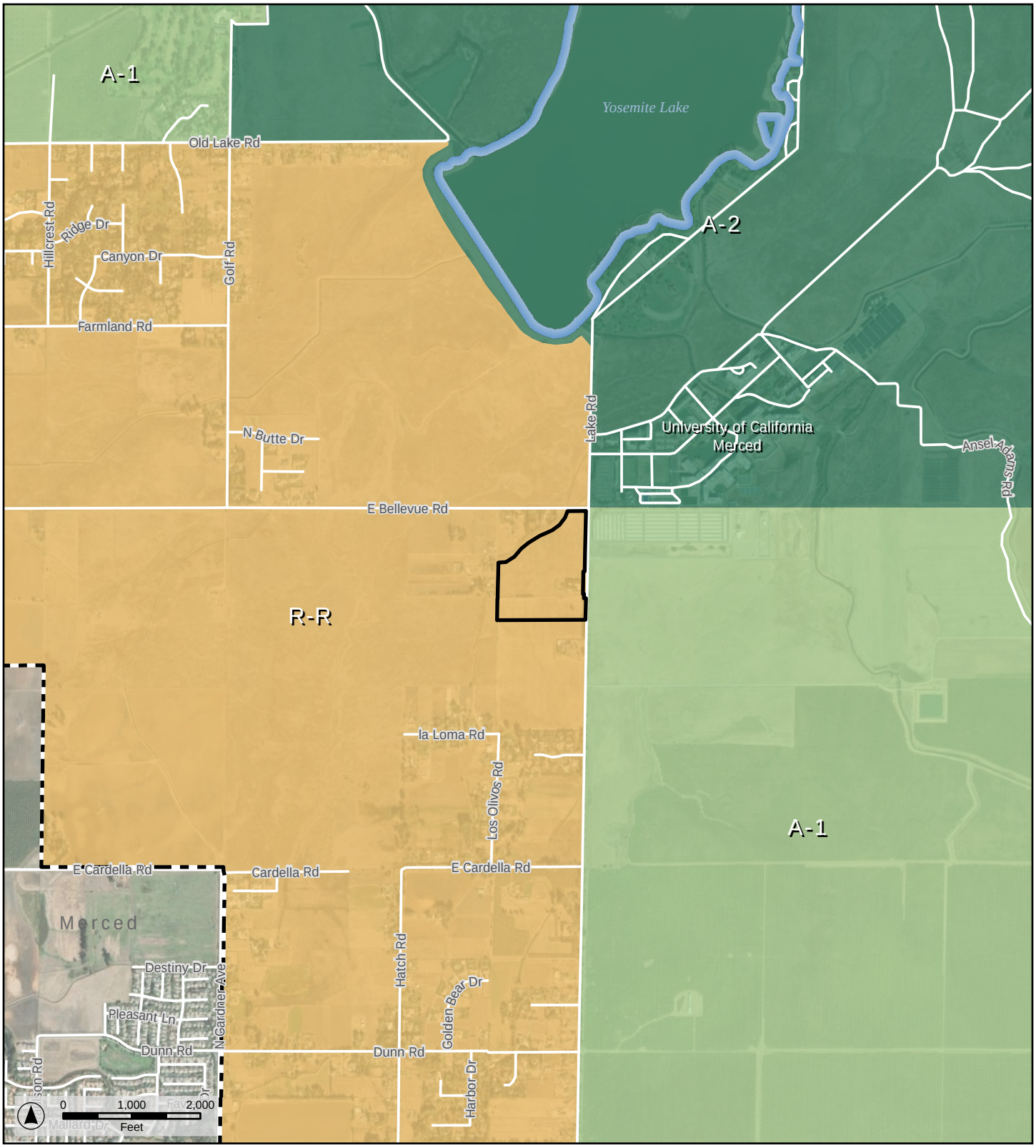
Legend

- Project Boundary
- City of Merced
- A: Agricultural
- AR: Agricultural-Residential
- U: University
- UE: Urban Expansion Area
- UR: Urban Reserve

UC VILLAGES

Figure 2-6. Merced County Land Use Designations

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date: September 30, 2024.



Legend

- Project Boundary
- City of Merced
- A-1: General Agriculture
- A-2: Exclusive Agriculture
- R-R: Rural Residential

UC VILLAGES

Figure 2-7. Merced County Zoning

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date: September 30, 2024.

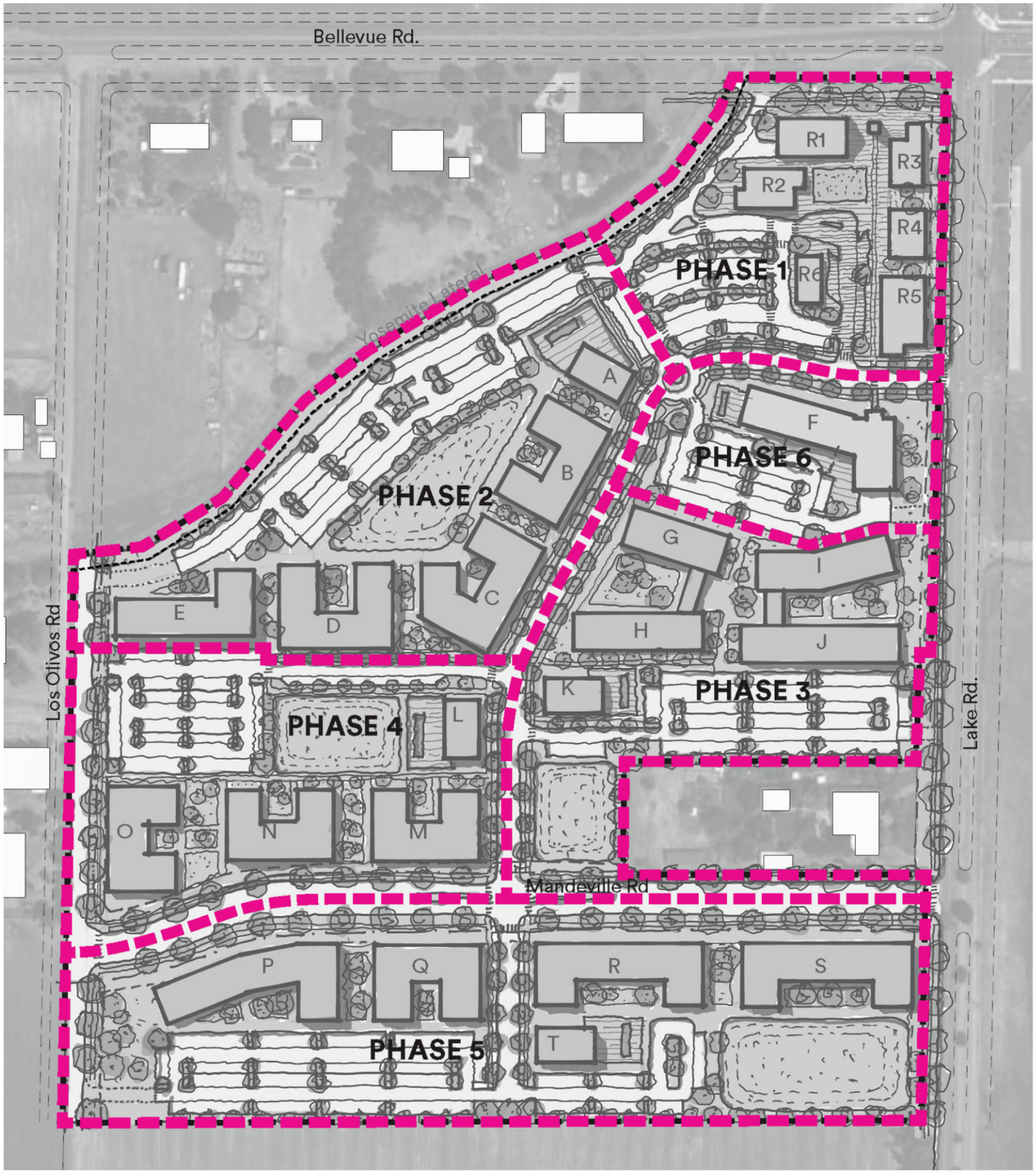
Legend

- Residential
- Hotel/Commercial
- Retail/Commercial
- Amenity
- Parking

UC VILLAGES

Figure 2-8. Conceptual Site Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: July 10, 2024.



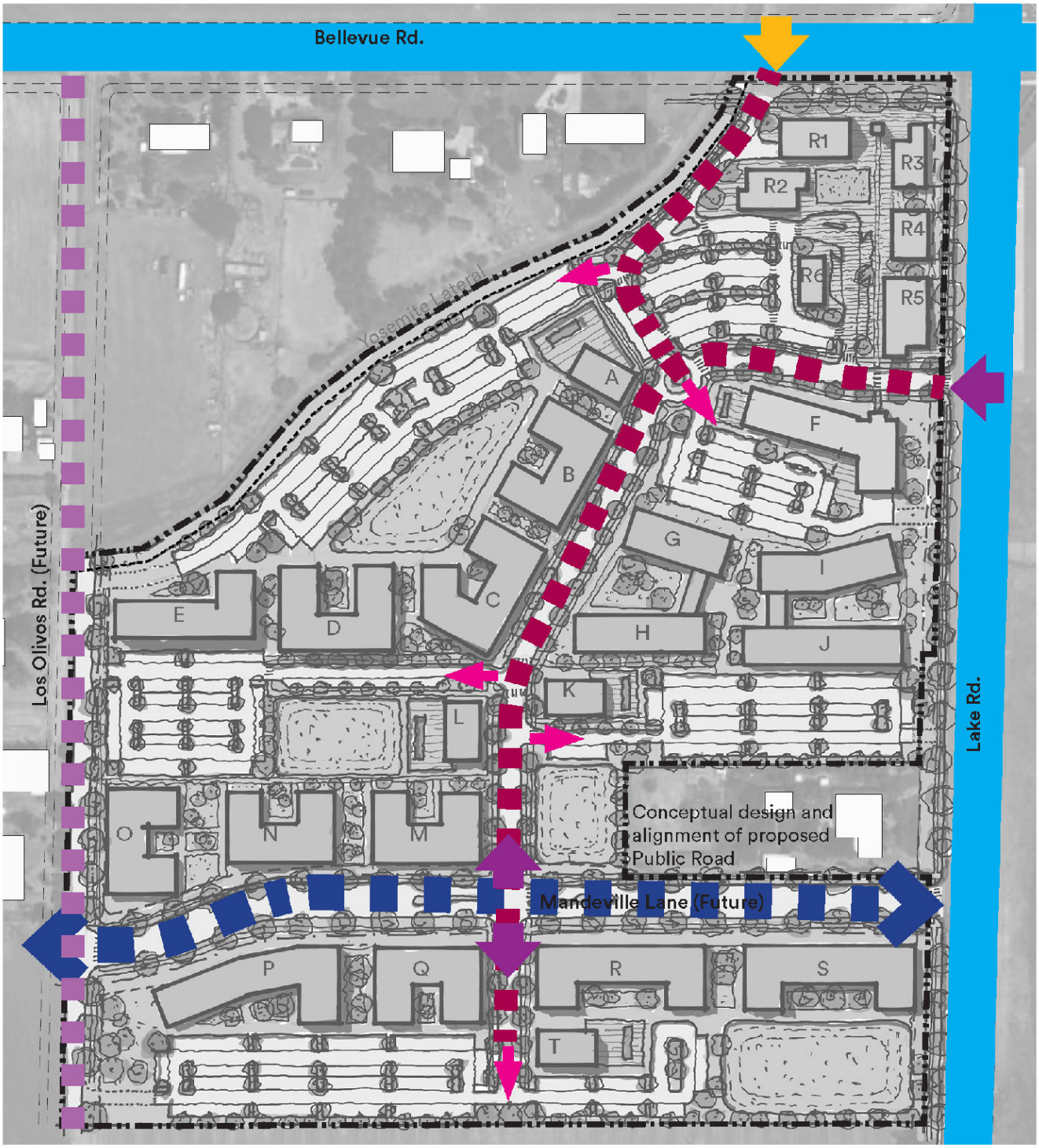
Legend

Phase Boundary

UC VILLAGES

Figure 2-9. Conceptual Phasing Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



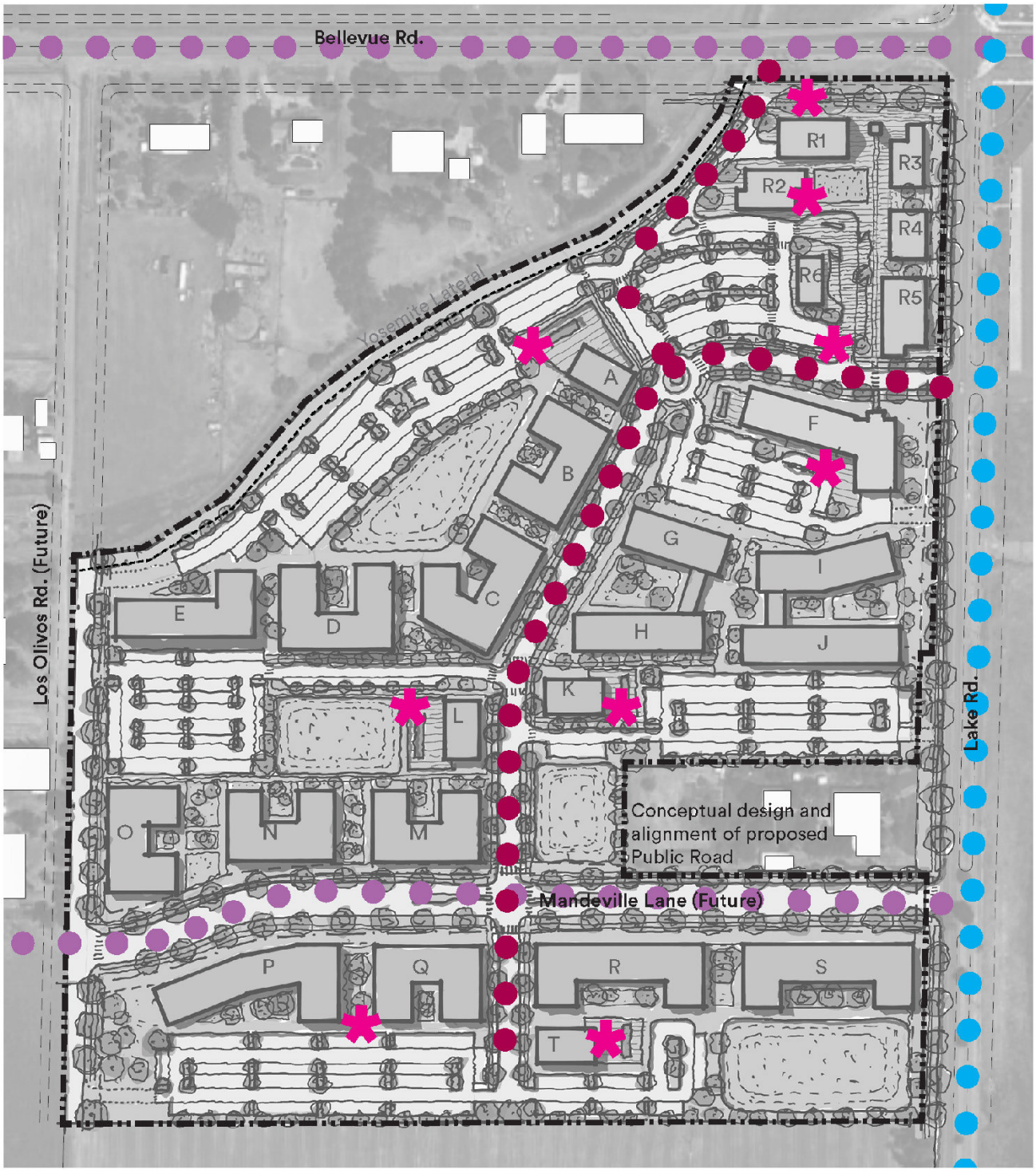
Legend

- Divided Arterial
- Proposed Public Arterial Road
- Proposed Local Road
- Proposed Onsite Road
- Access
- Right-In-Right-Out Access
- Phase Access

UC VILLAGES

Figure 2-10. Conceptual Circulation Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



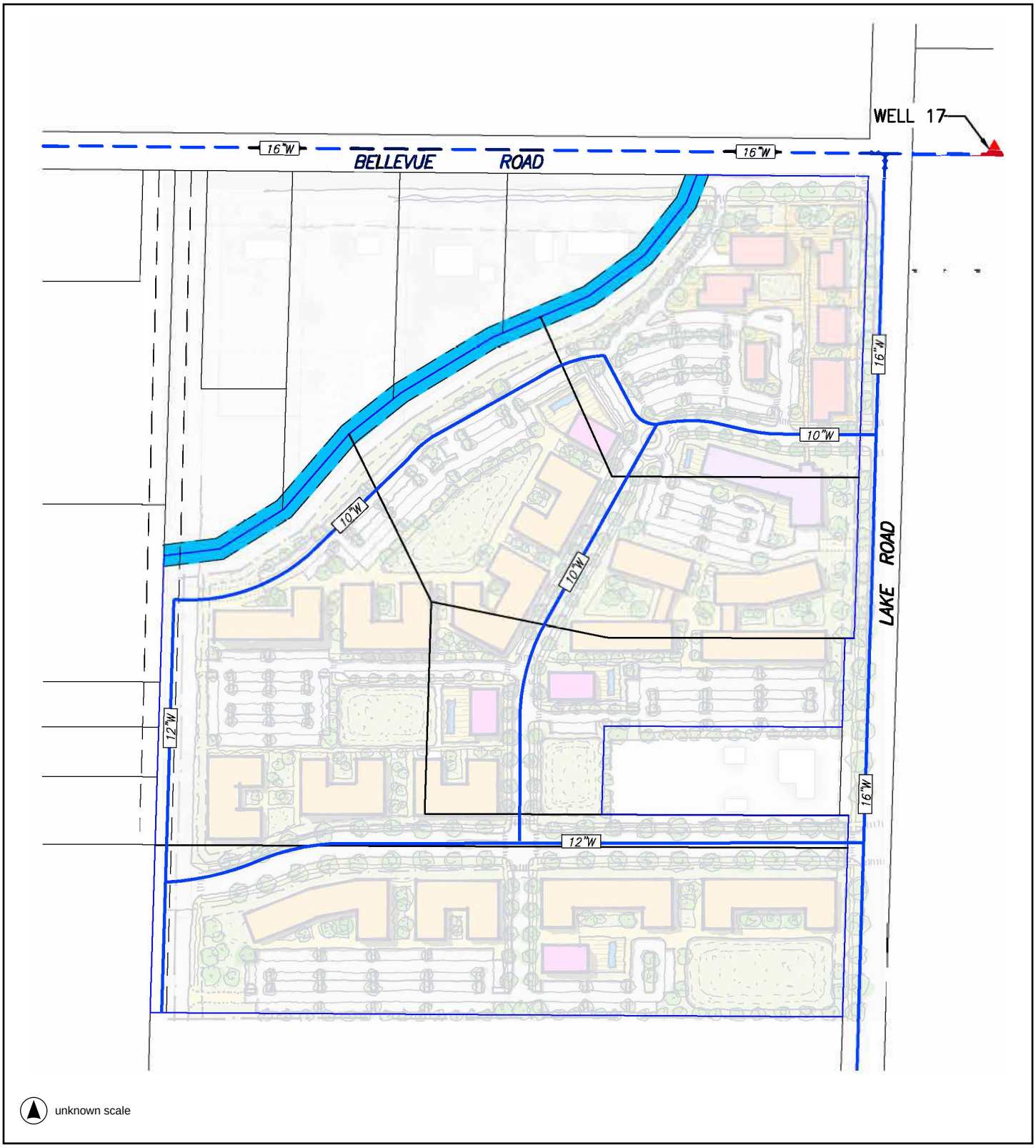
Legend

- Proposed Class I
- Existing Class I Relocation (Road Widening)
- Proposed Class II
- Proposed Bike Rack Location

UC VILLAGES

Figure 2-11. Conceptual Bikeway Plan

Sources: UC Villages Planned Development Master Plan, 12-21-2023. Map date: September 30, 2024.



Legend

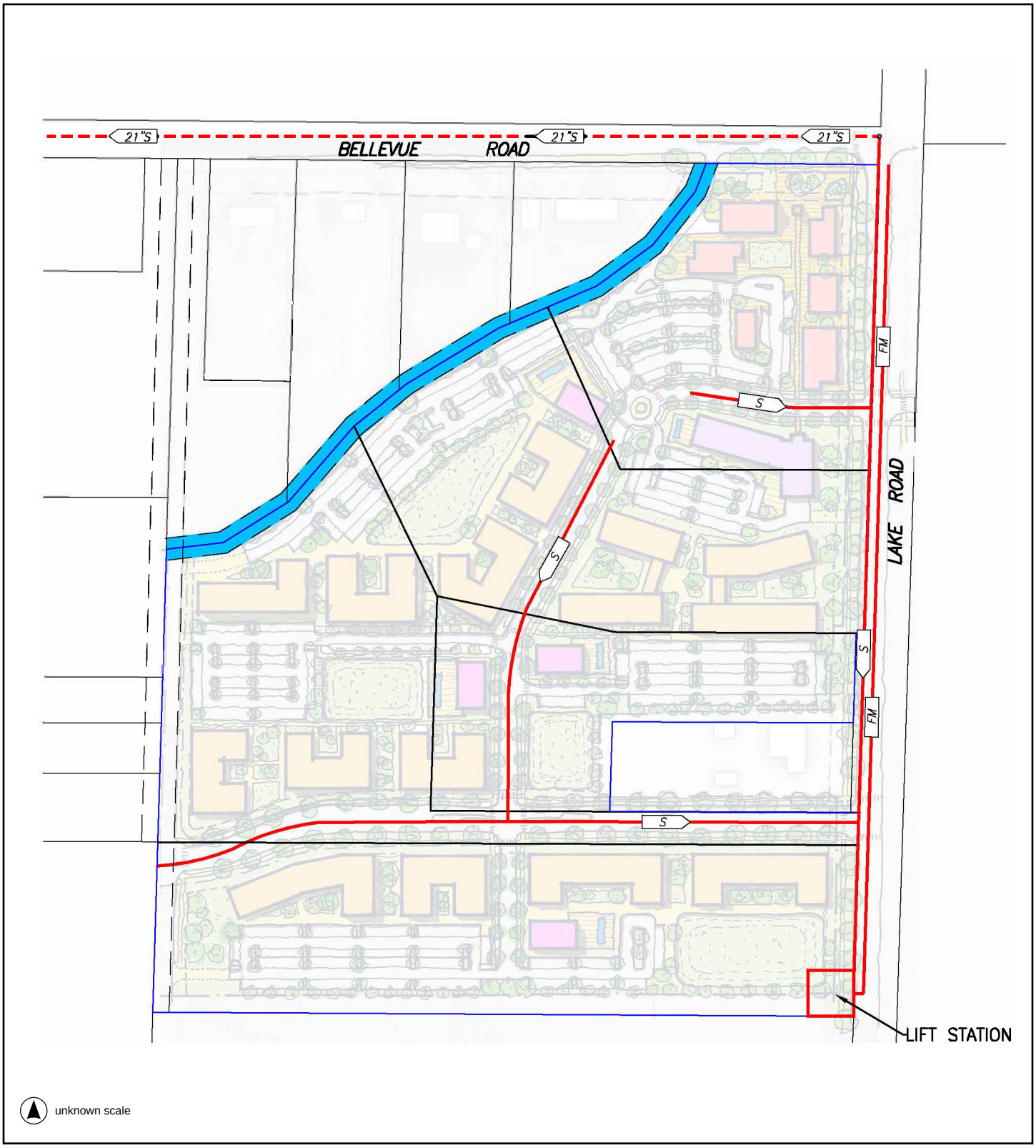
Existing Water

Proposed Water

UC VILLAGES

Figure 2-12. Existing and Proposed Water Facilities

Sources: Benchmark Engineering, Inc., 11/10/23. Map date: September 30, 2024.



Legend

Existing Sewer

Proposed Sewer

UC VILLAGES

Figure 2-13. Existing and Proposed Sewer Facilities

Sources: Benchmark Engineering, Inc., 11/10/23. Map date: September 30, 2024.

Legend

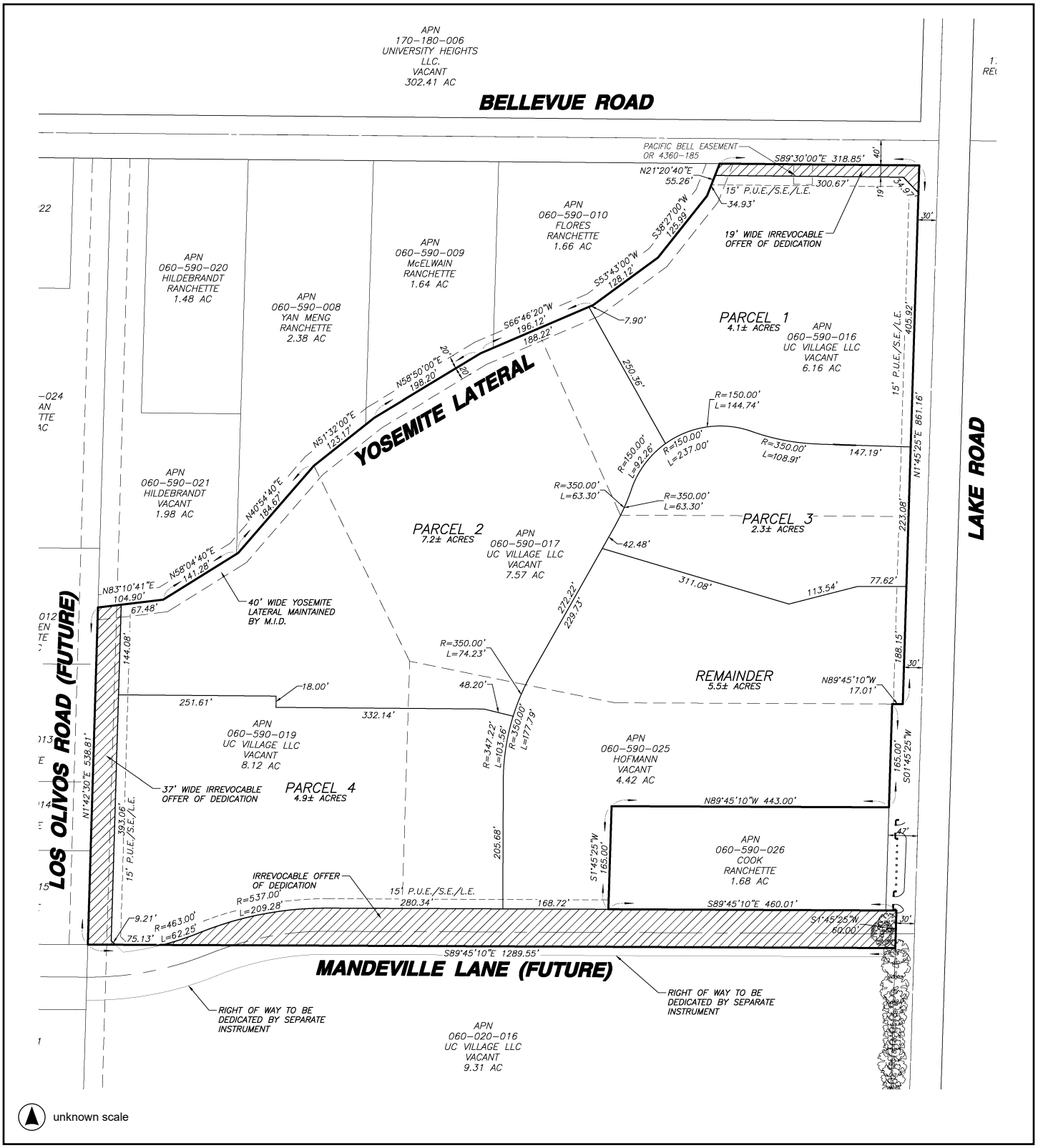
1 Potential Storm Treatment

2 Detention Basin

UC VILLAGES

Figure 2-14. Proposed Storm Drainage Facilities

Map date: September 30, 2024.



UC VILLAGES

Figure 2-15. Vesting Tentative Parcel Map

Sources: Benchmark Engineering, 11/28/2023. Map date: July 10, 2024.

3.0.1 INTRODUCTION TO THE ANALYSIS

This draft environmental impact report (EIR) evaluates and documents the physical environmental effects that could result from implementing the proposed UC Villages project in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 *et seq.)* and the CEQA Guidelines (California Code of Regulations Title 14, Section 15000 *et seq*.). Sections 3.1 through 3.17 of this EIR consider the regulatory background, existing conditions, and environmental impacts associated with implementation of the proposed project, as well as mitigation measures to reduce the impact of project-specific and cumulative environmental impacts and level of significance of impacts following mitigation. This EIR discusses the physical environmental effects that could result from implementation of the proposed Project. Because certain environmental effects that are typically analyzed under CEQA would not occur under the proposed Project, these topics are not analyzed further in Sections 3.1 through 3.17 of this EIR, and are instead discussed in Chapter 6, Effects Found Not to be Significant, and Appendix B, Initial Study Checklist.

3.0.2 DEFINITIONS OF TERMS USED IN THE EIR

This EIR uses a number of terms that have specific meaning under CEQA. Among the most important of the terms used in the EIR are those that refer to the significance of environmental impacts. The following terms are used to describe the environmental effects of the proposed Project:

- **Significance Criteria:** The criteria used by the City of Merced, as lead agency under CEQA, to determine whether the magnitude of an adverse, physical environmental impact would be significant. In determining the level of significance, the analysis recognizes that the proposed Project must comply with relevant federal, state, regional, and/or local regulations and ordinances that are regularly enforced through building codes and standards and/or other means.
- **Significant Impact:** The impact conclusion reached if the project would result in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project-related physical change compared to specified significance criteria. A significant impact is defined as "a substantial, or potentially substantial, adverse change in any of the 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."[1]
- **Less-than-Significant Impact:** The impact conclusion reached when the adverse physical environmental effect caused by the project would not exceed the applicable significance criterion.
- **Significant and Unavoidable Impact:** The impact conclusion reached when the project would result in a substantial adverse physical change in the environment that cannot be feasibly avoided or mitigated to a less-than-significant level, that is, to a magnitude below the applicable significance criterion.

[1] CEQA Guidelines, Section 15382.

- **Cumulative Impact:** Under CEQA, "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."[2] Like any other significant impact, a significant cumulative impact is one in which the cumulative adverse physical environmental effect would exceed the applicable significance criterion and the project's contribution is "cumulatively considerable."[3] If the contribution of a project to a significant cumulative impact is less than considerable, the cumulative impact would be less than significant.
- **Mitigation Measure:** A feasible action that could be taken that would avoid or reduce the magnitude of a significant impact. Section 15370 of the CEQA Guidelines defines mitigation as:

  (a)Avoiding the impact altogether by not taking a certain action or parts of an action;

  (b) Minimizing impacts by limiting the degree of magnitude of the action and its implementation;

  (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

  (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and

  (e) Compensating for the impact by replacing or providing substitute resources or environments.

- **Feasible:** Under CEQA, "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."[4]

3.0.3 SECTION FORMAT

Chapter 3 is divided into technical sections (e.g., Section 3.1, Aesthetics) that present for each environmental resource issue area the physical environmental setting, regulatory setting, significance criteria, methodology and assumptions, and impacts on the environment. Where required, potentially feasible mitigation measures are identified to lessen or avoid significant impacts. Each section includes an analysis of project-specific and cumulative impacts for each issue area.

INTRODUCTION

Each technical environmental section begins with an introduction that briefly discusses the issues addressed in the section, identifies issues that may have been raised in Notice of Preparation scoping comments, and identifies major information sources.

[2] CEQA Guidelines, Section 15355.
[3] CEQA Guidelines, Section 15130(a).
[4] CEQA Guidelines, Section 15364.

ENVIRONMENTAL AND REGULATORY SETTING

Each section provides a description of the proposed Project's environmental setting and the regulatory setting as it pertains to relevant environmental resource issues. The environmental setting provides a point of reference for assessing the environmental impacts of the proposed Project and alternatives. The environmental setting describes the conditions that exist before implementation of the project. This setting establishes the baseline against which the proposed Project and alternatives are compared to assess the significance of environmental impacts.

The regulatory setting presents relevant information about federal, state, regional, and/or local laws, regulations, plans and/or policies that pertain to the environmental resources addressed in each section.

SIGNIFICANCE CRITERIA

Each section presents significance criteria against which the adverse physical environmental effects of the proposed Project are compared to determine the significance of impacts. The significance criteria used for the proposed Project were derived from Appendix G of the CEQA Guidelines and, where applicable, thresholds established by trustee and responsible agencies.

METHODOLOGY AND ASSUMPTIONS

Each section describes the analytical methods and key assumptions used to evaluate the effects of the proposed Project.

IMPACTS AND MITIGATION MEASURES

The methodology description is followed by a presentation of the adverse physical environmental impacts of the proposed Project, and, if impacts would be significant or potentially significant, potentially feasible mitigation measures that, if implemented, could avoid or reduce the magnitude of the significant impact. As required by CEQA Guidelines Section 15126.2(a), direct, indirect, short-term, long-term, on-site, and/or off-site impacts are analyzed, as appropriate, for each environmental impact.

Where enforcement of applicable laws, regulations, and standards exists and compliance can be reasonably anticipated, this EIR assumes that the proposed Project would meet the requirements of applicable laws and other regulations. The impact and mitigation discussions in each section are organized based on impact statements, prefaced by a number in boldfaced type. An explanation of each impact is followed by an analysis of and conclusion regarding its significance, based on the stated significance criterion. The analysis of environmental impacts considers the impacts that could be caused during both construction and operation of the proposed Project.

Where the impact for the proposed Project would be significant, it is followed by a presentation of potentially feasible mitigation measures. While this EIR includes information about potentially feasible mitigation measures, the Merced City Council would make the final determination of feasibility of such measures.

The magnitude of reduction of an impact and the potential effect of that reduction in magnitude on the significance of the impact is presented. Each impact discussion concludes with a statement that the

impact, following implementation of the mitigation measure(s) and/or the continuation of existing policies and regulations, either would be reduced to a less-than-significant level or would remain significant and unavoidable.

An example of the format is shown below.

Impact 3.X-1: Impact statement.

A discussion of the potential impact of UC Villages project on the resource is introduced in paragraph form. To identify impacts that may be site- or project element-specific, where appropriate, the discussion differentiates between construction-related effects and operational effects. A statement of the level of significance before application of any mitigation measures is provided in **bold**.

MITIGATION MEASURE(S)

If all impacts for the proposed Project are determined to be less than significant, the text here states, "None required."

If one or more impacts are determined to be potentially significant, mitigation is listed here. A statement of the level of significance before application of any mitigation measures is provided in bold.

Mitigation Measure 3.X-1 *Recommended mitigation measure will be presented here and numbered to match the impact.*

Where appropriate, one or more potentially feasible mitigation measures are described.

SIGNIFICANCE AFTER MITIGATION

A statement of the degree to which the available mitigation measure(s) would reduce the significance of the impact is described here.

CUMULATIVE IMPACTS

An analysis of cumulative impacts follows the evaluation of project-specific impacts and mitigation measures in each section. A cumulative impact is an impact that is created as a result of the combination of the project evaluated in the EIR in conjunction with other past, present, and reasonably foreseeable projects causing related impacts.[5] The cumulative impact analysis in this EIR evaluates the buildout of the proposed UC Villages project, as well as other projects anticipated to be developed during buildout of the City of Merced General Plan. Other planning documents, such as County of Merced 2030 General Plan, may be used, as appropriate.

The beginning of the cumulative impact analysis in each technical section includes a description of the cumulative analysis methodology and the geographic or temporal context in which the cumulative impact is analyzed (e.g., the City of Merced, San Joaquin Valley Air Pollution Control District, County of Merced

[5] CEQA Guidelines Section 15355.

projections, other activity concurrent with project construction). In some instances, a Project-specific impact may be less than significant, but when considered in conjunction with other cumulative projects or activities, may be significant or potentially significant. As noted above, where a cumulative impact would be significant when compared to existing or baseline conditions, the analysis must address whether the Project's contribution to the significant cumulative impact is "considerable." If the Project's contribution is considerable, then the EIR must identify potentially feasible measures that could avoid or reduce the magnitude of the Project's contribution to a less-than-considerable level. If the Project's contribution is not considerable, the cumulative impact would be less than significant and no mitigation of the Project's contribution is required.[6] The cumulative impacts analysis is formatted in the same manner as the Project-specific impacts.

[6] CEQA Guidelines Section 15130(a)(3).

This section of the Draft EIR describes the existing visual character of the Project site, including scenic vistas, scenic resources within scenic highways and roadways, public views, and existing sources of light and glare. Scenic vistas are long-range views of prominent scenic or background features such as open space lands or mountain ridges. Public views are short- and medium-range views that are visible from publicly accessible viewpoints, such as city streets or city parks. This section also evaluates impacts to aesthetics that are anticipated to occur from development of the proposed Project.

During the NOP comment period, four letters were received, but none of them were in regard to aesthetics or visual resources. Appendix A includes all comments received on the NOP.

This section relies on the following sources:

- City of Merced Vision 2030 General Plan and EIR;
- County of Merced 2030 General Plan and EIR;
- Bellevue Community Plan; and
- City of Merced Municipal Code.

3.1.1 ENVIRONMENTAL SETTING

The City of Merced is located near the geographic center of the County of Merced. To the east of the City is the western slope of the Sierra Nevada mountain range. The northern portion of the City is characterized by gently rolling terrain, while the southerly portion is relatively flat. The area surrounding the City is largely used for agricultural production. The northern, western, and eastern portions of the City contain a number of creeks and canals including Bear Creek, Black Rascal Creek, Fahrens Creek, and Cottonwood Creek. Lake Yosemite is located approximately three miles north and east of the City.

PROJECT SITE AND SURROUNDING AREA

The UC Villages project site is located in unincorporated Merced County, to the northeast of the City of Merced's city limits. The site is at the southwestern corner of the Bellevue Road and Lake Road intersection. The Project site is bounded by existing Bellevue Road, ranchette parcels, vacant land, the Merced Irrigation District (MID) Yosemite Lateral and the future University Vista Project to the north; Lake Road and the University of California, Merced (UC Merced) parking lot (Bellevue Lot) to the east; open vacant land parcels designated Mixed Use and Low Density to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west.

The Project area is characterized by gently rolling grassland, croplands, and rural residential housing with UC Merced campus to the northeast. There are several irrigation ditches and some naturally occurring drainage swales in the Project area. The Project site is relatively flat, gently sloping from north to south, and is currently fallowed grazing land while awaiting development for urban uses. The Project site is comprised of largely vacant lands with one residence and several support structures and several trees. The vacant lands on the Project site have been used historically for agricultural purposes. An east-west agricultural ditch is located in the southern half of the Project site. The trees are located along the southeastern boundary and along the agricultural ditch in the western part of the Project site.

VISUAL CHARACTER AND SCENIC VIEWS

Visual resources are classified into two categories: scenic views and scenic resources. Scenic views are elements of the broader view shed such as mountain ranges, valleys, and ridgelines. They are usually middle ground or background elements of a view shed that can be seen from a range of viewpoints, often along a roadway or other corridor. Scenic resources are specific features of a viewing area (or view shed) such as trees, rock outcroppings, and historic buildings. They are features that act as the focal point of a view shed and are usually foreground elements.[1]

According to the Merced Vision 2030 General Plan Draft EIR, the City and SOI does not contain notable features that would typically fall under the heading of visual resources, such as unique geological features. The City and SOI lies along the valley floor with little vertical differentiation that might provide scenic quality (hillside areas, rock outcrops, etc.). The features of the City's visual setting that might shape an appreciation of its visual character are limited to typical urban elements and are subject to personal interpretation. Given the unrelieved topography of Merced, the majority of vistas will be local. Most areas of the City have views of the Sierra Nevada and the Coast Range, when air quality permits.

The Project site is elevated above the Lake Road centerline, and offers a slightly elevated view of the surrounding area, particularly to the east. From the Project site, the most notable scenic vista is to the north and east toward the Sierra Nevada foothills.

SCENIC HIGHWAYS AND CORRIDORS

Scenic highways and corridors make major contributions to the quality of life enjoyed by the residents of a region. The development of community pride, the enhancement of property values, and the protection of aesthetically-pleasing open spaces reflecting a preference for the local lifestyle are all ways in which scenic corridors are valuable to residents.

Scenic highways and corridors can also strengthen the tourist industry. For many visitors, highway corridors will provide their only experience of the region. Enhancement and protection of these corridors ensures that the tourist experience continues to be a positive one and, consequently, provides support for the tourist-related activities of the region's economy.

Scenic Highways

A scenic highway is generally defined by Caltrans as a public highway that traverses an area of outstanding scenic quality, containing striking views, flora, geology, or other unique natural attributes. As described in the Merced General Plan EIR**,** there are no Officially Dedicated California Scenic Highway segments, corridors, vistas, or viewing areas in Merced or in the City's vicinity.[2]

[1] City of Merced, 2010. Merced Vision 2030 General Plan Draft Program Environmental Impact Report. August. p.3.1-2.

[2] California Department of Transportation, Scenic Highway Program. List of eligible and officially designated State Scenic Highways. Accessed January 16, 2024.

Scenic Corridors

Merced Vision 2023 General Plan identifies scenic corridors in the City and SOI. Two of these corridors are located adjacent in the Project site: 1) Lake Road from Yosemite Avenue to Lake Yosemite; and 2) Bellevue Road from Lake Road to "G" Street.

LIGHT AND GLARE

Light pollution refers to the inappropriate or excessive use of artificial light. Components of light pollution include glare (excessive brightness that causes visual discomfort), light trespass (light falling where it is not intended or needed), sky glow (brightening of the night sky over inhabited areas), and clutter (bright, confusing and excessive groupings of light sources).[3] Light pollution impairs views of the night sky and can be disruptive to humans and nocturnal animal species.

During the day, sunlight reflecting from structures is a primary source of glare, while nighttime light and glare can be stationary or from mobile sources. Stationary sources of nighttime light include structure illumination, interior lighting, decorative landscape lighting, and streetlights. The principal mobile source of nighttime light and glare is vehicle headlamp illumination.

Broadly, areas within the Merced city limits to the southwest of the Project site include typical urban lighting sources including streetlights, security lighting, parking lot lighting, and lighting associated with commercial and residential uses. Areas to the east and northeast are characterized by large swaths of open space, with little to no artificial lighting sources.

The area immediately around the Project site is characterized by rural residential uses, which typically have little nighttime lighting. The agricultural areas that dot the rural residential areas and are prominent to the east have no nighttime lighting sources. Streets outside of the Merced city limits, including Bellevue Road and Lake Road, do not have streetlights and are not illuminated at night. The UC Merced campus to the northeast of the Project site has a significant amount of nighttime lighting compared to its surroundings. The UC Merced campus has streetlights throughout campus, illumination for public gathering areas and plazas, security lighting on the sides of buildings, and light standards throughout its surface parking lots.

Glare is the sensation produced by luminance within the visual field that is significantly greater than the luminance to which the eyes are adapted, which causes annoyance, discomfort, or loss in visual performance and visibility. Glare can be caused by window reflections, light reflecting on building materials, water reflections, vehicle headlights, or other natural or artificial sources of light. There are no structures on the Project site, or other sources, that could produce glare. Sources of glare from uses surrounding the Project site include vehicle windows and headlights located within parking areas of UC Merced Campus to the northeast, as well as vehicles on Bellevue Road and Lake Road to the north and east. These sources of glare are typically caused by internal lighting and reflection of natural sunlight.

[3] DarkSky International. 2023. What is Light Pollution? Available: https://darksky.org/resources/what-is-light-pollution/. Accessed June 25, 2024.

3.1.2 REGULATORY SETTING

STATE

State Scenic Highway Program

The California Department of Transportation (Caltrans) administers the State Scenic Highway Program to preserve scenic highway character and protect them from changes that may diminish aesthetic value of adjacent lands. There are two officially designated state scenic highways within Merced County including State Highway 152 west of Interstate 5, and Interstate 5 from the Stanislaus County line south to Highway 152.[4]

Nighttime Sky – Title 24 Outdoor Lighting Standards, 2022

The California Energy Commission (CEC) regulates energy efficiency of outdoor lighting for new development. The standards serve to improve outdoor lighting quality by reducing impacts of light pollution, light trespass, and glare.[5] The standards regulate characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Exterior lighting allowances vary by Lighting Zones (LZ). The lowest illumination levels are encouraged in LZ0 (very low) and increasingly more power is allowed in LZ1 (low), LZ2 (moderate), LZ3 (moderately high), and LZ4 (high). The Statewide default location for each LZ is as follows:

- LZ0: Undeveloped areas of government designated parks, recreation areas, and wildlife preserves.
- LZ1: Rural areas, as defined by the 2010 U.S. Census.
- LZ2: Urban clusters, as defined by the 2010 U.S. Census.
- LZ3: Urban areas, as defined by the 2010 U.S. Census.
- LZ4: No statewide default location. Special district created by local government.

LOCAL

City of Merced Municipal Code

The City's Municipal Code sets forth development standards regarding lighting and visual resources.

18.32.090 - Street lights. Street lighting standards, underground cables or conduit and conductors and all materials and appurtenances necessary shall be installed of a design and location approved by the city engineer. There shall be at least one (1) electrolier at each intersection.

[4] Caltrans, 2019. Scenic Highways, California State Scenic Highways. List of eligible and officially designated State Scenic Highways. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed June 20, 2024.

[5] California Energy Commission (CEC). 2022 Building Energy Efficiency Standards for Residential and Nonresidential Buildings, Title 24, Part 6 and Associated Administrative Regulations in Part 1. Available: https://www.energy.ca.gov/sites/default/files/2022-12/CEC-400-2022-010_CMF.pdf. Accessed June 25, 2024.

20.38.070 - Parking design and development standard

… 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. ...

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, unless exceptions from individual standards are granted through a minor use permit per Section 20.68.020:

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 fifty (50) percent of the allowable building area at any established distance from said exterior property line.

2. A minimum of one (1) tree per three (3) units is required, and foundation plantings with a minimum mean horizontal depth of three (3) feet covering the equivalent of a minimum of fifty (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.

c. Chain link may be allowed for tennis courts if it uses vinyl-covered (or equivalent shading) chain link in complementary colors and masonry pilasters with complementary landscaping.

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 three-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 Sections 20.46.030 and 20.46.040.A above, such units shall comply with the following, unless exceptions are granted through a minor use permit per Section 20.68.020: No composition roof materials shall be permitted except three-dimensional, architectural grade shingles.

C. Multi-Family Dwellings with Three (3) to Five (5) Units in Non-Planned Development Zoning District. In addition to the standards in Section 20.46.030 above, such units shall comply with the following: Roof-mounted air conditioning units shall be screened (to provide sufficient air circulation) with materials that will blend into the rest of the roof structure and block any view of the unit.

20.62.160 - Illumination standards for signs. The illumination of signs, from either an internal or external source, must be designed to avoid negative impacts on surrounding rights-of-way and properties. The following standards apply to all illuminated signs:

A. Sign lighting shall not be of an intensity or brightness that will create a nuisance for residential uses in a direct line of sight to the sign. Light sources shall be shielded from all adjacent buildings and streets. The lighting shall not create excessive glare to pedestrians and/or motorists and will not obstruct traffic control or any other public informational signs. Illuminated signs located adjacent to any residential area shall be controlled by a rheostat or other acceptable method to reduce glare.

1. Illumination of signs shall be limited to a maximum illumination of four hundred sixty-five (465) lumen per square foot (or five thousand (5,000) nits) during daylight hours and a maximum illumination of forty-seven (47) lumen per square foot (or five hundred (500) nits) between dusk to dawn as measured from the sign's face. It is strongly recommended that automatic dimmers be installed in the sign.

2. Signs in residential zones may only be indirectly illuminated by a concealed light source, shall not remain illuminated between the hours of eleven p.m. and six a.m., and shall not flash, blink, or fluctuate. Illuminated signs in residential zones must also be located on an arterial or collector street.

B. Internally illuminated signs shall be designed with an opaque, semi-opaque, or matte finish background on the sign face. Internally illuminated signs shall only be located on arterial or collector streets. Internally illuminated signs must not be located within one hundred (100) feet of a residential zone.

C. Light sources for externally illuminated signs shall meet the following standards:

1. Low-pressure sodium lighting is the preferred light source to minimize undesirable light in the night sky.

2. High-pressure sodium, metal halide, fluorescent, quartz, LED, and incandescent light sources shall be fully shielded.

3. Metal halide and fluorescent light sources shall be filtered. Most glass, acrylic, or translucent enclosures satisfy these filter requirements.

4. Mercury vapor light sources shall be prohibited.

D. External conduits, boxes, and other connections related to the function of a sign and associated lighting shall not be exposed nor pass through a public right-of-way.

City of Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan contains a number of policies that apply to aesthetics and visual resources in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Open Space, Conservation, and Recreation Element are designed to ensure that aesthetics impacts are minimized as development occurs in accordance with the Merced Vision 2030 General Plan.

URBAN EXPANSION

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

Policy UE-1.2 Foster compact and efficient development patterns to maintain a compact urban form.

URBAN DESIGN

Policy UD-2.2 Maintain and enhance the unique community appearance of Merced.

OPEN SPACE, CONSERVATION, AND RECREATION

Policy OS-1.3 Promote the Protection and Enhancement of Designated Scenic Routes.

Implementing Action 1.3.b Preserve the designated Scenic Corridors. The Scenic Corridors are as follows:

a) North and South Bear Creek Drive within the City limits.
b) N Street from 16th Street to the Merced County Courthouse.

c) 21st Street from the Merced County Courthouse to Glen Avenue.
d) M Street from Black Rascal Creek to Bellevue Road.
e) West 28th Street from M Street to G Street.
f) Lake Road from Yosemite Avenue to Lake Yosemite.
g) R Street (extended) from Black Rascal Creek to Bellevue Road.
h) Olive Avenue East of McKee Road.
i) M Street from 18th Street to Bear Creek.
j) Campus Parkway.
k) Bellevue Road from Lake Road to "G" Street.

Implementing Action 1.3.c Utilize established guidelines for the review of projects proposed within a designated Scenic Corridor.

The following guidelines apply to the review of applications for development in vicinity of a designated Scenic Corridor:

a) Utility lines should be placed underground whenever feasible.
b) Signing should be carefully controlled to ensure that it does not detract from the scenic beauty of the corridor. Specific guidelines for signing along those corridors should be established.
c) Limit the intrusion of future land uses which may detract from the scenic quality of the corridor.
d) Unsightly mechanical and utility structure shall be screened from view by use of planting, grading, and fencing.
e) Heights and setbacks of buildings should be regulated to avoid obstructing important scenic views.
f) Every effort should be made to preserve and properly maintain existing stands of trees and other plant materials of outstanding value.
g) Structures on private and public properties visible from the corridors should be maintained in good condition (free of trash, weeds, etc.).
h) Architectural and landscape design should result in an attractive appearance and a harmonious relationship with the surrounding environment.

Policy OS-1.4 Improve and Expand the City's Urban Forest.

Implementing Action 1.4.b Continue to require new development to plant street trees approximately 40 feet apart, at a maximum, along City streets. Tree planting policies have been established by the City for new development projects. These practices are to be continued. Exceptions to the spacing requirements are granted in selected areas where trees may interfere with other public facilities, such as street lights, traffic signals, etc.

Bellevue Community Plan

The Bellevue Community Plan was adopted by the City of Merced City Council on April 6, 2015. The Bellevue Community Plan (BCP) provides policy direction to the decision-making process for

development within a defined geographic portion of the Planning area of the City's General Plan, which includes the project site. The BCP was developed to be consistent with the 2030 General Plan. The BCP envisions Bellevue Road as a landscaped boulevard to UC Merced that would be defined by cohesive design for buildings that would create a gateway to the University. The BCP anticipates new development in the Plan Area to focus on "Bellevue Urban Design," which consists of mixed-use, pedestrian and transit-ready communities, with standards that make the BCP area a gateway to UC Merced.

Consistent with the City's General Plan policies to enhance the appearance of the community, the BCP includes: 1) plans to create gateway roads for both Bellevue Road and Lake Road; 2) a landscaped median in Bellevue Road and residential collectors; and 3: encourages site-designs to emphasize a hilltop focal point in the area near Gardner Road, south of Bellevue Road. The BCP also recommends that the City's adopted urban design guidelines set the framework for City expectations of site plan designs within the BCP. The Bellevue Community Plan designates the Project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office.

3.1.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact on aesthetics if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway;
- In non-urbanized areas, substantially degrade the existing visual character or quality 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, conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

METHODOLOGY AND ASSUMPTIONS

Impacts related to aesthetics resulting implementation of the UC Villages project. The impact analysis is based on the existing visual character of the area, including scenic vistas, highways, roadways, and existing sources of light and glare. Changes to aesthetic resources that may occur from implementation of the proposed Project are identified and qualitatively evaluated based on potential modifications to the existing aesthetic setting. Impacts related to aesthetics are assessed using significance criteria established by the CEQA guidelines.

The Project site is not near or within a State Scenic Highway. Therefore, there would be ***no impact*** to scenic highways. For a further discussion of this topic, please see Chapter 6, Effects Not Found to be Significant.

IMPACTS AND MITIGATION

Impact 3.1-1: Development of the proposed Project would not have a substantial adverse effect on a scenic vista. (Less Than Significant)

Development of the proposed Project would convert the site from its existing use as undeveloped land previously used for agricultural uses to a development of mixed-use commercial and housing. The proposed project would include up to 700 multi-family and/or student housing residential units with approximately 18,000 square feet (sf) of amenity buildings (recreational center), approximately 30,000 sf of commercial/retail, and an approximately 75,000-sf hotel with up to 200 guest rooms. Residential buildings will be up to 5-stories in height. These new structures and uses could impede existing vista views in the area.

The Project site is not designated as a scenic vista by the Merced Vision 2030 General Plan, nor does it contain any unique or distinguishing features that would qualify the site for designation as a scenic vista. The Merced Vision 2030 General Plan assumed that the Project site as part of the proposed SUDP/SOI area would eventually transition to urban development from open agricultural fields and pasture land and that the only residents who will experience a change to their views would be those directly adjacent to new development.

The Project site is not designated as a scenic vista by the Merced General Plan, nor does it contain any unique or distinguishing features that would qualify the site for designation as a scenic vista or scenic resource under an established program. Therefore, while the proposed Project would permanently convert the agricultural and undeveloped uses to a developed use and would create a change in the visual characteristics of the site, the proposed Project site is not within or near a designated scenic vista. Implementation of the proposed Project would have a ***less- than-significant*** impact on a scenic vista

MITIGATION MEASURE(S)

None required.

Impact 3.1-2: Development of the proposed Project would not substantially degrade the existing visual character or quality of public views in non-urbanized area, nor conflict with applicable zoning and other regulations governing scenic quality in urbanized areas. (Less Than Significant)

The Project site is highly visible from Bellevue Road and Lake Road. Implementation of the proposed Project would change the existing visual character of the site from an undeveloped site to an urbanized site. The proposed Project would result in an incremental increase in new residential and commercial development that would alter the existing visual character of the Project site.

The proposed Project is zoned Planned Development (P-D), which allows for the creation of customized development standards. In this regard, due to the unique nature of the Proposed Project (e.g., commercial/retail, housing, and hotel mixed-use project), the UC Villages Master Plan includes varied development standards for height (up to 5-story residential buildings), lot area, lot coverage, setbacks, off-street parking, and signage. High-quality materials, varied roof materials, roof plane, and massing are promoted with each phase of development. The landscape concept of the Project includes areas of groundcover, low shrubbery, and tree plantings. Landscaping would be consistent with City of Merced and State standards, including the Model Water Efficient Landscape Ordinance (MWELO). A combination of native and non-native tree species would be utilized to provide shade and create a strong sense of place. Street trees, ground cover, and shrubs would be utilized along Bellevue Road, Lake Road, Mandeville Lane, and internal roadways, consistent with Merced General Plan Implementing Action 1.4.b, which requires new development to plant street trees along City streets.

Signage on the UC Villages project site would seek to provide a cohesive character and identity. Proposed signage would include monument signs, building signage for the commercial/retail and hotel land uses (e.g., shopping center signage), wayfinding and directional signs. Unique signage would be installed for the phases of housing (e.g., monument signs indicating the residential building/name/area and wayfinding signs within each housing phase). Consistent with the establishment of Bellevue Road and Lake Road as scenic corridors and gateways to UC Merced, the proposed Project includes a key landmark feature on the southwest corner of Bellevue Road and Lake Road, consistent with Merced General Plan Policy OS-1.3.

The Project would be consistent with the Mixed-Use Transit Oriented Development (TOD) of the BCP, which is the most intense urban environment anticipated in the BCP. Mixed-Use TOD is characterized by a mix of uses directly next to the UC Merced campus to serve the needs of students, professors, other UC employees, and campus visitors.

Overall, Project implementation would not conflict with the applicable zoning and other regulations governing scenic quality. This impact is ***less than significant***.

MITIGATION MEASURE(S)

None required.

Impact 3.1-3 Implementation of the proposed Project would not create a new source of substantial light or glare which could adversely affect day or nighttime views in the area. (Less Than Significant)

Currently, there are no existing lighting sources within the Project site. Implementation of the proposed Project would introduce new sources of light and glare into the Project site. New sources of glare would occur primarily from the windshields of vehicles travelling to and from the Project site and from vehicles parked at the site. There is also the potential for reflective building materials and windows to result in increases in daytime glare.

The City of Merced does not have any standards for outdoor lighting. Compliance with General Plan Policy OS-1.4 would reduce the potential impact of light and glare by improving and expanding the City's urban forest through the promotion of tree planning. Additionally, the Project would be required to comply with Merced Vision 2030 General Plan Draft EIR Mitigation Measure 3.1-4, which provides guidelines for selecting and designing any outdoor lighting to ensure that all lighting is directed downwards and away from adjacent properties. The proposed Project would be required to be consistent with the General Plan, as well as lighting and design requirements in the City of Lathrop Municipal Code Sections 18.32.090, 20.38.070, and 20.62.160.

At the Project site, there are currently minimal sources of glare, and future development will introduce new lighting in an area with relatively low existing lighting. Due to the amount of new development in a currently undeveloped area, the Project could result in a substantial increase in glare, predominantly caused by vehicles, on nearby streets. However, excessive reflective building materials would not be used on any buildings, structures, or facilities associated with the proposed Project. Furthermore, the landscaping on-site would include a variety of shade trees throughout the Project site, and the perimeter of the site would be landscaped with a variety of shrubs and trees. The proposed landscaping would assist in shielding glare resulting from the proposed development and glass windows. Therefore, the proposed Project is not expected to introduce significant glare that would negatively affect nearby pedestrians or motorists.

The proposed Project lighting would be required to incorporate design features, consistent with the Merced General Plan, to minimize the effects of light and glare, and material selections aimed to limit light and glare. Implementation of the requirements and standards in the Merced General Plan and municipal code standards for lighting would reduce potential impacts associated with nighttime lighting, light spillage onto adjacent properties, and glare to a ***less-than-significant*** level.

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

The cumulative setting for aesthetics is Merced County.

Impact 3.1-4: The proposed Project, in combination with other cumulative development, would not result in substantial adverse effects on scenic vistas (Less than Significant)

Under cumulative conditions, the City of Merced will continue to build out, adding to the urban landscape and decreasing the number and quality of scenic vistas. As new buildings are constructed, they may obstruct existing scenic views of the Sierra Nevada or sweeping agricultural areas in unincorporated Merced County. Cumulative development is not anticipated to adversely affect

designated or eligible State Scenic Highways as the only Officially Designated State Scenic Highway is State Route 152 in the western portion of the County.[6]

Nevertheless, cumulative development facilitated by the General Plan could adversely affect the scenic vistas and views available throughout the City, resulting in a potentially cumulative significant impact.

The proposed Project would contribute to the urbanization of the City and result in the construction of new structures that could impede views. The proposed Project is an anticipated development area in the Merced General Plan as part of the Bellevue Community Plan. The proposed Project would be subject to Zoning Ordinance requirements associated with site planning and development regulations including the height limitations, screening and landscaping, setbacks, and design review requirements. Compliance with the requirements within the General Plan and Zoning Code would reduce visual impacts to the greatest extent feasible; and the change of agricultural land to a landscaped subdivision is not necessarily a degrading of visual character. Therefore, the proposed Project would have a less-than-considerable contribution to this impact, and the cumulative impact to scenic vistas would be ***less than significant***.

MITIGATION MEASURE(S)

None required.

Impact 3.1-5: The proposed Project, in combination with other cumulative development, would not substantially degrade the existing visual character or quality of public views of the site and its surroundings or conflict with applicable zoning and other regulations governing scenic quality (Less than Significant)

Under cumulative conditions, buildout of the General Plan for Merced and the county could result in changes to the visual character and quality of the City of Merced through development of undeveloped areas and/or changes to the character of existing communities. In order to reduce the visual impacts of urban development, development within the City is required to be consistent with the General Plan and the Merced Zoning Ordinance, which include design standards. These standards include specifications for building height, massing, and orientation, exterior lighting standards, and landscaping standards. Following the City's design requirements will produce urban developments that will be internally cohesive, while maintaining an aesthetic feel similar to that of the surrounding uses.

The loss of the visual appearance of agricultural land within the City limits will change the visual character of the area in. Compliance with the requirements within the General Plan and Zoning Code would reduce visual impacts to the greatest extent feasible; and the change of agricultural land to an urbanized areas is not necessarily a degrading of visual character.

[6] Caltrans, 2019. Scenic Highways, California State Scenic Highways. List of eligible and officially designated State Scenic Highways. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed October 7, 2024.

Cumulative development anticipated under the General Plan would have a ***less-than-significant cumulative impact*** on aesthetics and visual character.

MITIGATION MEASURE(S)

None required.

Impact 3.1-6: The proposed Project, in combination with other cumulative development, would not result in light and glare impacts. (Less than Significant)

Existing developed areas in the City currently generate some light and glare, and new development that would be facilitated by the General Plan would result in increased light and glare. Some elements of the built environment, such as parking lots, commercial buildings, and signs, may emit light for 24 hours a day. New sources of daytime glare could include new buildings with reflective surfaces, such as office buildings with glazed windows. Such light and glare could affect sensitive receptors.

Future projects within Merced would be required to implement existing City regulations aimed at reducing light and glare impacts to ensure that no unusual daytime glare or nighttime lighting is produced. All development within the City is regulated by the Merced Municipal Code which contains standards for using lighting and building materials that do not produce glare. The Zoning Ordinance also contains lighting standards for parking facilities, signs, and general safety lighting. Lighting shall not spill over onto adjacent properties. The 2022 California Green Building Standards Code, adopted as Chapter 17.07 of the Merced Municipal Code, includes a nonresidential mandatory light pollution reduction measure that establishes maximum allowable light and glare standards for outdoor lighting systems for new nonresidential projects (2022 California Green Building Standards Code, 5.106.8 Light pollution reduction). Compliance with existing regulations and General Plan policies would ensure that light and glare generated by cumulative development would be minimized. Compliance with existing regulations and policies would ensure that cumulative development within the City would result in ***less-than-significant cumulative impacts*** associated with increased light and glare.

MITIGATION MEASURE(S)

None required.

This section assesses potential environmental impacts on agricultural resources from development of the UC Villages project, including those related to Prime Farmland, Unique Farmland, and Farmland of Statewide Importance; agricultural zoning and Williamson Act contracts; and the conversion of farmland to non-agricultural uses. This section describes existing agricultural resources on the Project site, as well as relevant federal, State, and local regulations and programs.

During the NOP comment period, four letters were received, but none of them were in regard to agricultural resources.

This section relies on the following sources:

- City of Merced General Plan and EIR;
- County of Merced 2030 General Plan and EIR;
- Merced County 2022 Report on Agriculture;
- Department of Conservation Farmland Mapping & Monitoring Program (FMMP); and
- Merced County GIS data.

3.2.1 ENVIRONMENTAL SETTING

AGRICULTURAL CONTEXT

Statewide

In California, productive farmland acreage has been gradually declining, due primarily to the conversion of farmland to non-agricultural uses. The Department of Conservation has recorded the conversion of over 1.6 million acres of agricultural land in California to nonagricultural purposes since 1984. The largest losses in agricultural land have been from Prime Farmland (-816,123 acres), Farmland of Statewide Importance (-455,287 acres), and Grazing Land (-423,565 acres)—some of California's best farmland. The largest agricultural category to increase over this period has been Unique Farmland (100,646 acres), due to expansion of high value crops, primarily orchards and vineyards.[1]

Between 2016-2018, irrigated farmland was the source of 30 percent (11,465 acres) of all new Urban and Built-up Land. Prime Farmland was the source of 12 percent (4,748 acres) of urban land. Farmland of Statewide Importance and Unique Farmland combined as the further source of 18 percent (6,717 acres) of urban land. Another 52 percent (19,454 acres) of new Urban and Built-up Land was developed from land dedicated to dryland farming and grazing. The remaining 18 percent (6,664 acres) was derived from natural vegetation or vacant lands (Other Land).[2]

[1] California Department of Conservation, 2018. Division of Land Resource Protection (DLRP). 2016-2018 California Farmland Conversion Report, Documenting Changes in Agricultural Land Use Since 1984. Page 4.

[2] California Department of Conservation, 2018. Division of Land Resource Protection (DLRP). 2016-2018 California Farmland Conversion Report, Documenting Changes in Agricultural Land Use Since 1984. Page 2.

Merced County

In 2018, approximately 47 percent of the land in Merced County was comprised of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance,[3] a decrease of approximately 11,163 acres from 2016. Leading crops by acreage in Merced County are pasture, almonds, silage and corn, alfalfa hay, tomatoes, sweet potatoes, pistachios, wine grapes, cotton, and hay.[4]

Merced County is the fifth top agricultural producing county, in gross sales, in the state.[5] In 2022, the county's top 15 commodities were milk, almonds, chickens, cattle and calves, sweet potatoes, corn silage, tomatoes, chicken eggs, miscellaneous vegetables, miscellaneous fruits and nuts, alfalfa hay, other silage, nursery products, wine grapes, and pistachios.[6] Merced County agricultural commodities grossed $4,562,155,000 in 2022. This represents an increase of $841,447,000 or 23 percent from the 2021 total value of $3,720,708,000.[7]

EXISTING FARMLAND

Agriculture plays a role as an important industry, a predominant feature of the visual landscape, and a major contributor of the County's identity. The City of Merced has grown in recent years, and agricultural lands within and adjacent to the city have been converted from agricultural to non-agricultural uses.

The majority of existing agricultural uses in the city are related to crops. Grazing lands are interspersed throughout the city and SOI. Agricultural uses, including grazing and farmland, are also located adjacent to the city limit, with large areas around the periphery of the City limit. Areas adjacent to the east of the Project site are designated and zoned for agriculture and UC Merced.

The Bellevue Community Plan (BCP) provides policy direction to the decision making process for development within a defined geographic portion of the Planning area of the City's General Plan. The BCP focuses on providing a vision and framework for coordinating transportation, infrastructure, and open space, with varied land use mixes and intensities. Through the City's amendment process, the BCP is incorporated into the City's General Plan by reference.

The BCP establishes a high-level planning framework that strikes a balance between certainty and flexibility by anchoring key land uses while allowing their size to adapt to changing market conditions in response to economic growth and the expansion of UC Merced. While the BCP provides a broad range of uses and densities that could occur throughout the plan area, it emphasizes the foundational building blocks of street connectivity, functional mobility choices, active and passive recreation open space

[3] California Department of Conservation, 2019. Farmland Mapping and Monitoring Program, 2016-2018 Farmland Conversion Report. Appendix A, Table A-18, Merced County 2016-2018 Land Use Conversion. Available: https://www.conservation.ca.gov/dlrp/fmmp/Pages/2016-2018_Farmland_Conversion_Report.aspx. Accessed June 17, 2024.

[4] Merced County, 2023. Merced County Department of Agriculture. Annual Report on Agriculture 2022.

[5] California Department of Food and Agriculture, 2024. California Agricultural Statistics Review 2022-2023. p. 7.

[6] Merced County, 2023. Merced County Department of Agriculture. Annual Report on Agriculture 2022. p. 2.

[7] Merced County, 2023. Merced County Department of Agriculture. Annual Report on Agriculture 2022. p. 1.

corridors and bikeways, gateway street designs, and attractive business park settings to create a great sense of place with investment certainty.

The Bellevue Community Plan area contains a variety of lands, with the most prominent being Grazing Land. Other types of land include fallowed row crop fields, natural open space, and rural residential homes. The Project site includes one rural residential home that would be annexed to the City, but would not be developed with other uses. The agricultural land that would be converted on the Project site consists of fallowed grazing land.

The BCP was evaluated in an addendum to the Merced Vision 2030 General Plan EIR (SCH #2008071069). Development of the Bellevue Community Plan area, including the Project site, and therefore the conversion of its agricultural use, has been contemplated and planned for the past 20 years.

FARMLAND CLASSIFICATIONS

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) classifies farmland into the following categories based on soil type and current land use:

- Prime Farmland. 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 four years prior to the mapping date.
- Farmland of Statewide Importance. Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland. Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- Farmland of Local Importance. Land that is either currently producing crops or has the capability to do so. It is land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, but it may be important to the local economy due to its productivity. This designation is determined by each county's board of supervisors and a local advisory committee.
- Grazing Land. Land on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing.
- Urban and Built-Up Land. Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 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. Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock

grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

For environmental review purposes under CEQA, the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land constitute 'agricultural land' (Public Resources Code Section 21060.1). The remaining categories are used for reporting changes in land use as required for FMMP's biennial farmland conversion report.

The Project site is primarily comprised of Grazing Land, and some Farmland of Local Importance, as indicated in **Table 3.2-1** and shown on **Figure 3.2-1**. Designations of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance are referred to collectively in this analysis as Important Farmland.

TABLE 3.2-1: FARMLAND TYPES AND ACREAGES

FARMLAND CLASSIFICATION	*UC VILLAGES PROJECT SITE (ACRES)*	*REMAINDER OF BELLEVUE CP AREA (ACRES)*	*TOTAL IN BELLEVUE CP AREA (ACRES)*
Prime Farmland	0	13.38	13.38
Farmland of Statewide Importance	0	52.12	52.12
Unique Farmland	0	75.26	75.26
Farmland of Local Importance	8.08	133.87	141.95
Grazing Land	29.10	1,126.31	1,155.41
Urban and Built-Up Land	0	28.46	28.46
Rural Residential	0.06	121.71	121.76
Vacant or Disturbed Land	0	26.83	26.83
Total	**37.23**	**1,577.94**	**1,615.17**

SOURCE: FARMLAND MAPPING AND MONITORING PROGRAM, 2024.

SOIL TYPES

The Project site is underlain by moderately well-drained soils deposited in dry alluvial fans. The site is underlain by 2HB – Hopeton Clay, 3HA and 3HB– Hopeton Clay Loam, CgB – Corning Gravelly Loam, RbA—Raynor Cobbly Clay, and ReB – Redding Gravelly Loam. These soils support agricultural uses.

3.2.2 REGULATORY SETTING

FEDERAL

Federal Farmland Protection Policy Act, 7 U.S. Code Section 4201 and 7 Code of Federal Regulations 658

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) oversees the Farmland Protection Policy Act (FPPA) (7 U.S. Code [USC] Section 4201 et seq.; see also 7 Code of Federal Regulations [CFR] 658). The FPPA (a subtitle of the 1981 Farm Bill) is national legislation with the

following stated purpose: "to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses." The FPPA applies to projects and programs that are sponsored or financed in whole or in part by the federal government and does not apply to private construction projects subject to federal permitting and licensing, projects planned and completed without assistance from a federal agency, federal projects related to national defense during a national emergency, or projects proposed on land already committed to urban development. The FPPA spells out requirements to ensure federal programs to the extent practical are compatible with state, local, and private programs and policies to protect farmland and calls for the use of the Land Evaluation and Site Assessment (LESA) system to aid in analysis.

U.S. Department of Agriculture Natural Resources Conservation Service

The U.S. Department of Agriculture's Natural Resources Conservation Service maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. In addition to many other natural resource conservation programs, the NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses. Working through existing programs, USDA joins with state, tribal, or local governments to acquire conservation easements or other interests from landowners.

STATE

Farmland Mapping and Monitoring Program

The California Department of Conservation FMMP classifies farmland into five different categories based on soil type and current land use, as described in the Environmental Setting. The minimum mapping unit is 10 acres, with the exception of grazing land, which is 40 acres. See Table 3.2-1 for a listing of Project site acreage by farmland classification.

California Farmland Conservancy Program

The California Farmland Conservancy Program (Public Resources Code Section 10200 *et seq.)* supports the voluntary granting of agricultural conservation easements from landowners to qualified nonprofit organizations, such as land trusts, as well as local governments. Conservation easements are voluntarily established restrictions that are permanently attached to property deeds, with the general purpose of retaining land in its natural, open-space, agricultural, or other condition while preventing uses that are deemed inconsistent with the specific conservation purposes expressed in the easements. Agricultural conservation easements define conservation purposes that are tied to keeping land available for continued use as farmland. Such farmlands remain in private ownership and the landowner retains all farmland use authority, but the farmland is restricted in its ability to be subdivided or used for non-agricultural purposes, such as urban use.

California Right to Farm Act

The California Right to Farm Act (California Civil Code Section 3482.5) establishes that no agricultural activity, operation, or facility, conducted or maintained for commercial purposes and in a manner

consistent with established customs and standards, shall become a nuisance after it has been in operation for more than three years if it was not a nuisance at the time it began. The Right to Farm Act requires that as a part of real estate transactions, land sellers and agents must disclose whether the property is located within one mile of farmland as designated on the most recent Important Farmland Map. Any of the five agricultural categories on the map qualifies for disclosure purposes, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act (Government Code Section 51200 *et seq.)* of 1965, commonly known as the Williamson Act, provides a tax incentive for the voluntary enrollment of agricultural and open space lands in contracts between local government and landowners. The contract restricts the land to agricultural and open space uses and compatible uses defined in State law and local ordinances. An agricultural preserve, which is established by local government, defines the boundary of an area within which a city or county will enter into contracts with landowners. Local governments calculate the property tax assessment for lands under contract based on the actual use of the land rather than the potential land value assuming full development.

Williamson Act contracts are effective for periods of 10 years and longer. The contract is automatically renewed each year, maintaining a constant, 10-year contract, unless the landowner or local government files to initiate non-renewal. Should that occur, the Williamson Act would terminate 10 years after the filing of a notice of non-renewal. Only a landowner can petition for a contract cancellation. Tentative contract cancellations can be approved only after a local government makes specific findings and determines the cancellation fee to be paid by the landowner. There are no Williamson Act contracts in effect on the Project site.

LOCAL

Merced County Local Agency Formation Commission (LAFCo)

Urban growth and expansion, under California State Law, is subject to a local review body called the Merced County Local Agency Formation Commission (LAFCo). LAFCo, comprised of City and County elected officials, must review and approve all municipal boundary revisions (including annexations). Merced County LAFCo adopted a set of Local LAFCo Goals, Objectives, and Policies to address local concerns and priorities regarding annexations and the preservation of agricultural land.

Merced County Ordinance 1213

Merced County Ordinance 1213 is the County's right-to-farm ordinance. It requires that parcel maps of all parcels within 1,000-feet of an agricultural zone and dwelling units of more than 500 square feet have a notice 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. Additionally, the ordinance requires that building permit applicants acknowledge the ordinance before a permit can be issued.

City of Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan contains a number of policies that apply to agricultural impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Urban Expansion and the Open Space, Conservation, and Recreation Elements are designed to ensure that agricultural impacts are minimized as development occurs in accordance with the Merced Vision 2030 General Plan.

URBAN EXPANSION

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

> **Implementing Action 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.
>
> **Implementing Action 1.1.b** Limit development and development related impacts on agricultural lands along the City's urban fringe.
>
> **Implementing Action 1.1.f** Work with Merced County and the other cities in the County to develop a County-wide agricultural land preservation policy.

Policy UE-1.2 Foster compact and efficient development patterns to maintain a compact urban form.

Policy UE-1.3 Control the annexation, timing, density, and location of new land uses within the City's urban expansion boundaries.

Policy UE-1.4 Continue joint planning efforts on the UC Merced and University Community plans.

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 UE-1.6 Consider expansion of the City's SUDP/SOI boundary for areas within the Area of Interest when certain conditions are met.

OPEN SPACE, CONSERVATION, AND RECREATION

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

Policy OS-2.2 Relieve pressures on converting areas containing large concentrations of "prime" agricultural soils to urban uses by providing adequate urban development land within the Merced City SUDP/SOI.

3.2.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact on agricultural resources if it would:

- 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;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined by 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));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- 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.

METHODOLOGY AND ASSUMPTIONS

Farmland resource acreages were assessed based on the California Department of Conservation FMMP, a biennial report and mapping resource on the conversion of farmland and grazing land, and from the USDA Natural Resources Conservation Service Web Soil Survey. Williamson Act contract lands were identified by geographic information systems (GIS) data from Merced County. Using these sources, the proposed Project was analyzed for potential conversion of Important Farmland and other changes resulting from the proposed Project that may result in the conversion of farmland to urban uses.

The Project site is currently designated in the Merced County General Plan as "Merced Rural Residential Center" No. 1 Rural-Residential (R-R) and zoned in the County as Rural Residential/Single Family Residential. The Project site is designated in the City of Merced's General Plan as "Community Plan," which has been established in the form of the Bellevue Community Plan. The Bellevue Community Plan designates the project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office. Although the project site has not been zoned by the City of Merced, it is proposed to be pre-zoned Planned Development (P-D). Neither the City's existing nor proposed pre-zoning designations allow for ongoing agricultural uses. Further, the site is not encumbered by a Williamson Act contract. Therefore, the proposed Project would not conflict with existing zoning for agricultural use and there would be no impact to Williamson Act lands.

There is no forest land or timber land on or near the proposed Project site. Therefore, the Project would have no impact on the conversion of forest land or timber land.

For a further discussion of these topics, please see Chapter 6, Effects Not Found to be Significant.

IMPACTS AND MITIGATION

Impact 3.2-1: Implementation of the proposed Project would not 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. (Less than Significant)

For environmental review purposes under CEQA, the categories of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland constitute "agricultural land" (Public Resources Code Section 21060.1).

Development of the proposed Project would convert 8.08 acres of Farmland of Local Importance and 29.10 acres of Grazing Land to non-agricultural uses. There is no Prime Farmland, Farmland of Statewide Importance, and Unique Farmland on the Project site.

The Project site is currently fallowed grazing land while awaiting development for urban uses, consistent with Merced Vision 2030 General Plan EIR Mitigation Measure 3.2-1, which encourages 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. As shown in Table 3.2-1, the Project site is almost exclusively identified as Grazing Land due to the underlying soil type. The southern portion of the project site contains Farmland of Local Importance.

The project site is designated in the Merced County General Plan as "Merced Rural Residential Center" No. 1 Rural-Residential (R-R) and zoned in the County as Rural Residential/Single Family Residential. While agricultural uses are permitted under those designations, the Project site would be annexed to the City of Merced. As discussed in the City General Plan, there is no land within the City limits with an agricultural land use designation except for a small piece near the Merced Airport. Merced Vision 2030 General Plan policy OS-2.1 states that the City shall protect agricultural areas outside the City's SUDP/SOI from urban impacts. The proposed Project would be within the City's SOI.

The Project site is designated in the City of Merced's General Plan as "Community Plan," which has been established in the form of the Bellevue Community Plan. The Bellevue Community Plan designates the project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office. The site would be pre-zoned Planned Development (PD) as part of the proposed Project. All of these zones anticipate development and the conversion of lands in current agricultural production to non-agricultural uses.

As the Project site does not contain any Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, there would be no conversion of those types of farmlands to non-agricultural uses. Therefore, the Project would have a ***less-than-significant impact*** on Prime Farmland, Farmland of Statewide Importance, and Unique Farmland.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required

Impact 3.2-2: Implementation of the proposed Project would not 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. (Less than Significant)

There is no forest land on the Project site or within its vicinity. Therefore, there would be ***no impact*** on the conversion of forest land to non-forest uses.

Although the Project site is located outside of the City limits, Merced County has designated the Project site as Rural Residential, and zoned the area as Agricultural Residential. The area known as Merced Rural Residential Center No. 1 comprises 3,466.64 acres[8] and is bound by Old Lake Road on the north, G Street on the west, W. Cardella Road on the south, and Lake Road on the east. The land use designation and zoning indicate that the land within Merced Rural Residential Area No. 1 is anticipated to convert to urban uses.

Land to the west and south of the Merced Rural Residential Area No. 1 are within the Merced City limits and are designated as urban. Land to the east of Merced Rural Residential Area No. 1 includes the UC Merced campus (designated as Institutional and zoned as A-2, Exclusive Agricultural) and the University Community project area (designated as Mixed Use and zoned as A-1, General Agricultural). Land within the University Community area includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.

The proposed Project does not propose development or the extension of infrastructure beyond the project boundary. Although the proposed Project would be annexed to the City of Merced, it would not induce other lands to develop or annex into the City. Assembly Bill 3312 (AB 3312) allows the City to annex the main UC Merced campus through a "road strip" (Bellevue Road) and places certain restrictions on future annexations along the "road strip." Following annexation of the UC Merced campus, other properties either along Bellevue Road or adjacent to UC Merced would be eligible for annexation, including the UC Villages project site. Development of the proposed Project would not be the catalyst for further urban development along Bellevue Road.

Development of the proposed Project would not result in the conversion of, or other changes to, the environment that could result in the conversion of Important Farmland to non-agricultural use. Therefore, the impact would be ***less than significant***.

[8] Merced County, 2010. Zoning - Merced Rural Residential Center Map. Available: https://web2.co.merced.ca.us/pdfs/planning/sudpmaps/rrc/merced_rrc.pdf. Accessed June 17, 2024.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

CUMULATIVE IMPACTS

The cumulative context for the loss of agricultural land is Merced County, with an understanding of the historic trend in California to convert farmland to non-agricultural uses.

Impact 3.2-3 Implementation of the proposed Project, in combination with other cumulative development, would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use (Significant and Unavoidable)

A significant cumulative impact could occur if the proposed Project, in conjunction with other reasonably foreseeable projects in the area, results in indirect impacts that exert pressure on agricultural lands to convert to non-agricultural use. Such indirect impacts can include the division of large tracts of continuous agricultural land into smaller, less agriculturally viable tracts; the presence of incompatible uses adjacent to existing agricultural operations that could lead to the restriction of chemical use and/or complaints regarding noise, dust, and odors; increases in land values and taxes that exert pressure on agricultural landowners to convert to urban uses; and loss of agricultural support infrastructure, such as processing facilities. In addition, urban growth may increasingly compete with agriculture for the use of water resources, and may conflict with operational use of area roadways.

Over the period of 2016-2018, urban development in California totaled 37,583 net acres for this period, taking 11,465 acres out of irrigated farmland (Prime, Statewide, and Unique Farmland).[9] The Department of Conservation has recorded the conversion of over 1.6 million acres of agricultural land in California to nonagricultural purposes since 1984. The largest losses in agricultural land have been from Prime Farmland (-816,123 acres), Farmland of Statewide Importance (-455,287 acres), and Grazing Land (-423,565 acres)—some of California's best farmland.[10]

The City of Merced is surrounded on all sides by agricultural land. While there are some pockets of land within the City limits that are still being farmed, there are no agriculturally designated lands in the City; the City intends to grow within its existing City limits and its identified SOI, and limit development outside of those areas. However, suburban sprawl, particularly in areas where there are adequate resources and open land, continues in Merced County and throughout the state. The conversion of

[9] California Department of Conservation, 2019. Farmland Mapping and Monitoring Program, 2016-2018 Farmland Conversion Report. Available: https://www.conservation.ca.gov/dlrp/fmmp/Pages/2016-2018_Farmland_Conversion_Report.aspx. Accessed June 17, 2024.

[10] California Department of Conservation, 2019. Farmland Mapping and Monitoring Program, 2016-2018 Farmland Conversion Report. Available: https://www.conservation.ca.gov/dlrp/fmmp/Pages/2016-2018_Farmland_Conversion_Report.aspx. Accessed June 17, 2024.

Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to urban uses is a potentially significant cumulative impact.

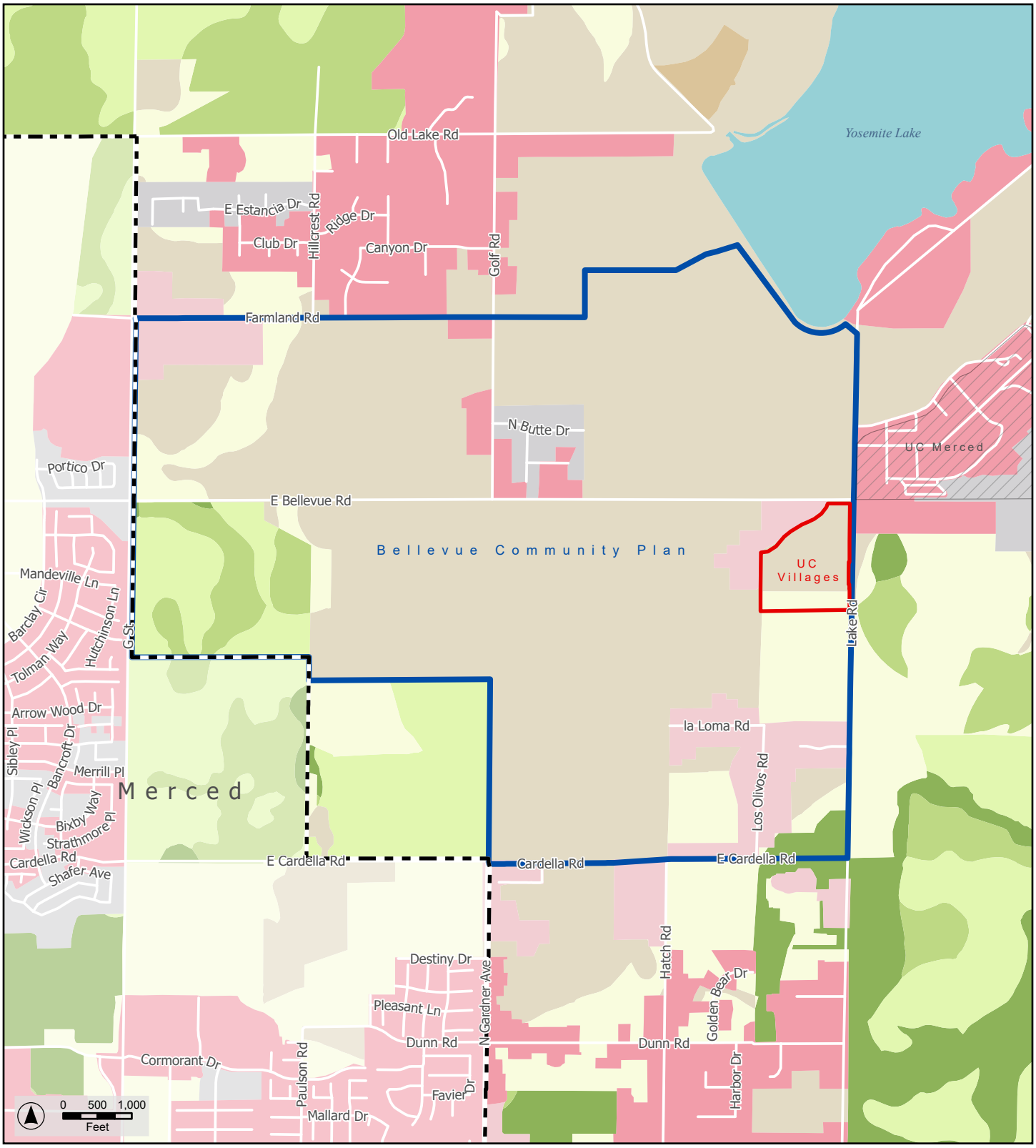
The proposed Project is within the BCP and anticipated to develop with urban uses in the Merced Vision 2030 General Plan. The proposed Project would result in the conversion of 8.08 acres of Important Farmland to non-agricultural uses. However, there is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on the Project site. Therefore, the proposed Project would not have a considerable contribution to the loss of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required



Legend

- Project Boundary
- Bellevue Community Plan
- City of Merced
- University Lands
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Farmland of Local Importance
- Nonagricultural or Natural Vegetation
- Vacant or Disturbed Land
- Rural Residential Land
- Urban and Built-Up Land
- Water Area

UC VILLAGES

Figure 3.2-1. Prime Farmland

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; CDOC Farmland Mapping and Monitoring Program, Merced County 2018; Map date: July 8, 2024.

This section describes the regional air quality, current attainment status of the air basin, local sensitive receptors, emission sources, and impacts that are likely to result from Project implementation. The analysis contained in this section is intended to be at a project-level, and covers impacts associated with the conversion of the entire Master Plan site to urban uses. Following this discussion is an assessment of consistency of the proposed Project with applicable policies and local plans. The Greenhouse Gases and Climate Change analysis is in a separate section of this document. This section is based in part on the following technical studies: *Air Quality and Land Use Handbook: A Community Health Perspective* (California Air Resources Board [CARB], 2005), and *Guidance for Assessing and Mitigating Air Quality Impacts - 2015* (SJAVPCD, 2015). The section also includes the model results from the California Emissions Estimator Model (CalEEMod v. 2022.1). See Appendix B for the CalEEMod air quality modeling results for proposed Project.

One comment letter referencing air quality was received on the Notice of Preparation (NOP) (see Appendix A):

The **San Joaquin Valley Air Pollution Control District** requested that the proposed Project should be evaluated for its consistency with the Air District's criteria pollutant thresholds. The comment letter also provides several recommended mitigation measures related to air quality. Further, the comment letter requests that sensitive receptors be evaluated for the potential for health risks. The comment letter also provides a list of potential Air District Rules and regulations that may be applicable the proposed Project. These issues have been addressed in this section, as applicable. It should be noted that, since all air quality-related impacts were found to be less than significant without mitigation, mitigation measures for air quality impacts are not required for the proposed Project.

3.3.1 ENVIRONMENTAL SETTING

SAN JOAQUIN VALLEY AIR BASIN

The City of Merced (City) is in the north-central portion of the San Joaquin Air Basin (SJVAB). The SJVAB consists of eight counties: Fresno, Kern (western and central), Kings, Tulare, Madera, Merced, San Joaquin, and Stanislaus. Air pollution from significant activities in the SJVAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

The SJVAB is approximately 250 miles long and an average of 35 miles wide. It is bordered by the Sierra Nevada in the east, the Coast Ranges in the west, and the Tehachapi Mountains in the south. There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the valley opens to the San Francisco Bay at the Carquinez Straits. At its northern end is the Sacramento Valley, which comprises the northern half

of California's Central Valley. The bowl-shaped topography inhibits movement of pollutants out of the valley (San Joaquin Valley Air Pollution Control District.[1]

Climate

The SJVAB is in a Mediterranean climate zone and is influenced by a subtropical high-pressure cell most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100°F in the valley.

The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500 to 3,000 feet).

Winter-time high pressure events can often last many weeks, with surface temperatures often lowering into the 30°F. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.[2]

Wind Patterns

Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing and transporting it to other locations.

Especially in summer, winds in the San Joaquin Valley most frequently blow from the northwest. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the valley. Marine air can flow into the basin from the San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow along the axis of the valley, over the Tehachapi Pass, into the Southeast Desert Air Basin. This wind pattern contributes to transporting pollutants from the Sacramento Valley and the Bay Area into the SJVAB. Approximately 27 percent of the total emissions in the northern portion, 11 percent of total emissions in the central region, and 7 percent of total emission in the south valley of the SJVAB are attributed to air pollution transported from these two areas.[3] The Coastal Range is a barrier to air movement to the west and the high Sierra Nevada Range is a significant barrier to the east (the highest peaks in the southern Sierra Nevada reach almost halfway through the Earth's atmosphere). Many days in the winter are marked by stagnation events where winds are very weak. Transport of pollutants during winter can be very limited. A secondary but significant summer wind pattern is from the southeast and can be associated with nighttime drainage winds, prefrontal conditions, and summer monsoons.

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1 SJVAPCD, 2015. Guidance for Addressing and Mitigating Air Quality Impacts. March 19, 2025. Available: https://www.valleyair.org/transportation/GAMAQI.pdf.

2 SJVAPCD, 2015. Guidance for Addressing and Mitigating Air Quality Impacts. March 19, 2025. Available: https://www.valleyair.org/transportation/GAMAQI.pdf.

3 SJVAPCD, 2024. Frequently Asked Questions, Available: http://www.valleyair.org/general_info/frequently_asked_questions.htm#What%20is%20being%20done%20to%20improve%20ai r%20quality%20in%20the%20San%20Joaquin%20Valley. Accessed June 10, 2024.

Two significant diurnal wind cycles that occur frequently in the 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 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 especially 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.

Temperature

Solar radiation and temperature are particularly important in the chemistry of ozone formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances (such as volatile organic compounds) and nitrogen dioxide under the influence of sunlight. Ozone concentrations are very dependent on the amount of solar radiation, especially during late spring, summer, and early fall. Ozone levels typically peak in the afternoon. After the sun goes down, the chemical reaction between nitrous oxide and ozone begins to dominate. This reaction tends to scavenge and remove the ozone in the metropolitan areas through the early morning hours, resulting in the lowest ozone levels, possibly reaching zero at sunrise in areas with high nitrogen oxides emissions. At sunrise, nitrogen oxides tend to peak, partly due to low levels of ozone currently and due to the morning commuter vehicle emissions of nitrogen oxides.

Generally, the higher the temperature, the more ozone formed, since reaction rates increase with temperature. However, extremely hot temperatures can “lift” or “break” the inversion layer. Typically, if the inversion layer does not lift to allow the buildup of contaminants to be dispersed, the ozone levels will peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, the ozone will peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB.

Ozone levels are low during winter periods when there is much less sunlight to drive the photochemical reaction.[4]

Precipitation, Humidity, and Fog

Precipitation and fog may reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog can block the required solar radiation. Wet fogs can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Atmospheric moisture can also increase pollution levels. In fogs with less water content, the moisture acts to form secondary ammonium nitrate particulate matter. This ammonium nitrate is part of the valley’s $PM_{2.5}$ and PM_{10} problem. The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the SJVAB floor. This creates

[4] SJVAPCD, 2015. Guidance for Addressing and Mitigating Air Quality Impacts. March 19, 2025. Available: https://www.valleyair.org/transportation/GAMAQI.pdf.

strong low-level temperature inversions and very stable air conditions, which can lead to tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of $PM_{2.5}$ and PM_{10}.[5]

Inversions

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by persistent temperature inversions. Air temperature in the lowest layer of the atmosphere typically decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. The height of the base of the inversion is known as the "mixing height." This is the level to which pollutants can mix vertically. Mixing of air is minimized above and below the inversion base. The inversion base represents an abrupt density change where little air movement occurs.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.[6]

CRITERIA POLLUTANTS

All criteria pollutants can have human health and environmental effects at certain concentrations. The United States Environmental Protection Agency (U.S. EPA) uses six "criteria pollutants" as indicators of air quality and has established, for each of them, a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). In addition, California establishes ambient air quality standards, called California Ambient Air Quality Standards (CAAQS). California law does not require that the CAAQS be met by a specified date as is the case with NAAQS.

The ambient air quality standards for the six criteria pollutants (as shown in **Table 3.3-1**) are set to public health and the environment within an adequate margin of safety (as provided under Section 109 of the Federal Clean Air Act). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria pollutants, and form the scientific basis for new and revised ambient air quality standards. Principal characteristics and possible health and environmental effects from exposure to the six primary criteria pollutants generated by the Project are discussed below.

[5] SJVAPCD, 2015. Guidance for Addressing and Mitigating Air Quality Impacts. March 19, 2025. Available: https://www.valleyair.org/transportation/GAMAQI.pdf.

[6] SJVAPCD, 2015. Guidance for Addressing and Mitigating Air Quality Impacts. March 19, 2025. Available: https://www.valleyair.org/transportation/GAMAQI.pdf.

TABLE 3.3-1: FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

POLLUTANT	*AVERAGING TIME*	*FEDERAL PRIMARY STANDARD*	*STATE STANDARD*
Ozone	1-Hour 8-Hour	-- 0.070 ppm	0.09 ppm 0.070 ppm
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm 35.0 ppm	9.0 ppm 20.0 ppm
Nitrogen Dioxide	Annual 1-Hour	0.053 ppm 0.100 ppm	0.03 ppm 0.18 ppm
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 ppm 0.14 ppm 0.075 ppm	-- 0.04 ppm 0.25 ppm
PM_{10}	Annual 24-Hour	-- 150 ug/m^3	20 ug/m^3 50 ug/m^3
$PM_{2.5}$	Annual 24-Hour	12 ug/m^3 35 ug/m^3	12 ug/m^3 --
Lead	30-Day Avg. 3-Month Avg.	-- 0.15 ug/m^3	1.5 ug/m^3 --

NOTES: PPM = PARTS PER MILLION, UG/M3 = MICROGRAMS PER CUBIC METER

SOURCE: CALIFORNIA AIR RESOURCES BOARD, 2024. AVAILABLE: HTTPS://WW2.ARB.CA.GOV/RESOURCES/CALIFORNIA-AMBIENT-AIR-QUALITY-STANDARDS

Ozone (O_3) is a photochemical oxidant and the major component of smog. While O_3 in the upper atmosphere is beneficial to life by shielding the earth from harmful ultraviolet radiation from the sun, high concentrations of O_3 at ground level are a major health and environmental concern. O_3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (ROG) and oxides of nitrogen (NO_x) in the presence of sunlight. These reactions are stimulated by sunlight and temperature so that peak O_3 levels occur typically during the warmer times of the year. Both ROGs and NO_x are emitted by transportation and industrial sources. ROGs are emitted from sources as diverse as autos, chemical manufacturing, dry cleaners, paint shops and other sources using solvents. Relatedly, reactive organic compounds (ROG) are defined as the subset of ROGs that are reactive enough to contribute substantially to atmospheric photochemistry.

The reactivity of O_3 causes health problems because it damages lung tissue, reduces lung function, and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to O_3 for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

Studies show associations between short-term ozone exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to ozone may increase the risk of respiratory-related deaths.[7] The concentration of ozone at which health effects

[7] United States Environmental Protection Agency (USEPA), 2024. Health Effects of Ozone Pollution. Last Updated April 9, 2024 Available: https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution

are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion of ozone and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggest that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 parts per billion.[8] The average background level of ozone in California and Nevada is approximately 48.3 parts per billion, which represents approximately 77 percent of the total ozone in the western region of the U.S.[9]

In addition to human health effect, ozone has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. O_3 can also act as a corrosive and oxidant, resulting in property damage such as the degradation of rubber products and other materials.

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels. Carbon monoxide is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Exposure to CO at high concentrations can also cause fatigue, headaches, confusion, dizziness, and chest pain. There are no ecological or environmental effects to ambient CO.[10]

Very high levels of CO are not likely to occur outdoors. However, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability for getting oxygenated blood to their hearts in situations where the heart needs more oxygen than usual. They are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina.[11] Such acute effects may occur under current ambient conditions for some sensitive individuals, while increases in ambient CO levels increases the risk of such incidences.

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8 United States Environmental Protection Agency (USEPA), 2024. Health Effects of Ozone In the General Population. Last Update May 16, 2024. Available: https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population.

9 NASA, 2015. Background Ozone a Major Issue in the U.S. West. September 28, 2015. Available: https://climate.nasa.gov/news/2346/background-ozone-a-major-issue-in-us-west/.

10 California Air Resources Board (CARB). 2024. Carbon Monoxide and Health. Available: https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health.

11 United States Environmental Protection Agency (USEPA). 2024. Basic Information About Carbon Monoxide (CO) Outdoor Pollution. Available: https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.

Nitrogen oxides (NO_x) is a brownish, highly reactive gas that is present in all urban atmospheres. The main effect of increased NO_2 is the increased likelihood of respiratory problems. Under ambient conditions, NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides are an important precursor both to ozone (O_3) and acid rain and may affect both terrestrial and aquatic ecosystems. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO_2.

The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO_x). NO_x plays a major role, together with ROGs, in the atmospheric reactions that produce O_3. NO_x forms when fuel is burned at high temperatures. The two major emission sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

Sulfur dioxide (SO_2) is one of the multiple gaseous oxidized sulfur species and is formed during the combustion of fuels containing sulfur, primarily coal and oil. The largest anthropogenic source of SO_2 emissions in the U.S. is fossil fuel combustion at electric utilities and other industrial facilities. SO_2 is also emitted from certain manufacturing processes and mobile sources, including locomotives, large ships, and construction equipment.

SO_2 affects breathing and may aggravate existing respiratory and cardiovascular disease in high doses. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children, and the elderly. SO_2 is also a primary contributor to acid deposition, or acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings, and statues. In addition, sulfur compounds in the air contribute to visibility impairment in large parts of the country. This is especially noticeable in national parks. Ambient SO_2 results largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters.

Short-term exposure to ambient SO_2 has been associated with various adverse health effects. Multiple human clinical studies, epidemiological studies, and toxicological studies support a causal relationship between short-term exposure to ambient SO_2 and respiratory morbidity. The observed health effects include decreased lung function, respiratory symptoms, and increased emergency department visits and hospitalizations for all respiratory causes. These studies further suggest that people with asthma are potentially susceptible or vulnerable to these health effects. In addition, SO_2 reacts with other air pollutants to form sulfate particles, which are constituents of fine particulate matter ($PM_{2.5}$). Inhalation exposure to $PM_{2.5}$ has been associated with various cardiovascular and respiratory health effects.[12] Increased ambient SO_2 levels would lead to increased risk of such effects.

[12] United States Environmental Protection Agency (USEPA). 2017. Sulfur Dioxide Concentrations – EPA. Available: https://cfpub.epa.gov/roe/indicator_pdf.cfm?i=91.

SO_2 emissions that lead to high concentrations of SO_2 in the air generally also lead to the formation of other sulfur oxides (SOx). SOx can react with other compounds in the atmosphere to form small particles. These particles contribute to particulate matter (PM) pollution. Small particles may penetrate deeply into the lungs and in sufficient quantity can contribute to health problems.

Particulate matter (PM) includes dust, dirt, soot, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as SO_2 and ROGs are also considered particulate matter. PM is generally categorized based on the diameter of the particulate matter: PM_{10} is particulate matter 10 micrometers or less in diameter (known as respirable particulate matter), and $PM_{2.5}$ is particulate matter 2.5 micrometers or less in diameter (known as fine particulate matter).

Based on studies of human populations exposed to high concentrations of particles (sometimes in the presence of SO_2) and laboratory studies of animals and humans, there are major effects of concern for human health. These include effects on breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogenesis, and premature death. Small particulate pollution causes health impacts even at very low concentrations – indeed no threshold has been identified below which no damage to health is observed.

Respirable particulate matter (PM_{10}) consists of small particles, less than 10 microns in diameter, of dust, smoke, or droplets of liquid which penetrate the human respiratory system and cause irritation by themselves, or in combination with other gases. Particulate matter is caused primarily by dust from grading and excavation activities, from agricultural activities (as created by soil preparation activities, fertilizer and pesticide spraying, weed burning and animal husbandry), and from motor vehicles, particularly diesel-powered vehicles. PM_{10} causes a greater health risk than larger particles, since these fine particles can more easily penetrate the defenses of the human respiratory system.

$PM_{2.5}$ consists of fine particles, which are less than 2.5 microns in size. Like PM_{10}, these particles are primarily the result of combustion in motor vehicles, particularly diesel engines, as well as from industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. As with PM_{10}, these particulates can increase the chance of respiratory disease, and cause lung damage and cancer. In 1997, the U.S. EPA created new Federal air quality standards for $PM_{2.5}$.

Although neither the U.S. EPA nor the California air districts have provided any thresholds for ultrafine particles (UFPs) (defined as fine particles of less than 0.1 microns in size, or $PM_{0.1}$), it should be noted that such particles may have the potential for even greater health effects than PM_{10} or $PM_{2.5}$, due to their even smaller sizes. UFPs are primarily generated by motor vehicle emissions (especially from diesel engines), braking, and tire wear. Specifically, UFPs are comprised mostly of metals that are known constituents of brake pads and drums, as well as additives in motor oil. Generally, all engines can create UFPs, but especially diesel engines, and any vehicle's braking

system; traffic, particularly start-and-stop, generates UFPs.[13] Recent research suggests that UFPs pose considerable health risks, similar to but tending to be more severe than PM_{10} and $PM_{2.5}$, such as increased risk of cardiovascular disease and ischemic heart disease death rates, and loss of lung function.[14] Furthermore, unlike diesel exhaust or other larger TAC emissions, UFPs are more persistent and do not dissipate easily over distances.[15]

The major subgroups of the population that appear to be most sensitive to the effects of particulate matter include individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly, and children. Particulate matter also impacts soils and damages materials and is a major cause of visibility impairment.

Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Studies show that every 1 microgram per cubic meter reduction in $PM_{2.5}$ results in a one percent reduction in mortality rate for individuals over 30 years old.[16] Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis – and even premature death. Additionally, depending on its composition, both PM_{10} and $PM_{2.5}$ can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain.[17]

Lead (Pb) exposure can occur through multiple pathways, including inhalation of air and ingestion of Pb in food, water, soil, or dust. Once taken into the body, lead distributes throughout the body in the blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen carrying capacity of the blood. Excessive Pb exposure can cause seizures, mental retardation and/or behavioral disorders. Low doses of Pb can lead to central nervous system damage. Recent studies have also shown that Pb may be a factor in high blood pressure and subsequent heart disease.

13 Aerosol Science and Technology, 2011. Thomas A. Cahill, David E. Barnes, Nicholas J. Spada, Jonathan A. Lawton, and Thomas M. Cahill. Very Fine and Ultrafine Metals and Ischemic Heart Disease in the California Central Valley 1: 2003-2007. July 13, 2011.

14 Atmospheric Environment, 2016. Thomas A. Cahill, David E. Barnes, Leann Wuest, David Gribble, David Buscho, Roger S. Miller, Camille De la Croix. Artificial Ultra-fine Aerosol Tracers for Highway Transect Studies. April 7, 2016; Aerosol Science and Technology. 2011. Thomas A. Cahil, David E. Barnes, Earl Withycombe, & Mitchell Watnik, and DELTA Group. Very Fine and Ultrafine Metals and Ischemic Heart Disease in the California Central Valley 1: 1974-1991. July 13, 2011.

15 Atmospheric Environment, 2016. Transition Metals in Coarse, Fine, Very Fine and Ultra-fine Particles from an Interstate Highway Transect Near Detroit. September 12, 2016.

16 Bay Area Air Quality Management District (BAAQMD). 2017. Spare the Air: Cool the Climate. April. San Francisco, CA. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

17 United States Environmental Protection Agency (USEPA). 2022. Health and Environmental Effects of Particulate Matter (PM). Available: https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.

Lead is persistent in the environment and can be added to soils and sediments through deposition from sources of lead air pollution. Other sources of lead to ecosystems include direct discharge of waste streams to water bodies and mining. Elevated lead in the environment can result in decreased growth and reproductive rates in plants and animals, and neurological effects in vertebrates.

Lead exposure is typically associated with industrial sources; major sources of lead in the air are ore and metals processing and piston-engine aircraft operating on leaded aviation fuel. Other sources are waste incinerators, utilities, and lead-acid battery manufacturers. The highest air concentrations of lead are usually found near lead smelters. As a result of the U.S. EPA's regulatory efforts, including the removal of lead from motor vehicle gasoline, levels of lead in the air decreased by 98 percent between 1980 and 2014.[18] Based on this reduction of lead in the air over this period, and since most new developments do not generate an increase in lead exposure, the health impacts of ambient lead levels are not typically monitored by the California Air Resources Board (CARB).

AMBIENT AIR QUALITY STANDARDS

Both the U.S. EPA and the CARB have established ambient air quality standards for common pollutants. These ambient air quality standards represent safe levels of contaminants that avoid specific adverse health effects associated with each pollutant.

The federal and State ambient air quality standards are summarized in Table 3.3-1 for important pollutants. The federal and State ambient standards were developed independently, although both processes attempted to avoid health-related effects. As a result, the federal and State standards differ in some cases. In general, the California standards are more stringent. This is particularly true for ozone, $PM_{2.5}$, and PM_{10}. The U.S. EPA signed a final rule for the federal ozone eight-hour standard of 0.070 ppm on October 1, 2015, and was effective as of December 28, 2015 (equivalent to the California state ambient air quality eight-hour standard for ozone).

In 1997, new national standards for fine particulate matter diameter 2.5 microns or less ($PM_{2.5}$) were adopted for 24-hour and annual averaging periods. The existing PM_{10} standards were retained, but the method and form for determining compliance with the standards were revised.

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated based on risk rather than specification of safe levels of contamination.

Existing air quality concerns within Fresno County and the entire air basin are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles which account for 70 percent of the

[18] United States Environmental Protection Agency (USEPA). 2022e. Basic Information About Lead Pollution. Available: https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how.

ozone in the region. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

Attainment Status

In accordance with the California Clean Air Act (CCAA), the CARB is required to designate areas of the State as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria.

Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment status. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone, carbon monoxide, and nitrogen dioxide as "does not meet the primary standards," "cannot be classified," or "better than national standards." For sulfur dioxide, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used.

Merced County has a State designation of Nonattainment for O_3, PM_{10}, and $PM_{2.5}$ and is either Unclassified or Attainment for all other criteria pollutants. The County has a national designation of Nonattainment for O_3 and $PM_{2.5}$. The County is designated either attainment or unclassified for the remaining national standards. **Table 3.3-2** presents the State and national attainment status for the San Joaquin Valley.

TABLE 3.3-2: SAN JOAQUIN VALLEY – STATE AND NATIONAL ATTAINMENT STATUS

CRITERIA POLLUTANTS	*STATE DESIGNATIONS*	*NATIONAL DESIGNATIONS*
Ozone	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified/Attainment
Sulfates	Attainment	No Federal Standard
Lead	Attainment	No Designation/Classification
Hydrogen Sulfide	Unclassified	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

SOURCE: CALIFORNIA AIR RESOURCES BOARD (AREA DESIGNATIONS MAPS / STATE AND NATIONAL), 2024.

Merced County Air Quality Monitoring

SJVAPCD and CARB maintains air quality monitoring sites in Merced County that collect data for O_3, PM_{10}, and $PM_{2.5}$. The closest air quality monitoring site to the Project site is the Merced-2334 M Street monitoring site, although ozone data was not available for this location. Therefore, data from the next closest monitoring site, the Merced-S Coffee Avenue monitoring site, was used for ozone. The Federal ozone 1-hour standard was revoked by the EPA in 2005, but subsequent litigation reinstated portions of implementation requirements under the revoked standard. As a result, the SJVAPCD adopted the 2013 Plan for the Revoked 1-Hour Ozone Standard in September 2013 to address the reinstated requirements for this standard. Data obtained from the monitoring sites between 2020 through 2022 is shown in **Table 3.3-3**.

TABLE 3.3-3: AMBIENT AIR QUALITY MONITORING DATA (MERCED-2334 M STREET)*

Pollutant	*Cal.* / *Primary Standard*	*Fed.* / *Primary Standard*	*Year*	*Max Concentration*	*Days Exceeded State/Fed Standard*
Ozone (O_3) (1-hour)	0.09 ppm for 1 hour	NA	2022 2021 2020	0.096 0.099 0.100	2 / (N/A) 2 / (N/A) 2 / (N/A)
Ozone (O_3) (8-hour)	0.07 ppm for 8 hour	0.07 ppm for 8 hour	2022 2021 2020	0.083 0.090 0.088	10 / 0 24 / 2 21 / 2
Particulate Matter (PM_{10})	50 ug/m^3 for 24 hours	150 ug/m^3 for 24 hours	2022 2021 2020	100.5 85.8 209.9	(N/A) / (N/A) (N/A)/ (N/A) (N/A) / 5.8
Fine Particulate Matter ($PM_{2.5}$)	No 24 hour State Standard	35 ug/m^3 for 24 hours	2022 2021 2020	43.7 72.9 86.0	(N/A) / 4.1 (N/A) / 14.3 (N/A) / 27.7

NOTE: DATA FOR THE MERCED-S COFFEE AVENUE MONITORING SITE WAS AVAILABLE FOR $PM_{2.5}$ AND PM_{10} (THOUGH NOT FOR OZONE); SINCE IT IS A CLOSER LOCATION TO PROJECT SITE THAN THE MERCED-2334 M STREET MONITORING SITE, DATA FOR $PM_{2.5}$ AND PM_{10} FOR THIS LOCATION IS PROVIDED IN THIS TABLE.

SOURCE: CALIFORNIA AIR RESOURCES BOARD (AEROMETRIC DATA ANALYSIS AND MANAGEMENT SYSTEM OR IADAM) AIR POLLUTION SUMMARIES.

ODORS

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another.

It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which

a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. A sensitive receptor is a location where human populations, especially children, seniors, and sick persons, are present and where there is a reasonable expectation of continuous human exposure to pollutants. Examples of sensitive receptors include residences, hospitals, and schools. The closest sensitive receptors to the Project site include existing residences located within the Project site itself. Additionally, there are residences located just to the north and west of the Project site, and the University of California Merced is located just to the east of the Project site.

3.3.2 REGULATORY SETTING

FEDERAL

Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort, and it is composed of the following basic elements: NAAQS for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The U.S. EPA is responsible for administering the FCAA. The FCAA requires the U.S. EPA to set NAAQS for several problem air pollutants based on human health and welfare criteria. Two types of NAAQS were established: primary standards, which protect public health (with an adequate margin of safety, including for sensitive populations such as children, the elderly, and individuals suffering from respiratory diseases), and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction.

NAAQS standards define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on people and the environment. Existing violations of the ozone and $PM_{2.5}$ ambient air quality standards indicate that certain individuals exposed to these pollutants may experience certain health effects, including increased incidence of cardiovascular and respiratory ailments.

NAAQS standards have been designed to accurately reflect the latest scientific knowledge and are reviewed every five years by a Clean Air Scientific Advisory Committee (CASAC), consisting of seven members appointed by the U.S. EPA Administrator. Reviewing NAAQS is a lengthy undertaking and includes the following major phases: Planning, Integrated Science Assessment (ISA), Risk/Exposure Assessment (REA), Policy Assessment (PA), and Rulemaking. The process starts with a comprehensive review of the relevant scientific literature. The literature is summarized and conclusions are presented in the ISA. Based on the ISA, U.S. EPA staff perform a risk and exposure assessment, which is summarized in the REA document. The third document, the PA, integrates the findings and conclusions of the ISA and REA into a policy context, and provides lines of reasoning that could be used to support retention or revision of the existing NAAQS, as well as several alternative standards that could be supported by the review findings. Each of these three documents are released for public comment and public peer review by the CASAC. Members of CASAC are appointed by the U.S. EPA Administrator for their expertise in one or more of the subject areas covered in the ISA. The CASAC's role is to peer review the NAAQS documents, ensure that they reflect the thinking of the scientific community, and advise the Administrator on the technical and scientific aspects of standard setting. Each document goes through two to three drafts before CASAC deems it to be final.

Although there is some variability among the health effects of the NAAQS pollutants, each has been linked to multiple adverse health effects including, among others, premature death, hospitalizations, and emergency department visits for exacerbated chronic disease, and increased symptoms such as coughing and wheezing. NAAQS standards were last revised for each of the six criteria pollutant as listed below, with detail on what aspects of NAAQS changed during the most recent update:

- Ozone: On October 1, 2015, the U.S. EPA lowered the national eight-hour standard from 0.075 ppm to 0.070 ppm, providing for a more stringent standards consistent with the current California state standard.
- CO: In 2011, the primary standards were retained from the original 1971 level, without revision. The secondary standards were revoked in 1985.
- NO_2: The national NO_2 standard was most recently revised in 2010 following an exhaustive review of new literature pointed to evidence for adverse effects in asthmatics at lower NO_2 concentrations than the existing national standard.
- SO_2: 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 1-hour national standard, the 3-year average of the annual 99^{th} percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb.

- PM: the national annual average $PM_{2.5}$ standard was most recently revised in 2012 following an exhaustive review of new literature pointed to evidence for increased risk of premature mortality at lower $PM_{2.5}$ concentrations than the existing standard.
- Lead: The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. In 2016, the primary and secondary standards were retained.

The law recognizes the importance for each state to locally carry out the requirements of the FCAA, as special consideration of local industries, geography, housing patterns, etc. are needed to have full comprehension of the local pollution control problems. As a result, the U.S. EPA requires each state to develop a State Implementation Plan (SIP) that explains how each state will implement the FCAA within their jurisdiction. A SIP is a collection of rules and regulations that a particular state will implement to control air quality within their jurisdiction. The CARB is the state agency that is responsible for preparing the California SIP.

Transportation Conformity

Transportation conformity requirements were added to the FCAA in the 1990 amendments, and the U.S. EPA adopted implementing regulations in 1997. See §176 of the FCAA (42 U.S.C. §7506) and 40 CFR Part 93, Subpart A. Transportation conformity serves much the same purpose as general conformity: it ensures that transportation plans, transportation improvement programs, and projects that are developed, funded, or approved by the United States Department of Transportation or that are recipients of funds under the Federal Transit Act or from the Federal Highway Administration (FHWA), conform to the SIP as approved or promulgated by U.S. EPA.

Currently, transportation conformity applies in nonattainment areas and maintenance areas. Under transportation conformity, a determination of conformity with the applicable SIP must be made by the agency responsible for the proposed Project, such as the Metropolitan Planning Organization, the Council of Governments, or a federal agency. The agency making the determination is also responsible for all the requirements relating to public participation. Generally, a project will be considered in conformance if it is in the transportation improvement plan and the transportation improvement plan is incorporated in the SIP. If an action is covered under transportation conformity, it does not need to be separately evaluated under general conformity.

Transportation Control Measures

One aspect of the SIP development process is the consideration of potential control measures as a part of making progress towards clean air goals. While most SIP control measures are aimed at reducing emissions from stationary sources, some are typically created to address mobile or transportation sources. These are known as transportation control measures (TCMs). TCM strategies are designed to reduce vehicle miles traveled and trips, or vehicle idling and associated air pollution. These goals are achieved by developing attractive and convenient alternatives to single-occupant vehicle use. Examples of TCMs include ridesharing programs, transportation infrastructure improvements such as adding bicycle and carpool lanes, and expansion of public transit.

STATE

Advanced Clean Cars II

The Advanced Clean Cars II regulations reduce light-duty passenger car, pickup truck and SUV emissions starting with the 2026 model year through 2035. The regulations are two-pronged. First, it amends the Zero-emission Vehicle Regulation to require an increasing number of zero-emission vehicles, and relies on currently available advanced vehicle technologies, including battery-electric, hydrogen fuel cell electric and plug-in hybrid electric-vehicles, to meet air quality and climate change emissions standards. These amendments support Governor Newsom's 2020 Executive Order N-79-20 that requires all new passenger vehicles sold in California to be zero emissions by 2035. Second, the Low-emission Vehicle Regulations were amended to include increasingly stringent standards for gasoline cars and heavier passenger trucks to continue to reduce smog-forming emissions.

Advanced Clean Trucks

On June 25, 2020, the California Air Resources Board (CARB) adopted the Advanced Clean Trucks (ACT) rule, which requires the sale of zero-emission or near zero-emission HDTs starting with the manufacturer-designated model year 2024. Sales requirements are defined separately for three vehicle groups: Class 2b-3 trucks and vans, Class 4-8 rigid trucks, and Class 7-8 tractor trucks. The regulation is structured as a credit and deficit accounting system. In 2023, the EPA granted the state the waiver it needs to enact the ACT rule. The enacted rule requires truck makers to sell an increasing percentage of electric models annually through 2035. Forty percent of big rigs, half of all cargo and travel vans and 75 percent of box truck and dump truck sales need to be zero emissions by 2035.

CARB Mobile-Source Regulation

The State of California is responsible for controlling emissions from the operation of motor vehicles in the State. Rather than mandating the use of specific technology or the reliance on a specific fuel, the CARB motor vehicle standards specify the allowable grams of pollution per mile driven. In other words, the regulations focus on the reductions needed rather than on the way they are achieved. Towards this end, the CARB has adopted regulations which require auto manufacturers to phase in less polluting vehicles.

California Clean Air Act

The California Clean Air Act (CCAA) was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CARB is the agency responsible for administering the CCAA. The CARB established ambient air quality standards pursuant to the California Health and Safety Code (CH&SC) [§39606(b)], which are like the federal standards.

California Air Quality Standards

Although NAAQS are determined by the U.S. EPA, states can set standards that are more stringent than the federal standards. As such, California established more stringent ambient air quality standards. Federal and state ambient air quality standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulates, and lead. In addition, California has created standards for pollutants that are not covered by federal standards. Although there is some variability among the health effects of the CAAQS pollutants, each has been linked to multiple adverse health effects including, among others, premature death, hospitalizations, and emergency department visits for exacerbated chronic disease, and increased symptoms such as coughing and wheezing. The existing state and federal primary standards for major pollutants are shown in Table 3.3-1.

Air quality standard setting in California commences with a critical review of all relevant peer reviewed scientific literature. The Office of Environmental Health Hazard Assessment (OEHHA) uses the review of health literature to develop a recommendation for the standard. The recommendation can be for no change, or can recommend a new standard. The review, including the OEHHA recommendation, is summarized in a document called the draft Initial Statement of Reasons (ISOR), which is released for comment by the public, and for public peer review by the Air Quality Advisory Committee (AQAC). AQAC members are appointed by the President of the University of California for their expertise in the range of subjects covered in the ISOR, including health, exposure, air quality monitoring, atmospheric chemistry and physics, and effects on plants, trees, materials, and ecosystems. The Committee provides written comments on the draft ISOR. The ARB staff next revises the ISOR based on comments from AQAC and the public. The revised ISOR is then released for a 45-day public comment period prior to consideration by the Board at a regularly scheduled Board hearing.

In June of 2002, the CARB adopted revisions to the PM_{10} standard and established a new $PM_{2.5}$ annual standard. The new standards became effective in June 2003. Subsequently, staff reviewed the published scientific literature on ground-level ozone and nitrogen dioxide and the CARB adopted revisions to the standards for these two pollutants. Revised standards for ozone and nitrogen dioxide went into effect on May 17, 2006 and March 20, 2008, respectively. These revisions reflect the most recent changes to the CAAQS.

Tanner Air Toxics Act (TACs)

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted U.S. EPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below

that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technologies (BACT) to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, CARB adopted a new public-transit bus-fleet rule and emission standards for new urban buses. These rules and standards provide for (1) more stringent emission standards for some new urban bus engines, beginning with 2002 model year engines; (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and (3) reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule.

Omnibus Low-NOx Rule

The CARB approved the Omnibus Low-NOx Rule on August 28, 2020, which will require engine NOx emissions to be cut to approximately 75% below current standards beginning in 2024, and 90% below current standards in 2027. The rule also places nine additional regulatory requirements on new heavy-duty truck and engines. Those additional requirements include a 50% reduction in particulate matter emissions, stringent new low-load and idle standards, a new in-use testing protocol, extended deterioration requirements, a new California-only credit program, and extended mandatory warranty requirements. The regulatory requirements in the Omnibus Low-NOX Rule will first become effective in 2024, at the same time as the Advanced Clean Trucks regulations that CARB approved that mandates manufacturers convert increasing percentages of their heavy-duty trucks sold in California to zero-emission vehicles.

Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003, creating Government Code Section 65302.1, which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies, and feasible implementation strategies designed to improve air quality. The elements to be amended include, but are not limited to, those elements dealing with land use, circulation, housing, conservation, and open space. Section 65302.1.c identifies four areas of air quality discussion required in these amendments:

- A report describing local air quality conditions, attainment status, and state and federal air quality and transportation plans;
- A summary of local, district, state, and federal policies, programs, and regulations to improve air quality;
- A comprehensive set of goals, policies, and objectives to improve air quality; and
- Feasible implementation measures designed to achieve these goals.

LOCAL

City of Merced General Plan

The City of Merced General Plan includes several policies and implementation programs that are relevant to air quality. General Plan goals and policies applicable to the Project are identified below:

SUSTAINABLE DEVELOPMENT ELEMENT

Goal SD-1: Air Quality and Climate Change.

- **SD-1.1.** Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Merced.
- **SD-1.2.** Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.
- **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.
- **SD-1.4.** Educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.
- **SD-1.5.** Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs
- **SD-1.6.** Reduce emissions of PM10 and other particulates with local control potential.
- **SD-1.7.** Develop and implement a Climate Action Plan for the City.
- **SD-1.8.** Implement Policies in Other General Plan Chapters to Address Air Quality and Greenhouse Gas Emissions Reduction Goals.

San Joaquin Valley Air Pollution Control District

The primary role of SJVAPCD is to develop plans and implement control measures in the SJVAB to control air pollution. These controls primarily affect stationary sources such as industry and power plants. Rules and regulations have been developed by SJVAPCD to control air pollution from a wide range of air pollution sources. SJVAPCD also provides uniform procedures for assessing potential air quality impacts of proposed projects and for preparing the air quality section of environmental documents.

AIR QUALITY PLANNING

The U.S. EPA requires states that have areas that do not meet the National AAQS to prepare and submit air quality plans showing how the National AAQS will be met. If the states cannot show how the National AAQS will be met, then the states must show progress toward meeting the National AAQS. These plans are referred to as the State Implementation Plans (SIP). California's adopted 2007 State Strategy was submitted to the U.S. EPA as a revision to its SIP in November 2007.[19] More

[19] Note that the plan was adopted by CARB on September 27, 2007; California Air Resources Board. 2007. California Air Resources Board's Proposed State Strategy for California's 2007 State Implementation Plan.

recently, in October 2018, the CARB adopted the 2018 Updates to the California State Implementation Plan.

In addition, the CARB requires regions that do not meet California AAQS for ozone to submit clean air plans (CAPs) that describe measures to attain the standard or show progress toward attainment. To ensure federal CAA compliance, SJVAPCD has developed plans for meeting new National AAQS for ozone and $PM_{2.5}$ and the California AAQS for PM_{10} in the SJVAB (for California CAA compliance). The following describes the air plans prepared by the SJVAPCD, which are incorporated by reference per CEQA Guidelines Section 15150.

1-HOUR OZONE PLAN

Although U.S. EPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and SJVAPCD must still attain this standard before it can rescind CAA Section 185 fees. The 2013 Plan for the Revoked 1-hour Ozone Standard demonstrated attainment of the 1-hour ozone standard by 2017. However, on July 18, 2016, the U.S. EPA published in the Federal Register a final action determining that SJVAB has attained the 1-hour ozone NAAQS based on the 2012 to 2014 three-year period allowing nonattainment penalties to be lifted under federal Clean Air Act section 179b. More recently, the latest 1-hour ozone plan was adopted by the U.S., the 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard.[20]

8-HOUR OZONE PLAN

The SJVAPCD's Governing Board adopted the 2007 Ozone Plan on April 30, 2007. This far-reaching plan, with innovative measures and a "dual path" strategy, assures expeditious attainment of the federal 8-hour ozone standard as set by U.S. EPA in 1997. The plan projects that the valley will achieve the 8-hour ozone standard for all areas of the SJVAB no later than 2023. The CARB approved the plan on June 14, 2007. The U.S. EPA approved the 2007 Ozone Plan effective April 30, 2012. SJVAPCD adopted the 2016 Ozone Plan to address the federal 2008 8-hour ozone standard, which must be attained by end of 2031.[21,22] Most recently, the SJVAPCD adopted the 2022 Plan for the 2015 8-Hour Ozone Standard on December 15, 2022.

PM_{10} PLAN

Based on PM_{10} measurements from 2003 to 2006, the U.S. EPA found that the SJVAB has reached federal PM_{10} standards. On September 21, 2007, the SJVAPCD's Governing Board adopted the 2007 PM_{10} Maintenance Plan and Request for Redesignation. This plan demonstrates that the valley will continue to meet the PM_{10} standard. U.S. EPA approved the document and on September 25, 2008, the SJVAB was redesignated to attainment/maintenance.

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20 SJVAPCD, 2023. 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard, https://ww2.valleyair.org/media/itoegkch/03-adopted-2023-maintenance-plan-and-redesignation-request-for-the-revoked-1-hour-ozone-standard.pdf.

21 SJVAPCD. Ozone Plans. https://ww2.valleyair.org/rules-and-planning/air-quality-plans/ozone-plans/, accessed September 30, 2024.

22 SJVAPCD. 2016 Plan for the 2008 8-Hour Ozone Standard, http://www.valleyair.org/Air_Quality_Plans/Ozone-Plan-2016.htm, accessed September 30, 2024.

PM2.5 PLAN

The SJVAPCD adopted the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards on November 15, 2018.[23] This plan addresses the U.S. EPA federal 1997 annual $PM_{2.5}$ standard of 15 µg/m³ and 24-hour $PM_{2.5}$ standard of 65 µg/m³; the 2006 24-hour $PM_{2.5}$ standard of 35 µg/m³; and the 2012 annual $PM_{2.5}$ standard of 12 µg/m³. This plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable. Most recently, the 2024 Plan for the 2012 Annual PM2.5 Standard was adopted by the SJVAPCD on June 20, 2024.[24]

All the above-referenced plans include measures (i.e., federal, state, and local) that would be implemented through rule making or program funding to reduce air pollutant emissions in the SJVAB. Transportation control measures are part of these plans.

SJVAPCD RULES AND REGULATIONS

SJVAPCD Indirect Source Review

On December 15, 2005, SJVAPCD adopted the Indirect Source Review Rule (ISR or Rule 9510) to reduce ozone precursors (i.e., ROG and NOx) and PM_{10} emissions from new land use development projects. Specifically, Rule 9510 targets the indirect emissions from vehicles and construction equipment associated with these projects and applies to both construction and operational-related impacts. The rule applies to any applicant that seeks to gain a final discretionary approval for a development project, or any portion thereof, which upon full buildout would include any one of the following:

- 50 residential units.
- 2,000 square feet of commercial space.
- 25,000 square feet of light industrial space.
- 100,000 square feet of heavy industrial space.
- 20,000 square feet of medical office space.
- 39,000 square feet of general office space.
- 9,000 square feet of educational space.
- 10,000 square feet of government space.
- 20,000 square feet of recreational space.
- 9,000 square feet of space not identified above.
- Transportation/transit projects with construction exhaust emissions of two or more tons of NOx or two or more tons of PM_{10}.
- Residential projects on contiguous or adjacent property under common ownership of a single entity in whole or in part, that is designated and zoned for the same development density and land use, regardless of the number of tract maps, and has the capability of accommodating more than 50 residential units.

[23] SJVAPCD. Particulate Matter Plans. http://valleyair.org/Air_Quality_Plans/PM_Plans.htm, accessed September 30, 2024.

[24] SJVAPCD, 2024. 2024 Plan for the 2012 Annual PM2.5 Standard, https://ww2.valleyair.org/media/gw5bacvj/2024-pm25-plan.pdf, accessed September 30, 2024.

- Nonresidential projects on contiguous or adjacent property under common ownership of a single entity in whole or in part, that is designated and zoned for the same development density and land use, and has the capability of accommodating development projects that emit two or more tons per year of NOx or PM_{10} during project operations.

The rule requires all subject, nonexempt projects to mitigate both construction and operational period emissions by (1) applying feasible SJVAPCD-approved mitigation measures, or (2) paying any applicable fees to support programs that reduce emissions. Off-site emissions reduction fees (off-site fee) are required for projects that do not achieve the required emissions reductions through on-site emission reduction measures. Phased projects can defer payment of fees in accordance with an Off-site Emissions Reduction Fee Deferral Schedule (FDS) approved by the SJVAPCD.

To determine how an individual project would satisfy Rule 9510, each project would submit an air quality impact assessment (AIA) to the SJVAPCD as early as possible, but no later than prior to the project's final discretionary approval, to identify the project's baseline unmitigated emissions inventory for indirect sources: on-site exhaust emissions from construction activities and operational activities from mobile and area sources of emissions (excludes fugitive dust and permitted sources). Rule 9510 requires the following reductions, which are levels that the SJVAPCD has identified as necessary, based on their air quality management plans, to reach attainment for ozone and particulate matter:

Construction Equipment Emissions

The exhaust emissions for construction equipment greater than 50 horsepower (hp) used or associated with the development project shall be reduced by the following amounts from the statewide average as estimated by CARB:

- 20 percent of the total NOx emissions
- 45 percent of the total PM_{10} exhaust emissions

Mitigation measures may include those that reduce construction emissions on-site by using less polluting construction equipment, which can be achieved by utilizing add-on controls, cleaner fuels, or newer, lower emitting equipment.

Operational Emissions

- NOx Emissions. Applicants shall reduce 33.3 percent of the project's operational baseline NOx emissions over a period of 10 years as quantified in the approved AIA.
- PM_{10} Emissions. Applicants shall reduce of 50 percent of the project's operational baseline PM_{10} emissions over a period of 10 years as quantified in the approved AIA.

These requirements listed above can be met through any combination of on-site emission reduction measures. If a project cannot achieve the above standards through imposition of mitigation measures, then the project would be required to pay the applicable off-site fees. These fees are used to fund various incentive programs that cover the purchase of new equipment, engine retrofit, and education and outreach.

Fugitive PM_{10} Prohibitions

SJVAPCD controls fugitive PM_{10} through Regulation VIII, Fugitive PM_{10} Prohibitions. The purpose of this regulation is to reduce ambient concentrations of PM_{10} and $PM_{2.5}$ by requiring actions to prevent, reduce, or mitigate anthropogenic (human caused) fugitive dust emissions.

- Regulation VIII, Rule 8021 applies to any construction, demolition, excavation, extraction, and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, travel on-site, and travel on access roads to and from the site.
- Regulation VIII, Rule 8031 applies to the outdoor handling, storage, and transport of any bulk material.
- Regulation VIII, Rule 8041 applies to sites where carryout or trackout has occurred or may occur on paved roads or the paved shoulders of public roads.
- Regulation VIII, Rule 8051 applies to any open area having 0.5 acre or more within urban areas or 3.0 acres or more within rural areas, and contains at least 1,000 square feet of disturbed surface area.
- Regulation VIII, Rule 8061 applies to any new or existing public or private paved or unpaved road, road construction project, or road modification project.
- Regulation VIII, Rule 8071 applies to any unpaved vehicle/equipment traffic area.
- Regulation VIII, Rule 8081 applies to off-field agricultural sources.

Sources regulated are required to provide Dust Control Plans that meet the regulation requirements. Under Rule 8021, a Dust Control Plan is required for any residential project that will include 10 or more acres of disturbed surface area, a nonresidential project with 5 or more acres of disturbed surface area, or a project that relocates 2,500 cubic yards per day of bulk materials for at least three days. The Dust Control Plan is required to be submitted to SJVAPCD prior to the start of any construction activity. The Dust Control Plan must also describe fugitive dust control measure to be implemented before, during, and after any dust-generating activity. For sites smaller than those listed above, the project is still required to notify SJVAPCD a minimum of 48 hours prior to commencing earthmoving activities.

National Emission Standards for Hazardous Air Pollutants

Rule 4002 applies in the event an existing building will be renovated, partially demolished, or removed (National Emission Standards for Hazardous Air Pollutants); this rule applies to all sources of Hazardous Air Pollutants.

Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations

If asphalt paving will be used, then paving operations of the proposed Project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

Nuisance Odors

SJVAPCD controls nuisance odors through implementation of Rule 4102, Nuisance. Pursuant to this rule, "a person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any

such person or the public or which cause or have a natural tendency to cause injury or damage to business or property."

Employer Based Trip Reduction Program

SJVAPCD has implemented Rule 9410, Employer Based Trip Reduction. The purpose of this rule is to reduce VMT from private vehicles used by employees to commute to and from their worksites to reduce emissions of NOx, ROG, and particulate matter (PM_{10} and $PM_{2.5}$). The rule applies to employers with at least 100 employees. Employers are required to implement an Employer Trip Reduction Implementation Plan (ETRIP) for each worksite with 100 or more eligible employees to meet applicable targets specified in the rule. Employers are required to facilitate the participation of the development of ETRIPs by providing information to its employees explaining the requirements and applicability of this rule. Employers are required to prepare and submit an ETRIP for each worksite to the District. The ETRIP must be updated annually. Under this rule, employers shall collect information on the modes of transportation used for each eligible employee's commutes both to and from work for every day of the commute verification period, as defined in using either the mandatory commute verification method or a representative survey method. Annual reporting includes the results of the commute verification for the previous calendar year along with the measures implemented as outlined in the ETRIP and, if necessary, any updates to the ETRIP.

3.3.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project will have a significant impact on the environment associated with air quality if it will:

- 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 in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

METHODOLOGY

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the SJVAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project would exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable SJVAPCD thresholds and methodologies are contained under each impact statement below, as the City, in its discretion, has determined to utilize these thresholds and methodologies, which are based on scientific and factual data.

This analysis was performed consistent with the guidance and methodologies provided by the SJVAPCD's GAMAQI.[25] Based on the SJVAPCD New Source Review (NSR) offset requirements for stationary sources, the SJVAPCD has established thresholds of significance for criteria pollutant emissions, shown in **Table 3.3-4**. These thresholds apply to the project because these air pollutants would be generated during project construction and operation and constitute criteria pollutants or precursor emissions for criteria pollutants, which are regulated by the federal and State Clean Air Acts.

TABLE 3.3-4: SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT SIGNIFICANCE THRESHOLDS

POLLUTANT	*CONSTRUCTION THRESHOLDS (TPY)*	*OPERATIONAL THRESHOLDS (TPY)*
ROG	10	10
NOx	10	10
CO	100	100
SOx	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15

SOURCES: SJVAPCD, 2015. GUIDANCE FOR ADDRESSING AND MITIGATING AIR QUALITY IMPACTS. MARCH 19, 2025. AVAILABLE: HTTPS://WWW.VALLEYAIR.ORG/TRANSPORTATION/GAMAQI.PDF

CRITERIA POLLUTANT EMISSIONS MODELING

California Emission Estimator Model (CalEEMod)™ (v.2022.1), developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with California air districts, was used to estimate emissions for the proposed Project. Project construction was assumed to be completed in 2030. However, the exact timing of Project construction would depend on market conditions. The modeled construction schedule is conservative, in that it assumes buildout of the Project much earlier than when it is likely to occur; this represents a conservative approach to modeling, since the emissions efficiency of on- and off-road construction vehicles would increase over time.

The land use assumptions for the modeling are consistent with the land uses modeled by TJKM for their *Technical Memorandum* (chosen on a best fit basis, given the available land uses within the CalEEMod model):

- Residential: Apartments Low Rise (700 Dwelling Units);
- Recreational: Health Club (18,000 square feet):
- Retail: Strip Mall (30,000 square feet);
- Recreational: Hotel (200 rooms)

Vehicle trips and VMT used in the modeling are also consistent with those provided by TJKM in its traffic analysis for the proposed Project (see Appendix E).

The construction phase details are provided in **Table 3.3-5**, below. The construction schedule was adjusted based on Project size and type. Project operation was assumed to occur by 2041. However,

[25] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impact. Website: https://www.valleyair.org/transportation/GAMAQI.pdf. Accessed September 30, 2024.

both the actual construction schedule and the actual start date for Project operation would depend on market demand. See Appendix B of this Draft EIR for additional detail regarding assumptions associated with the CalEEMod modeling.

TABLE 3.3-5: ANTICIPATED CONSTRUCTION SCHEDULE

CALEEMOD PHASE	*CALEEMOD PHASE START DATE*	*CALEEMOD PHASE END DATE*
Site Preparation	9/4/2025	10/16/2026
Grading	10/17/2026	1/30/2027
Building Construction	1/31/2027	12/2/2038
Paving	12/3/2038	12/18/2039
Architectural Coatings	1/31/2027	12/2/2038

SOURCE: CALEEMOD (V.2022.1)

IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment, or conflict with or obstruct implementation of the District's air quality plan. (Less than Significant)

The SJVAPCD is tasked with implementing programs and regulations required by the Federal Clean Air Act and the California Clean Air Act. In that capacity, the SJVAPCD has prepared plans to attain Federal and State ambient air quality standards. To achieve attainment with the standards, the SJVAPCD has established thresholds of significance for criteria pollutant emissions in their *SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts* (2015). Projects with emissions below the thresholds of significance for criteria pollutants would be determined to "Not conflict or obstruct implementation of the District's air quality plan."

The proposed Project would be both a direct and indirect source of air pollution. Direct sources of pollution include area, energy, and water and waste sources, due to development of the on-site buildings and associated infrastructure. Indirect sources of pollution would be due to the generation of trips of from vehicles traveling to and from the Project site.

CalEEMod™ (v.2022.1) was used to model operational emissions of the proposed Project. **Table 3.3-6** shows proposed Project unmitigated emissions as provided by CalEEMod. The SJVAPCD provides a list of applicable air quality emissions thresholds.

TABLE 3.3-6: OPERATIONAL PROJECT GENERATED EMISSIONS (TONS PER YEAR) - UNMITIGATED

POLLUTANT	*CO*	*NOX*	*ROG*	*SOX*	*PM_{10}*	*$PM_{2.5}$*
THRESHOLD	100	10	10	27	15	15
EMISSIONS						
MOBILE	19.9	3.7	3.2	0.1	6.	1.5
AREA	4.9	<0.1	5.1	<0.1	<0.1	<0.1
ENERGY	0.8	1.5	0.1	<0.1	0.1	0.1
TOTAL EMISSIONS	**25.7**	**5.1**	**8.3**	**0.1**	**6.1**	**1.7**
EXCEEDS THRESHOLD?	**No**	**No**	**No**	**No**	**No**	**No**

SOURCES: CALEEMOD (V.2022.1)

The SJVAPCD has established their thresholds of significance by which the Project emissions are compared against to determine the level of significance. The SJVAPCD has established operations related emissions thresholds of significance as follows: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NO_x), 10 tons per year of reactive organic gases (ROG), 27 tons per year of sulfur oxides (SO_x), 15 tons per year particulate matter of 10 microns or less in size (PM_{10}), and 15 tons per year particulate matter of 2.5 microns or less in size ($PM_{2.5}$). If the proposed Project's emissions will exceed the SJVAPCD's threshold of significance for operational-generated emissions, the proposed Project will have a significant impact on air quality and all feasible mitigation are required to be implemented to reduce emissions to the extent feasible. As shown in Table 3.3-6 above, the unmitigated operational emissions would not exceed the SJVACPD operational thresholds of significance for any of the criteria air pollutants. Therefore, this impact would be considered ***less than significant***.

REGULATORY COMPLIANCE

In accordance with SJVAPCD Rule 9510, an Air Impact Assessment (AIA) is required to be prepared based on the applicability and exemption criteria of Rule 9510.[26] The rule includes general mitigation requirements for construction and/or operational emissions. Per the general mitigation requirements of Rule 9510, the Project is required to reduce the project's operational baseline NOx emissions by 33.3% over a period of ten years as quantified in the approved AIA. The project is also required to pay any off-site fees in full by the invoice due date or prior to generating the emissions associated with the Project or any phase thereof, whichever occurs first.

Separately, the Project would comply with SJVAPCD Rule 4101, which prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants. Furthermore, the project would comply with SJVAPCD Rule 4601, which limits requires the Project to abide by more stringent VOC emissions requirements. Emissions of volatile organic compounds from architectural coatings by specifying storage, clean up and labeling requirements.

[26] Available at: https://www.valleyair.org/rules/currntrules/r9510-a.pdf. Accessed: September 2024.

Implementation of these and other SJVAPCD rules and regulations would further reduce Project emissions below the levels identified in Table 3.3-6.

PROJECT EFFECTS ON PUBLIC HEALTH

Criteria pollutants generated by the Project are associated with some form of health risk (e.g., asthma). Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and lead (Pb) are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. The SJVAPCD establishes thresholds at levels that allow the SJVAPCD to come into compliance with the CAAQS and NAAQS. The CAAQS and NAAQS are set at levels protective of human health, and emissions below the SJVAPCD thresholds are deemed to not have a significant impact on human health.

Ozone

O_3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) (also known as ROG) and oxides of nitrogen (NO_x) in the presence of sunlight. The reactivity of O_3 causes health problems because it damages lung tissue, reduces lung function, and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to O_3 for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

Studies show associations between short-term ozone exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to ozone may increase the risk of respiratory-related deaths.[27] The concentration of ozone at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion of ozone and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggest that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 parts per billion.[28]

[27] United States Environmental Protection Agency (USEPA). 2024. Health Effects of Ozone Pollution. Available: https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.

[28] United States Environmental Protection Agency (USEPA). 2024. Health Effects of Ozone In the General Population. Available: https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population.

Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The Environmental Benefits Mapping and Analysis Program (BenMAP), developed by the U.S. EPA, is a powerful and flexible tool that helps users estimate human health effects and economic benefits resulted from changes in air quality. BenMAP outputs include PM- and ozone-related health endpoints such as premature mortality, hospital admissions, and emergency room visits. BenMAP calculates background health incidence rates based on the available health statistics and population data, with preference given to individual-level data counts (e.g., mortality counts or hospital and emergency department discharges) at the County-level. For California counties, data were available at the individual-level. The background health incidence data are also based on different years depending on data availability. For example, hospital admissions and emergency department visits for California are based on 2011 data. For mortality background incidence rates, the U.S. EPA obtained data for 2012-2014 from the Centers for Disease Control WONDER database,[29] and generated age-, cause-, and county-specific mortality rates as described in the BenMAP manual.

The estimated background health incidences of mean ozone annual health effects across the San Joaquin Valley are shown in **Table 3.3-7**.[30,31] The background health incidences provide an estimate of the average number of people over a given population that suffer from some adverse health effect over a given period. For example, the background health incidence in the San Joaquin Valley for total asthma-related emergency room visits for adults is 11,039 per year; this represents approximately 0.3% of the population as experiencing such incidents each year. Therefore, as shown in Table 3.3-7, the background health incidents for various ozone-related health endpoints are less than one percent for each of the health endpoints studied. This represents a relatively low rate of health incidents from cumulative regional ozone emissions, when compared to the population.

29 See: http://wonder.cdc.gov

30 As provided for the San Joaquin Valley for Year 2025, as prepared by Ramboll U.S. Consulting Inc. in their *Analysis of Potential Health Effects of Criteria Air Pollutant Emission Impacts, North Manteca Annexation #1 Project*, March 2023.

31 Note: Although the Ramboll U.S. Consulting Inc. analysis for was prepared for a different project, the background health incidence rates are not project-specific. Rather, they are for the San Joaquin Valley as a whole for year 2025, and therefore are also provide a representative data snapshot for this project.

TABLE 3.3-7: BENMAP-ESTIMATED ANNUAL MEAN OZONE HEALTH EFFECTS OF THE PROJECT EMISSIONS ACROSS THE SAN JOAQUIN VALLEY MODEL DOMAIN[1]

HEALTH ENDPOINT[2]	*BACKGROUND HEALTH INCIDENCE (ANNUAL)*	*SAN JOAQUIN VALLEY POPULATION[32]*	*PERCENTAGE OF BACKGROUND HEALTH INCIDENTS AS A PROPORTION OF POPULATION*
HOSPITAL ADMISSIONS, ALL RESPIRATORY [65-99]	35,103	4,300,000	0.8%
MORTALITY, RESPIRATORY [30-99]	11,222	4,300,000	0.3%
EMERGENCY ROOM VISITS, ASTHMA [0-17]	11,039	4,300,000	0.3%
EMERGENCY ROOM VISITS, ASTHMA [18-99]	25,345	4,300,000	0.6%

NOTES: [1]HEALTH EFFECTS ARE SHOWN TERMS OF INCIDENCES OF EACH HEALTH ENDPOINT AND HOW IT COMPARES TO THE BASE VALUES. YEAR 2025 IS USED FOR BASE YEAR HEALTH EFFECT INCIDENCES, OR "BACKGROUND HEALTH INCIDENCE". HEALTH EFFECTS AND BACKGROUND HEALTH INCIDENCES ARE ACROSS THE SAN JOAQUIN VALLEY MODEL DOMAIN.[2] AFFECTED AGE RANGES ARE SHOWN IN SQUARE BRACKETS.
SOURCE: RAMBOLL, 2023.

The Project would generate emissions of ROG and NOx during Project operational activities, as shown in Table 3.3-6. Increases in ROG and NOx could affect people with impaired respiratory systems, but also healthy adults and children. Both NOx and ROG would not exceed the applicable air district criteria pollutant thresholds for the Project. Project generation of ROG and NOx would be primarily due to the operational mobile vehicles generated by the Project, but also due to the use of consumer products (such as cleaning supplies, kitchen aerosols, cosmetics, and toiletries) by residents of the Project site. Consumer products are known to generate ROG through off-gassing. Such increases in ROG could fuel potential increases in health effects due to exposure to ozone. Overall, as shown in Table 3.3-7, health-related incidences associated with ozone are relatively low in the San Joaquin Valley, as a proportion of the overall population.

Particulate Matter

Based on studies of human populations exposed to high concentrations of particles (sometimes in the presence of SO_2) and laboratory studies of animals and humans, PM can cause major effects of concern for human health. These include effects on breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogenesis, and premature death. The major subgroups of the population that appear to be most sensitive to the effects of particulate matter include individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly, and children.

Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Studies show that every 1 microgram per cubic meter reduction in $PM_{2.5}$ results in a one percent reduction in mortality rate for individuals over 30 years

[32] See: https://www.ppic.org/blog/2020-census-counting-the-san-joaquin-valley/.

old.[33] Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis – and even premature death. Additionally, depending on its composition, both PM_{10} and $PM_{2.5}$ can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain.[34]

The Project would generate emissions of PM during Project operational activities, as shown in Table 3.3-5. Although the exact effects of such emissions on local health are not known, it is likely that the increases in PM generated by the proposed Project would be minimal, even for people with impaired respiratory systems, located in the immediate vicinity of the Project site. The increases of these pollutants generated by the proposed Project would not on their own generate an increase in the number of days exceeding the NAAQS or CAAQS standards. In addition, based on the nature of the Project and its size, such emissions when combined with the existing PM emitted regionally would have minimal health effect on people located in the immediate vicinity of the Project site.

UFPs are a subset of PM and represent a health concern. Such particles have been shown to have the potential for even greater health effects than PM_{10} or $PM_{2.5}$, due to their even smaller particle sizes. However, there are no adopted rules or regulations by the U.S. EPA or California air districts regarding UFPs. Moreover, attainment status related to UFPs is not monitored by the U.S. EPA or California air districts, and the SJVAPCD does not provide any guidance for assessment, thresholds, or mitigation associated with UFPs. Additionally, air districts are not required to monitor UFPs. Nevertheless, funding for harm reduction and monitoring of UFPs is occurring throughout California. For example, the Bay Area Air Quality Management District (BAAQMD), a neighboring air district, established in 2011 a comprehensive program to study UFPs. As part of this program, the BAAQMD began making measurements at four air monitoring stations, with additional monitoring stations expected to be online in the future. At each station, the number of particles in a specified volume of air is counted every second. In addition to the number counts, sampling began in 2015 at two stations to gather data on UFP composition. Collected samples are analyzed for nineteen metals. Data obtained from these measurements is used to identify major UFP sources in the San Francisco Bay Area, and to evaluate models and refine estimates of UFP's public health impact.[35] Separately, the SJVAPCD provides grant funding for off-road engine projects through their grants and incentives programs, which reduce UFPs[36]; the U.S. EPA Pacific Southwest region has provided funding for both the South Coast Air Quality Management District and the SJVAPCD District to help spur early-stage, innovative technologies that need further testing and demonstration prior to massive deployment and commercialization of California Clean Air Initiative (CATI) projects.[37] Examples of such projects

33 Bay Area Air Quality Management District (BAAQMD). 2017. Spare the Air: Cool the Climate. April. San Francisco, CA. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

34 United States Environmental Protection Agency (USEPA). 2022. Health and Environmental Effects of Particulate Matter (PM). Available: https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.

35 See: https://www.baaqmd.gov/about-air-quality/air-quality-measurement/special-air-monitoring-projects/special-reports/ultrafine-particulate-matter?sc_lang=en&switch_lang=true.

36 See: https://ww2.valleyair.org/grants/.

37 See: https://www.epa.gov/cati/california-clean-air-technology-initiative-cati-projects

include Hybrid Natural Gas-Electric and Fully Electric Class 8 Trucks, Zero Emission Heavy-Duty Electric Trucks, Zero- and Near-Zero Emission School Buses, Electric Delivery Trucks, and School Bus Air Filtration. Other, numerous efforts are underway throughout the state to reduce PM emissions, which also tend to reduce emissions of UFPs (since UFPs are a subset of PM).

Different sources of PM generate differing levels of UFPs. For example, almost all the PM emitted by natural gas combustion is in the $PM_{0.1}$ size fraction, whereas this is only true for less than half of the PM emitted by gasoline and diesel fuel combustion.[38] Therefore, estimating $PM_{0.1}$ can be difficult, given that it is not incorporated into the modeling software recommended by the CARB and the California air districts (i.e., CalEEMod). Nevertheless, a numerical estimate of the Project's $PM_{0.1}$ is provided under Impact 3.3-4, based on assumptions provided in available literature.

Discussion

It is well documented from scientific studies that criteria pollutants can have adverse health effects. The federal and state governments have established the NAAQS or CAAQS as an attempt to regionally, and cumulatively, assess and control the health effects that criteria pollutants have within air basins. It is anticipated that public health will continue to be affected by the emission of criteria pollutants, especially by those with impaired respiratory systems in the City of Merced and the surrounding region so long as the region does not attain the CAAQS or NAAQS. Additionally, none of the Project's criteria pollutant emissions are above the criteria pollutant thresholds that were established to enable the Air Basin to achieve attainment for the NAAQS and CAAQS standards. As such, the Project emissions would be considered would not generate a cumulatively considerable net increase of any criteria air pollutant.

CONCLUSION

As shown in Table 3.3-6, the proposed Project's operational criteria pollutant would not exceed the applicable SJVAPCD thresholds of significance for criteria air pollutants. Therefore, the Project's criteria pollutant emissions would be considered to have a ***less-than-significant*** impact.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

[38] Venecek, M. A., Yu, X., and Kleeman, M. J.: Predicted ultrafine particulate matter source contribution across the continental United States during summertime air pollution events, Atmos. Chem. Phys., 19, 9399–9412, https://doi.org/10.5194/acp-19-9399-2019, 2019.

Impact 3.3-2: Proposed Project construction activities would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment, or conflict with or obstruct implementation of the District's air quality plan. (Less than Significant)

Emissions from construction activities represent temporary impacts that are typically short in duration, depending on the size, phasing, and type of project. Air quality impacts can nevertheless be acute during construction periods, resulting in significant localized impacts to air quality. Construction-related activities would result in Project-generated emissions from demolition, site preparation, grading, paving, building construction, and architectural coatings. CalEEMod™ (v.2022.1) was used to estimate construction emissions for the proposed Project. **Table 3.3-8**, below, provides the construction criteria pollutant emissions associated with implementation of the proposed Project.

TABLE 3.3-8: MAXIMUM CONSTRUCTION PROJECT GENERATED EMISSIONS (TONS PER YEAR)

POLLUTANT	*CO*	*NOX*	*ROG*	*SOX*	*PM_{10}*	*$PM_{2.5}$*
THRESHOLD	100	10	10	27	15	15
EMISSIONS	6.1	3.9	0.8	<0.1	2.5	1.3
EXCEEDS THRESHOLD?	**No**	**No**	**No**	**No**	**No**	**No**

SOURCES: CALEEMOD (V.2022.1)

If the proposed Project's emissions will exceed the SJVAPCD's threshold of significance for construction-generated emissions, the proposed Project will have a significant impact on air quality and conflict with the Clean Air Plan and all feasible mitigation are required to be implemented to reduce emissions. As shown in Table 3.3-8, Project maximum construction emissions would not exceed the SJVAPCD thresholds of significance for any criteria pollutants. Nevertheless, regardless of emission quantities, the SJVAPCD requires construction related control measures in accordance with their rules and regulations. Implementation of these control measures (provided in further detail below) would further reduce proposed Project construction related emissions to the extent possible.

The first step is to prepare a Dust Control Plan that meets all of the applicable requirements of APCD Rule 8021. All construction activities are required to implement dust control measures, as required by APCD Rules 8011-8081, to limit Visible Dust Emissions to 20% opacity or less. Dust control measures include application of water or chemical dust suppressants to unpaved roads and graded areas, covering or stabilization of transported bulk materials, prevention of carryout or trackout of soil materials to public roads, limiting the area subject to soil disturbance, construction of wind barriers, access restrictions to inactive sites as required by the applicable rules. The following dust control practices are identified in Tables 6-2 and 6-3 of the GAMAQI (2002):

a. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.*

b. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
c. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall control fugitive dust emissions by application of water or by presoaking.
d. When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.
e. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
f. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
g. Limit traffic speeds on unpaved roads to 15 mph.
h. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.

The proposed Project would comply with pre-existing requisite federal, State, SJVAPCD, and other local regulations and requirements, as well as implement the control measures provided by the SJVAPCD for construction-related PM_{10} emissions.

CONCLUSION

The proposed Project would comply with pre-existing requisite federal, State, SJVAPCD, and other local regulations and requirements. Moreover, the Project would not exceed the SJVAPCD's threshold of significance for construction-generated emissions. Therefore, the Project's criteria pollutant emissions during construction activities would ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

Impact 3.3-3: The proposed Project would not cause public exposure to toxic air contaminants. (Less than Significant)

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at very low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. This contrasts with the

criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. EPA regulate 188 air toxics, also known as hazardous air pollutants. The U.S. EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources. In addition, the U.S. EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment. These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.

The 2007 U.S. EPA rule requires controls that will dramatically decrease Mobile Source Air Toxics (MSAT) emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (VMT) increases by 145 percent, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050. California maintains stricter standards for clean fuels and emissions compared to the national standards, therefore it is expected that MSAT trends in California will decrease consistent with or more than the U.S. EPA's national projections.

The California Air Resources Board (CARB) published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005) to provide information to local planners and decision-makers about land use compatibility issues associated with emissions from industrial, commercial, and mobile sources of air pollution. The CARB Handbook indicates that mobile sources continue to be the largest overall contributors to the State's air pollution problems, representing the greatest air pollution health risk to most Californians. The most serious pollutants on a statewide basis include diesel exhaust particulate matter (diesel PM), benzene, and 1,3-butadiene, all of which are emitted by motor vehicles. These mobile source air toxics are largely associated with freeways and high traffic roads. Non-mobile source air toxics are largely associated with industrial and commercial uses. **Table 3.3-9** provides the California Air Resources Board minimum separation recommendations on siting sensitive land uses.

TABLE 3.3-9: CARB MINIMUM SEPARATION RECOMMENDATIONS ON SITING SENSITIVE LAND USES

SOURCE CATEGORY	*ADVISORY RECOMMENDATIONS*
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.

SOURCE CATEGORY	*ADVISORY RECOMMENDATIONS*
	• Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the CARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

SOURCES: AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE" (CARB 2005)

Residences are proposed as part of the Project, which are considered traditional sensitive receptors. However, no residences would be located within 500 feet of a freeway, urban road with 100,000 vehicles/day or more, or a rural road with 50,000 vehicles/day or more. Additionally, under CEQA, an EIR need not analyze the impacts of the existing environment on the Project.

Virtually no residual TAC emissions and corresponding cancer risk are anticipated after Project construction. The proposed Project is not anticipated to generate any notable long-term, operational sources of TAC emissions because the proposed Project would only include residential land uses, neighborhood commercial uses, and open space. The Project would not include heavy industrial uses or other land uses typically associated with stationary sources of TACs.

It should be noted that the mobile vehicles generated by the Project during operation would generate UFPs through vehicle emissions, braking, and tire wear. Like PM in general (though generating even higher risk per unit than larger particle sizes), UFPs are notable for their potential to generate chronic risks associated with cardiovascular disease, potential long-term loss of long-function, and cancer. According to a recent study prepared for the European Geosciences Union, UFPs vary widely as a proportion of PM overall, depending on location; specifically, the $PM_{0.1}$ to $PM_{2.5}$ ratio analyzed in approximately 39 cities in the United States varied from approximately 1% to 16%.[39] These factors vary so widely because the sources of $PM_{0.1}$ vary substantially from city to city. For example, cities that are located close to substantial sources of natural gas combustion have higher $PM_{0.1}$ to $PM_{2.5}$ ratios, since almost all the PM emitted by natural gas combustion is in the $PM_{0.1}$ size fraction, whereas this is only true for less than half of the PM emitted by gasoline and

[39] Venecek, M. A., Yu, X., and Kleeman, M. J.: Predicted ultrafine particulate matter source contribution across the continental United States during summertime air pollution events, Atmos. Chem. Phys., 19, 9399–9412, https://doi.org/10.5194/acp-19-9399-2019, 2019.

diesel fuel combustion. Taken together, these facts support the potential importance of natural gas combustion for ambient $PM_{0.1}$ concentrations.

The city analyzed in the study with the greatest similarity to the City of Merced (i.e., where the Project is located) was the City of Bakersfield, given its similarity in location within the Central Valley region. The ratio of $PM_{0.1}$ to $PM_{2.5}$ for Bakersfield was found to be approximately 11%. Absent data specific to the City of Merced, this data is presumed to be the best available data and reasonable for use in estimating $PM_{0.1}$ levels in this case. Therefore, given the Project's estimated 1.7 tons per year of $PM_{2.5}$ (see Table 3.3-6), the total $PM_{0.1}$ generated by the Project during Project operation is estimated to be approximately 0.19 tons per year (374 lbs/year). This is equivalent to 1.02 lbs/day of $PM_{0.1}$. While there is not specifically a numerical threshold of significance established by the SJVAPCD for $PM_{0.1}$, the quantity estimated is considered small relative to thresholds established for other particulate matter. From an incremental health perspective, this level of UFPs generated by the Project would not be substantial. As such, the Project would not result in substantial UFP emissions that may affect nearby receptors.

Further, the Project would not be exposed to substantial nearby sources of TACs. Since the proposed Project would not site land uses that would generate a significant risk of public exposure to TACs, the proposed Project would have a ***less than significant*** impact relative to this topic.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

Impact 3.3-4: The proposed Project would not cause exposure to other emissions (such as those leading to odors) adversely affecting a substantial number of people. (Less than Significant)

The following text addresses odors. Other emissions (including criteria pollutants and TACs) are addressed in Impacts 3.3-1 through 3.3-3.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. The general nuisance rule (Health and Safety Code §41700) is the basis for the threshold.

Examples of facilities that are known producers of odors include: Wastewater Treatment Facilities, Chemical Manufacturing, Sanitary Landfill, Fiberglass Manufacturing, Transfer Station, Painting/Coating Operations (e.g. auto body shops), Composting Facility, Food Processing Facility, Petroleum Refinery, Feed Lot/Dairy, Asphalt Batch Plant, and Rendering Plant.

If a project proposes to locate receptors and known odor sources in proximity to each other, further analysis may be warranted. However, if a project would not locate receptors and known odor

sources in proximity to each other, then further analysis is not warranted. The proposed Project does not include new industrial uses that are not already present in the vicinity of the Project site. Air district Rule 402 prohibits any mobile or stationary source generating an objectionable odor, except for odors emanating from certain agricultural operations. The California Health and Safety Code §41700 and Air District Rule 402 prohibit emissions of air contaminants from any source that cause nuisance or annoyance to a considerable number of people or that present a threat to public health or cause property damage. Compliance with these rules would preclude land uses proposed under the proposed Project from emitting objectionable odors.

Odors would be potentially generated from vehicle and equipment exhaust emissions during construction of the Project. Potential odors produced during 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. Furthermore, SJVAPCD Rule 4641 limits the amount of VOC emissions from cutback asphalt. Thus, any potential odors generated during asphalt paving would be regulated through mandatory compliance with SJVAPCD rules. Therefore, impacts associated with odors during construction would be less than significant.

Land uses that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Project would not include land uses that generate odors during operation. Therefore, Project operations would result in odor impacts that are less than significant.

CONCLUSION

The proposed Project does not propose uses that would create new odors that would adversely affect substantial numbers of people. Construction odors would be temporary, limited by compliance with SJVAPCD rules, and would not affect a substantial number of people. Therefore, construction and operation of the proposed Project would not result in significant objectionable odors. Impacts associated with exposure to odors would be ***less than significant.***

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

Air quality issues have the potential to affect the entire air basin. By its very nature, air pollution is largely a cumulative impact. Therefore, cumulative setting for air quality impacts is the San Joaquin Valley Air Basin (SJVAB). The SJVAB consists of eight counties: Fresno, Kern (western and central), Kings, Tulare, Madera, Merced, San Joaquin, and Stanislaus. Air pollution from significant activities in the SJVAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

Impact 3.3-5: Operation of the proposed Project, in combination with other cumulative development, would not conflict with or obstruct implementation of the applicable air quality plan, or result in a cumulatively considerable net increase of criteria pollutants (Less than Significant)

The proposed Project is located an air basin that that oftentimes struggled with air quality issues. More locally, Merced County has a State designation of Nonattainment for O_3, PM_{10}, and $PM_{2.5}$ and is either Unclassified or Attainment for all other criteria pollutants. Additionally, Merced County has a national designation of Nonattainment for O_3 and $PM_{2.5}$. Therefore, there exists the potential that future developments within the SJVAB and within Merced County, in combination with the proposed Project, could exceed the SJVAPCD's criteria pollutant thresholds for operational emissions. This is a potentially significant cumulative impact.

However, as described on page 66 of the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts*, a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. The proposed Project would comply with applicable air quality attainment and maintenance plans.

Additionally, as described under Impact 3.3-1, in Table 3.3-5, the unmitigated operational emissions for the proposed Project would not exceed the SJVACPD operational thresholds of significance for any of the criteria air pollutants. The criteria pollutant thresholds for operational emissions have been designed by the SJVAPCD such that for projects that do not exceed such thresholds, cumulative impacts associated with such projects can reasonably be assumed not to occur. Therefore, the proposed Project would not have a considerable contribution to a cumulative impact, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

Impact 3.3-6: Construction of the proposed Project, in combination with other cumulative development, would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment, or conflict or obstruct implementation of the District's air quality plan (Less than Significant)

The proposed Project is located an air basin that that oftentimes struggled with air quality issues. More locally, Merced County has a State designation of Nonattainment for O_3, PM_{10}, and $PM_{2.5}$ and is either Unclassified or Attainment for all other criteria pollutants. Additionally, Merced County has a national designation of Nonattainment for O_3 and $PM_{2.5}$. Therefore, there exists the potential that future developments within the SJVAB and within Merced County, in combination with the proposed Project, could exceed the SJVAPCD's criteria pollutant thresholds for construction emissions. This is a potentially significant cumulative impact.

However, as described on page 66 of the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts*, a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. The proposed Project would comply with applicable air quality attainment and maintenance plans.

Additionally, as described under Impact 3.3-2, in Table 3.3-6, the unmitigated construction emissions for the proposed Project would not exceed the SJVACPD operational thresholds of significance for any of the criteria air pollutants. The criteria pollutant thresholds for construction emissions have been designed by the SJVAPCD such that for projects that do not exceed such thresholds, cumulative impacts associated with such projects can reasonably be assumed not to occur. Moreover, the SJVAPCD requires construction related control measures in accordance with their rules and regulations. Implementation of these control measures would further reduce proposed Project construction related emissions to the extent possible. Therefore, the proposed Project would not have a considerable contribution to a cumulative impact, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

Impact 3.3-7: The proposed Project, in combination with other cumulative development, would not generate cumulative public exposure to toxic air contaminants. (Less than Significant)

There exists the potential for certain projects, in concert with past, present, and probable future development project in the local vicinity, to generate cumulative public exposure to toxic air contaminants. Separately, as described on page 110 of the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts*, impacts from hazardous air pollutants are localized impacts. The Air District has established thresholds of significance for TACs that are extremely conservative and protective of health impacts on sensitive receptors. Because impacts from TACs are localized and the thresholds of significance for TACs have been established at such a conservative level, risks over the individual thresholds of significance are also considered cumulatively significant. This is a potentially significant impact. No other cumulative risk thresholds apply.

However, the proposed Project would not site land uses that would generate a significant risk of public exposure to TACs. Virtually no residual TAC emissions and corresponding cancer risk are anticipated after Project construction. The proposed Project is not anticipated to generate any notable long-term, operational sources of TAC emissions because the proposed Project would only include residential land uses, neighborhood commercial uses, and open space. The Project would not include heavy industrial uses or other land uses typically associated with stationary sources of TACs. Moreover, any negligible levels of TACs that would be generated by the proposed Project, either during Project construction or operation, would be highly localized. Therefore, the proposed Project would not have a considerable contribution to a cumulative impact, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

Impact 3.3-8: The proposed Project, in combination with other cumulative development, would not cause exposure to other emissions (such as those leading to odors) adversely affecting a substantial number of people. (Less than Significant)

While there are odor-producing sources in the air basin, such as livestock farms, landfills, and industrial uses, odor is typically a localized issue, and does not compound in a way that would be cumulatively noticeable in the air basin. Therefore, cumulative impacts resulting from odor would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

This section describes the regulatory setting, regional biological resources, and impacts that are likely to result from Project implementation. This section is based in part on the Biological Resources Assessment prepared for the Merced UC Villages Project (ECORP Consulting, Inc., 2024), which is included as **Appendix C** of this EIR.

This section includes a review of biological resources potentially affected by the implementation of the proposed Project, including existing habitat for sensitive plant and wildlife species known to occur or that potentially occur in the vicinity of the Project site. Existing biological resources in the Project area were determined by a review of existing documents pertaining to the natural resources of the county, and data provided by the United States Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), California Native Plant Society (CNPS), Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), Merced County, and the City of Merced.

This analysis also includes a review of applicable regulations and programs that provide for the protection of special-status species and sensitive habitats, and an assessment of the potential impacts of implementing the proposed Project. Potential impacts related to biological resources were determined by comparing potential changes in land use resulting from the proposed Project to the existing conditions based on California Environmental Quality Act (CEQA) assessment criteria. The conclusions and recommendations presented in this section are based upon a review of available literature and the results of site reconnaissance field surveys.

One comment related to biological resources was received during the public review period for the Notice of Preparation (NOP). The California Department of Fish and Wildlife (CDFW) submitted comments as a Responsible Agency under CEQA and identified species that have the potential to occur near the Project site, and recommended mitigation measures to lessen potential impacts. Issues identified in this comment letter are addressed in this section. Full comments on the NOP are included in Appendix A of this EIR.

3.4.1 ENVIRONMENTAL SETTING

SITE CHARACTERISTICS AND LAND USE

The Project site is located on gently rolling terrain in a rural area adjacent to the University of California, Merced (UC Merced) campus. The Project site is situated at an elevational range of approximately 210 to 250 feet above mean sea level (AMSL) in the San Joaquin Valley subregion of the Great Central Valley region of the California floristic province.[1] The average winter temperature is 47.6 degrees Fahrenheit (˚F) and the average summer temperature is 77˚F; the average annual

[1] Jepson Flora Project (eds.) 2024. .*Jepson eFlora*. Available online: https://ucjeps.berkeley.edu/eflora/. Accessed May 2024.

precipitation is approximately 11.80 inches at the Merced Airport station, which is approximately 7 miles west of the Project site.[2]

The Project site is currently made up of undeveloped farmland/pasture and a rural residence (see **Figure 3.4-1)**. The farmland/pasture was fallow at the time of the site reconnaissance but appears to be periodically planted and harvested for hay crops. The rural residence includes a residential unit with associated outbuildings and fenced enclosures. There is one vegetation community present with the Project site, non-native annual grassland, and one land cover type, rural residential. Vegetation communities and plant species composition are described in further detail below.

Land uses and land cover types surrounding the Project site include undeveloped grassland, rural residences, and the UC Merced campus.

Representative photographs of the Project site are provided in Appendix C.

SOILS AND GEOLOGY

As discussed in the Biological Resources Assessment prepared for the Merced UC Villages Project (Appendix C), ECORP staff obtained soil survey mapping for the Project site from the NRCS *Web Soil Survey* accessed on May 2024 (**Figure 3.4-2**).

Table 3.4-1 provides an overview of the soil series mapped within the Project site and key features of the soil series, such as hydric rating or presence of serpentine or gabbroic soil material.

TABLE 3.4-1: SOIL SERIES MAPPED IN THE PROJECT SITE

MAP UNIT SYMBOL	MAP UNIT NAME	DESCRIPTION	HYDRIC SOIL RATING
3HA	Hopeton clay loam, 0 to 3 percent slopes	Alluvium	No
3HB	Hopeton clay loam, 3 to 8 percent slopes	Alluvium	No
CgB	Corning gravelly loam, 0 to 8 percent slopes	Gravelly alluvium derived from igneous, metamorphic and sedimentary rock	No
RbA	Raynor cobbly clay, 0 to 3 percent slopes	Residuum weathered from sedimentary rock	No

[2] National Oceanic and Atmospheric Administration (NOAA). 2024a. National Climatic Data Center 1991-2020 U.S. Climate Normals Quick Access for Merced Muni AP, CA. https://www.ncei.noaa.gov/access/us-climate-normals/#dataset=normals-annualseasonal&timeframe=30&location=CA&station=USW00023257. Accessed May 2024.

MAP UNIT SYMBOL	MAP UNIT NAME	DESCRIPTION	HYDRIC SOIL RATING
ReB	Redding gravelly loam, 0 to 8 percent slopes, dry	Loamy alluvium derived from igneous, metamorphic and sedimentary rock over clayey alluvium derived from igneous, metamorphic and sedimentary rock over cemented alluvium derived from igneous, metamorphic and sedimentary rock	No

SOURCE: NRCS WEB SOIL SURVEY, 2024

VEGETATION COMMUNITIES AND LAND COVER TYPES

The following sections describe vegetation communities and land cover types within the Project site as observed during the site reconnaissance. A list of plants observed onsite can be found in Appendix C. The approximate extent of vegetation communities and land cover types are depicted in **Figure 3.4-3.**

Non-Native Annual Grassland

The non-native annual grassland community is found throughout the Project site. This vegetation community has been farmed recently as evidenced by plow signatures on Google Earth© aerial photographs. The grassland onsite is dominated by nonnative annual grasses and forbs including wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), filaree (*Erodium botrys*), prickly lettuce (*Lactuca serriola*), and field bindweed (*Convolvulus arvensis*). The grassland is bordered along a portion of Lake Road by blue gum (*Eucalyptus globulus*) trees, and a row of olive (*Olea europaea*) trees are found along a fence separating fields.

The annual grassland onsite can be characterized as the *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance.[3] Semi-natural alliances are strongly dominated by nonnative plants that have become naturalized in the State, do not have state rarity rankings, and are not considered sensitive natural communities.

Disturbed/Developed

The disturbed or developed land cover type is associated with the rural residence within the Project site and is composed of a residential unit, associated outbuildings, landscaped grounds, hardscape surfaces, solar panels, and fenced animal enclosures. Scattered non-native and cultivar trees are scattered around the rural residence, including blue gum. Other areas classified as disturbed or developed are either devoid of vegetation or dominated by nonnative ruderal weedy plants species,

[3] California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

including wild oats, Italian ryegrass, Italian thistle (*Carduus pycnocephalus*), prickly lettuce, and ripgut brome.

AQUATIC RESOURCES

No aquatic features, such as wetlands or other waters, were found onsite during the site reconnaissance and none were previously mapped on the NWI within the Project site (**Figure 3.4-4**).

Waters of the U.S. were previously delineated within the Project site and conditionally authorized for fill in 2007 (USACE Regulatory #200600815, formerly 200000496). The Project site appears to have been farmed extensively since that time according to historical aerial photographs available on Google Earth©.

Note that the NWI inventory mapping is based on data prepared from the analysis of high-altitude imagery in conjunction with collateral data sources and field work. A margin of error is inherent in the use of imagery; thus, on-the-ground inspection of any particular site is needed to confirm wetland boundaries and classifications.

WILDLIFE

Wildlife species observed during the site reconnaissance visit included species typical for the vegetation community and land cover types present in the Project site. A list of wildlife species observed in the Project site is provided in Appendix C. The vegetation communities in the Project site provide habitat for a variety of wildlife species, particularly for nesting birds. Birds observed onsite during the site reconnaissance field visit included Eurasian collared-doves (*Streptopelia decaocto*), mourning dove, western kingbird (*Tyrannus verticalis*), northern mockingbird (*Mimus polyglottos*), house sparrow (*Passer domesticus*), and great-tailed grackle (*Quiscalus mexicanus*), among others. Two special-status birds, Swainson's hawk (*Buteo swainsoni*) and Bullock's oriole (*Icterus bullockii*) were observed. The Swainson's hawk was observed soaring over the Project site, and the Bullock's oriole was heard from within the row of trees along Lake Road near the rural residence. California ground squirrels (*Otospermophilus beecheyi*) and burrows were observed throughout the Project site but were generally near the Yosemite Lateral Canal along the northwestern boundary of the Project site.

SPECIAL-STATUS SPECIES

Table 3.4-2 presents the list of special-status plant and animal species identified through the literature review. For each species, the table provides the listing status, a brief description of habitat requirements and/or species ecology, a determination of the potential to occur within the Project site, and the rationale for that determination. The potential for each species to occur onsite was assessed using the following criteria:

- **Present** – Species was observed during the site visit or is known to occur within the Project site based on recent documented occurrences within the CNDDB or other literature.

- **Potential to Occur** – Suitable habitat (including soils and elevation requirements) occurs in the Project site and the species is known or expected to occur in the Project vicinity based on available data sources or professional knowledge/experience.
- **Low Potential to Occur** – Marginal or limited amounts of habitat occur or the species is not known to occur in the vicinity of the Project based on CNDDB records and other available information.
- **Absent** – No suitable habitat (including soils and elevation requirements) or the species is not known to occur within the vicinity of the Project based on CNDDB records and other documentation.

Table 3.4-2 is a brief discussion of the plants and animals that are state or federally listed, candidates for listing, or proposed for listing and have potential to occur in the Project site.

TABLE 3.4-2: SPECIAL-STATUS SPECIES

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
Plants					
Henderson's bent grass *(Agrostis hendersonii)*	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands. Elevation: 230'–1,000' Bloom Period: April–June	Presumed Absent. There are 3 CNDDB occurrences within 5 miles of the Project Area; however. there is no suitable habitat onsite.
Heartscale *(Atriplex cordulata* var. *cordulata)*	–	–	1B.2	Alkaline or saline valley and foothill grasslands, meadows and seeps, and chenopod scrub communities. Elevation: 0'–1,835' Bloom Period: April–October	Presumed Absent. There is no suitable habitat onsite.
Lesser saltscale *(Atriplex minuscula)*	–	–	1B.1	Alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland. Elevation: 50'–655' Bloom Period: May–October	Presumed Absent. There is no suitable habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
Vernal pool smallscale *(Atriplex persistens)*	–	–	1B.2	Alkaline vernal pools. Elevation: 35'–375' Bloom Period: June–October	Presumed Absent. There is no suitable habitat onsite.
Subtle orache (*Atriplex subtilis*)	–	–	1B.2	Alkaline valley and foothill grasslands. Elevation: 130'–330' Bloom Period: June–September	Presumed Absent. There is no suitable habitat onsite.
Watershield *(Brasenia schreberi)*	–	–	2B.3	Freshwater marshes and swamps. Elevation: 100'–7,220' Bloom Period: June–September	Presumed Absent. There is 1 CNDDB occurrence within 5 miles of the Project Area; however, there is no suitable habitat onsite.
Hoover's calycadenia *(Calycadenia hooveri)*	–	–	1B.3	Rocky soils in cismontane woodland and valley and foothill grassland. Elevation: 215'–985' Bloom Period: July–September	Low Potential to Occur. The cobbly soil onsite provides marginally suitable habitat.
Succulent owl's clover *(Castilleja campestris* ssp. *succulenta)*	FT	CE	1B.2	Vernal pools, often in acidic environments. Elevation: 165'–2,460' Bloom Period: April–May	Presumed Absent. There are 20 CNDDB occurrences within 5 miles of the Project Area; however, there is no suitable habitat onsite.
Parry's rough tarplant *(Centromadia parryi* ssp. *rudis)*	–	–	4.2	Alkaline, vernally mesic areas, and seeps in valley and foothill grassland and vernal pools, sometimes found on roadsides.	Presumed Absent. There is no suitable habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				Elevation: 0'–330' Bloom Period: May–October	
Beaked clarkia *(Clarkia rostrata)*	–	–	1B.3	Cismontane woodland and valley and foothill grassland. Elevation: 195'–1,640' Bloom Period: April–May	Low Potential to Occur. The non-native grassland onsite provides marginally suitable habitat.
Small-flowering morning-glory *(Convolvulus simulans)*	–	–	4.2	Clay, serpentine seeps within chaparral, coastal scrub, and valley and foothill grassland. Elevation: 100'–2,430' Bloom Period: March–July	Presumed Absent. There is no suitable habitat onsite.
Ewan's larkspur *(Delphinium hansenii* ssp. *ewanianum)*	–	–	4.2	Rocky soils in cismontane woodland, and valley and foothill grassland. Elevation: 195'–1,970' Bloom Period: March–May	Low Potential to Occur. The cobbly soil onsite provides marginally suitable habitat.
Recurved larkspur *(Delphinium recurvatum)*	–	–	1B.2	Alkaline habitats within chenopod scrub, cismontane woodland, and valley and foothill grasslands. Elevation: 10'–2,590' Bloom Period: March–June	Presumed Absent. There is no suitable habitat onsite.
Dwarf downingia *(Downingia pusilla)*	–	–	2B.2	Mesic areas in valley and foothill grassland, and	Presumed Absent. There are 2 CNDDB occurrences

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				vernal pools. Species has also been found in disturbed areas such as tire ruts and scraped depressions.[4] Elevation: 5'–1,460' Bloom Period: March–May	within 5 miles of the Project Area; however, there is no suitable habitat onsite.
Delta button-celery *(Eryngium racemosum)*	–	CE	1B.1	Vernally mesic clay depressions in riparian scrub communities. Elevation: 10'–100' Bloom Period: June–October	Presumed Absent. There is no suitable habitat onsite.
Spiny-sepaled button-celery *(Eryngium spinosepalum)*	–	–	1B.2	Swales, roadside ditches (Preston et al. 2023), vernal pools and valley and foothill grassland. Elevation: 260'–3,200' Bloom Period: April–June	Presumed Absent. There are 5 CNDDB occurrences within 5 miles of the Project Area; however, there is no suitable habitat onsite.
Stinkbells *(Fritillaria agrestis)*	–	–	4.2	Clay and sometimes serpentine soils in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. Elevation: 35'–5,100'	Low Potential to Occur. The non-native grassland onsite provides marginally suitable habitat.

[4] California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				Bloom Period: March–June	
Boggs Lake hedge-hyssop *(Gratiola heterosepala)*	–	CE	1B.2	Clay substrates of marshes and swamps (lake margins) and vernal pools. Elevation: 35'–7,790' Bloom Period: April–August	Presumed Absent. There is no suitable habitat onsite.
Hogwallow starfish *(Hesperevax caulescens)*	–	–	4.2	Mesic areas with clay soil within valley and foothill grassland, shallow vernal pools, and sometimes alkaline areas. Elevation: 0'–1,655' Bloom Period: March–June	Presumed Absent. There is no suitable habitat onsite.
Forked hare-leaf *(Lagophylla dichotoma)*	–	–	1B.1	Cismontane woodland or valley and foothill grassland. Elevation: 150'–1,100' Bloom Period: April–May	Low Potential to Occur. There is 1 CNDDB occurrence within 5 miles of the Project Area. The non-native grassland onsite provides marginally suitable habitat.
Alkali-sink goldfields (*Lasthenia chrysantha*)	–	–	1B.1	Alkaline vernal pools. Elevation: 0'–655' Bloom Period: February–April	Presumed Absent. There is no suitable habitat onsite.
Lassics lupine (*Lupinus constancei*)	FE	CE	1B.1	Lower montane coniferous forest (serpentinite). Elevation: 4,920'-6,560' Bloom Period: July	Presumed Absent. There is no suitable habitat onsite and the Project Area is outside of the known elevation range for this species.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
Pincushion navarretia *(Navarretia myersii* ssp. *myersii)*	–	–	1B.1	Often acidic soils in vernal pools. Elevation: 65'–1,085' Bloom Period: April–May	Presumed Absent. There is no suitable habitat onsite.
Shining navarretia *(Navarretia nigelliformis* ssp. *radians)*	–	–	1B.2	Vernal pools within cismontane woodland and valley or foothill grassland. Elevation: 215'–3,280' Bloom Period: April–July	Presumed Absent. There are 23 CNDDB occurrences withing 5 miles of the Project Area; however, there is no suitable habitat onsite.
Colusa grass *(Neostapfia colusana)*	FT	CE	1B.1	Large vernal pools with adobe soils. Elevation: 15'–655' Bloom Period: May–August	Presumed Absent. There are 16 CNDDB occurrences withing 5 miles of the Project Area; however, there is no suitable habitat onsite.
San Joaquin Valley Orcutt grass *(Orcuttia inaequalis)*	FT	CE	1B.1	Vernal pools. Elevation: 35'–2,475' Bloom Period: April–September	Presumed Absent. There are 8 CNDDB occurrences withing 5 miles of the Project Area; however, there is no suitable habitat onsite
Hairy Orcutt grass *(Orcuttia pilosa)*	FE	CE	1B.1	Vernal pools. Elevation: 150'–655' Bloom Period: May–September	Presumed Absent. There is 1 CNDDB occurrence withing 5 miles of the Project Area; however, there is no suitable habitat onsite.
Merced phacelia *(Phacelia ciliata* var. *opaca)*	–	–	3.2	Valley or foothill grassland containing clay soils and	Low Potential to Occur. There are 3 CNDDB occurrences

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				sometimes on alkaline soils. Elevation: 195'–490' Bloom Period: February–May	within 5 miles of the Project Area. The non-native grassland onsite provides marginally suitable habitat.
Hartweg's golden sunburst *(Pseudobahia bahiifolia)*	FE	CE	1B.1	Clay, often acidic soils in cismontane woodland, valley and foothill grasslands. Elevation: 50'–490' Bloom Period: March–April	Low Potential to Occur. The non-native grassland onsite provides marginally suitable habitat.
California alkali grass (*Puccinellia simplex*)	–	–	1B.2	Alkaline, vernally mesic areas and sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation: 5'–3,050' Bloom Period: March–May	Presumed Absent. There is no suitable habitat onsite.
Sanford's arrowhead *(Sagittaria sanfordii)*	–	–	1B.2	Shallow marshes and freshwater swamps. Elevation: 0'–2,135' Bloom Period: May–October	Presumed Absent. There are 2 CNDDB occurrences within 5 miles of the Project Area; however, there is no suitable habitat onsite.
Keck's checkerbloom *(Sidalcea keckii)*	FE	–	1B.1	Serpentine and clay soils within cismontane woodland and valley and foothill grasslands. Elevation: 245'–2,135'	Low Potential to Occur. There are 2 CNDDB occurrences within 5 miles of the Project Area. The non-native grassland onsite provides

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				Bloom Period: April–May	marginally suitable habitat.
Greene's tuctoria *(Tuctoria greenei)*	FE	CR	1B.1	Vernal pools. Elevation: 100'–3,510' Bloom Period: May–July	Presumed Absent. There is no suitable habitat onsite.
Invertebrates					
Crotch bumble bee *(Bombus crotchii)*	–	CC	–	Primarily nests underground in open grassland and scrub habitats from the California coast east to the Sierra Cascade and south to Mexico. Survey Period: March-September	Low potential. The farmed/annual grasslands in the Project site provide marginally suitable nesting, overwintering, and/or foraging habitat for this species.
Conservancy fairy shrimp (*Branchinecta conservatio)*	FE	–	–	Vernal pools/wetlands. Survey Period: November-April when surface water is present.	Presumed Absent. There is no suitable habitat onsite.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	–	–	Vernal pools/wetlands. Survey Period: November–April when surface water is present.	Presumed Absent. There is no suitable habitat onsite.
Monarch butterfly (*Danaus plexippus*)	FC	–	–	Overwinters along coastal California in wind-protected groves of eucalyptus, Monterey pine and cypress with nearby nectar and water sources; disperses in spring throughout California. Adults breed and lay eggs during the	Presumed Absent. There is no suitable habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				spring and summer, feeding on a variety of nectar sources; eggs are laid exclusively on milkweed plants.	
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	–	–	Found exclusively on its host plant, the elderberry shrub, in riparian and oak woodland/ oak savannah habitats of California's Central Valley from Shasta to Madera counties.	Presumed Absent. There is no suitable habitat onsite.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	–	–	Vernal pools/wetlands. Survey Period: November-April when surface water is present.	Presumed Absent. There is no suitable habitat onsite.
Fish					
Hardhead (*Mylopharodon conocephalus*)	–	–	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River. Survey Period: N/A	Presumed Absent. There is no suitable habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss irideus*)	FT	–	–	Fast-flowing, well-oxygenated rivers and streams below dams in the Sacramento and San Joaquin River systems. Survey Period: N/A	Presumed Absent. There is no suitable habitat onsite.
Amphibians					
Western spadefoot (Northern DPS) (*Spea hammondii*)	FPT	–	SSC	California endemic species of vernal pools, swales, and seasonal wetlands in grassland, scrub and woodland habitats throughout the Central Valley and South Coast Ranges. Prefers open areas with sandy or gravelly soils. Survey Period: Winter-Spring.	Low Potential to Occur. There is no aquatic breeding habitat onsite but potential upland dispersal habitat is present.
California tiger salamander (Central California DPS) (*Ambystoma californiense*)	FT	CT	WL	Breeds in vernal pools and seasonal wetlands in grassland or oak woodland habitats; adults are terrestrial using underground refuges such as ground squirrel or gopher burrows. Central Valley and Inner Coast Range. Survey Period: Winter-Spring.	Low Potential to Occur. There is no aquatic breeding habitat onsite but potential upland dispersal habitat is present.
Reptiles					
Northwestern pond turtle	FPT	–	SSC	Requires basking sites and upland	Low potential to occur. The

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
(*Actinemys marmorata*)				habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches. Survey Period: April-September	Yosemite Lateral Canal provides marginally suitable aquatic habitat and the Project site provides potential upland habitat.
Blunt-nosed leopard lizard (*Gambelia silus*)	FE	CE	CFP	Occurs in sparsely vegetated alkali scrub habitats in the southern San Joaquin Valley. Uses mammal burrows, shrubs and other structures for shade. Survey Period: April - July	Presumed Absent. There is no suitable habitat onsite.
Giant garter snake (*Thamnophis gigas*)	FT	CT	–	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range. Survey Period: April-October	Presumed Absent. The Project site is located outside of the current geographical range of this species.
Birds					
Western grebe *(Aechmophorus occidentalis)*	–	–	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation.	Presumed Absent. There is no suitable nesting habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				Nesting: June-August	
Clark's grebe *(Aechmophorus clarkii)*	–	–	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation. Nesting: June-August	Presumed Absent. There is no suitable nesting habitat onsite.
Mountain plover (*Charadrius montanus*)	–	–	BCC, SSC	Breeds in the Great Plains/Midwestern US; winters in California, Arizona, Texas, and Mexico; wintering habitat in California includes tilled fields, heavily grazed open grassland, burned fields, and alfalfa fields. Wintering: September-March	Presumed Absent. There is no suitable wintering habitat onsite.
Short-billed Dowitcher *(Limnodromus griseus)*	–	–	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons. Migrant/Winteri	Presumed Absent. There is no suitable habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				ng: late-August-May	
California gull (nesting colony) *(Larus californicus)*	–	–	BCC, CDFW WL	Nesting occurs in the Great Basin, Great Plains, Mono Lake, and south San Francisco Bay. Breeding colonies located on islands on natural lakes, rivers, or reservoirs. Winters along Pacific Coast from southern British Columbia south to Baja California and Mexico. In California, winters along coast and inland (Central Valley, Salton Sea). Nesting: April-August	Presumed Absent. There is no suitable nesting habitat onsite.
White-tailed kite (*Elanus leucurus*)	–	–	CFP	Nesting occurs within trees in low elevation grassland, agricultural, wetland, oak woodland, riparian, savannah, and urban habitats. Nesting: March-August	Potential to Occur. There is potentially suitable nesting habitat onsite.
Golden eagle (*Aquila chrysaetos*)	–	–	CFP, CDFW WL	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/ savannah, and chaparral.	Presumed Absent. There is no suitable nesting habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter. Nesting: February-August	
Northern harrier (*Circus hudsonius*)	–	–	BCC, SSC	Nests on the ground in open wetlands, marshy meadows, wet/lightly grazed pastures, (rarely) freshwater/brackish marshes, tundra, grasslands, prairies, croplands, desert, shrub-steppe, and (rarely) riparian woodland communities. Nesting: April-September	Presumed Absent. There is no suitable nesting habitat onsite.
Cooper's hawk *(Accipiter cooperii)*	–	–	CDFW WL	Nests in trees in riparian woodlands in deciduous, mixed and	Potential to Occur. There is potentially suitable nesting habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				evergreen forests, as well as urban landscapes. Rosenfield et al. 2020. Nesting: March-July	
Bald eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands. Nesting: February-September	Presumed Absent. There is no suitable nesting habitat onsite.
Swainson's hawk (*Buteo swainsoni*)	–	CT	–	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures. Nesting: March-August	Present. There are 2 CNDDB occurrences of Swainson's hawk within 5 miles of the Project site. One Swainson's hawk was observed soaring over Project site during initial site reconnaissance visit on 5/13/24. There is potentially suitable nesting and foraging habitat onsite.
Ferruginous hawk	–	–	BCC, CDFW WL	Rarely breeds in California	Potential to Occur. There is

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
(*Buteo regalis*)				(Lassen County); winter range includes grassland and shrubsteppe habitats from Northern California (except northeast and northwest corners) south to Mexico and east to Oklahoma, Nebraska, and Texas. Wintering: September-March	potentially suitable winter foraging habitat onsite.
Burrowing owl *(Athene cunicularia)*	–	–	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds. Nesting: February-August	Potential to Occur. There is potentially suitable burrow habitat onsite.
Nuttall's woodpecker *(Dryobates nuttallii)*	–	–	BCC	Resident from northern California south to Baja California. Nests	Presumed Absent. There is no suitable nesting habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				in tree cavities in oak woodlands and riparian woodlands. Nesting: April-July	
Merlin *(Falco columbarius)*	–	–	CDFW WL	Breeds in Oregon, Washington north into Canada. Winters in southern Canada to South America, including California. Breeds near forest openings, fragmented woodlots, and riparian areas. Wintering habitat includes wide variety, open forests, grasslands, tidal flats, plains, and urban settings. Wintering in the Central Valley: September-April; does not breed in California.	Presumed Absent. There is no suitable wintering habitat onsite.
Olive-sided flycatcher *(Contopus cooperi)*	–	–	SSC, BCC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semiopen forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America. Nesting: May-August	Presumed Absent. There is no suitable nesting habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
Yellow-billed magpie (*Pica nuttallii*)	–	–	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings. Nesting: April-June	Potential to Occur. There is potentially suitable nesting habitat onsite.
Oak titmouse (*Baeolophus inornatus*)	–	–	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree). Nesting: March-July	Presumed Absent. There is no suitable nesting habitat onsite.
Lawrence's goldfinch (*Spinus lawrencei*)	–	–	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in	Presumed Absent. There is no suitable nesting habitat onsite.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water. Nesting: March-September	
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	–	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh. Year-round resident; nests March-August	Presumed Absent. There is no suitable nesting habitat onsite.
Santa Barbara song sparrow (*Melospiza melodia graminea*)	–	–	BCC	Breeding habitat includes dense shrubs and thickets of giant coreopsis (*Coreopsis gigantea*), grasslands with scattered shrubs, Artemisia-Opuntia grass associations, and dense grasslands. Resident on California Channel Islands	Presumed Absent. This subspecies is endemic to the Channel Islands.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				(San Clemente, San Miguel, Santa Cruz, Santa Rosa, Anacapa) and Isla Los Coronados, Baja California.	
Tricolored blackbird (*Agelaius tricolor*)	–	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields. Nesting: March-August	Presumed Absent. There is no suitable nesting habitat onsite.
Bullock's oriole (*Icterus bullockii*)	–	–	BCC	Breeding habitat includes riparian and oak woodlands.	Present. Observed onsite during initial site reconnaissance on 5/13/24.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
				Nesting: March-July	There is potentially suitable nesting habitat onsite.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	–	–	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County. Nesting: March-July	Presumed Absent. There is no suitable nesting habitat onsite.
Mammals					
Pallid bat *(Antrozous pallidus)*	–	–	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human occupied as well as vacant buildings.[5] Survey Period: April-September	Presumed Absent. There is no suitable roosting habitat onsite.
Western mastiff bat	–	–	SSC	Primarily a cliff-dwelling species, found in similar crevices in large	Presumed Absent. There is no suitable

[5] Western Bat Working Group (WBWG). 2024. Western Bat Species Accounts. Available online: https://wbwg.org/western-bat-species/. Accessed May 2024.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		
(*Eumops perotis californicus*)				boulders and buildings.[6] Survey Period: April-September	roosting habitat onsite.
Western red bat (*Lasiurus frantzii*)	–	–	SSC	Roosts in foliage of trees or shrubs; day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).[7] Survey Period: April-September	Low Potential to Occur. The eucalyptus trees adjacent to the Yosemite Lateral Canal provide marginally suitable roosting habitat.
American badger *(Taxidea taxus)*	–	–	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Survey Period: Any season	Presumed Absent. There is no suitable burrow habitat onsite.
San Joaquin kit fox *(Vulpes macrotis mutica)*	FE	CT	–	Grasslands, sagebrush scrub. Survey Period: April 15 - July 15, September 1 - December 1	Low Potential to Occur. The Project site supports marginally suitable dispersal habitat.

6 Western Bat Working Group (WBWG). 2024. Western Bat Species Accounts. Available online: https://wbwg.org/western-bat-species/. Accessed May 2024.

7 Western Bat Working Group (WBWG). 2024. Western Bat Species Accounts. Available online: https://wbwg.org/western-bat-species/. Accessed May 2024.

COMMON NAME (SCIENTIFIC NAME)	STATUS			HABITAT DESCRIPTION/ SPECIES ECOLOGY	POTENTIAL TO OCCUR ONSITE
	ESA	CESA/ NPPA	OTHER		

Status Codes:

ESA	*Federal Endangered Species Act*
CESA	*California Endangered Species Act*
FE	*ESA listed, Endangered*
FT	*ESA listed, Threatened*
FPT	*Formally Proposed for ESA listing as Threatened*
FC	*Candidate for ESA listing as Threatened or Endangered*
Fd	*Formally Delisted (delisted species are monitored for 5 years)*
BCC	*USFWS Bird of Conservation Concern (USFWS 2021)*
CE	*CESA- or NPPA listed, Endangered*
CT	*CESA- or NPPA-listed, Threatened*
CR	*CESA- or NPPA-listed, Rare*
CC	*Candidate for CESA listing as Endangered or Threatened*
CFP	*California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5050-reptiles/amphibians)*
SSC	*CDFW Species of Special Concern*
CDFW WL	*CDFW Watch List*
1B	*CRPR/Rare or Endangered in California and elsewhere*
2B	*CRPR/Plants rare, threatened, or endangered in California but more common elsewhere*
3	*CRPR/Plants About Which More Information is Needed – A Review List*
4	*CRPR/Plants of Limited Distribution – A Watch List*
0.1	*Threat Rank/Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)*
0.2	*Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)*
0.3	*Threat Rank/Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)*
Delisted	*Formally Delisted*
NPPA	*California Native Plant Protection Act*
DPS	*Distinct Population Segment*
CNDDB	*Species that is tracked by CDFW's CNDDB but does not have any of the above special-status designations otherwise*
WBWG	*Western Bat Working Group*

Plants

The Project site supports marginally suitable habitat for seven special-status plants, including Hoover's calycadenia (*Calycadenia hooveri*), beaked clarkia (*Clarkia rostrata*), Ewan's larkspur (*Delphinium hansenii* ssp. *ewanianum*), stinkbells (*Fritillaria agrestis*), forked hare-leaf (*Lagophylla dichotoma*), Merced phacelia (*Phacelia ciliata* var. *opaca*), Hartweg's golden sunburst (*Pseudobahia bahiifolia*), and Keck's checkerbloom (*Sidalcea keckii*). The vegetation communities within the Project site are considered marginally suitable for these special-status plants due to the disturbances from historic farming onsite. Of these, two are state or federally listed, Hartweg's golden sunburst and Keck's checkerbloom. A brief discussion of these listed plants follows.

HARTWEG'S GOLDEN SUNBURST

Hartweg's golden sunburst is listed as endangered pursuant to both the federal and California ESAs, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs on clay soils that are often acidic in cismontane woodlands, and valley and foothill grasslands. Hartweg's golden sunburst blooms from March through April and is known to occur at elevations ranging from

50 to 490 feet above AMSL. Hartweg's golden sunburst is endemic to California; the current range of this species includes Fresno, Madera, Merced, Stanislaus, Sutter, Tuolumne, and Yuba counties. This species is believed to be extirpated from Yuba County.[8]

There are no CNDDB occurrences of Hartweg's golden sunburst within 5 miles of the Project site.[9] The non-native annual grassland vegetation community within the Project site represents marginally suitable habitat for this species. Hartweg's golden sunburst has low potential to occur within the Project site.

KECK'S CHECKERBLOOM

Keck's checkerbloom is listed as endangered pursuant to the federal ESA, is not listed pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in serpentinite and clay soils in cismontane woodlands and valley and foothill grasslands. Keck's checkerbloom blooms from April through May and is known to occur at elevations ranging from 245 to 2,135 feet AMSL. Keck's checkerbloom is endemic to California; the current range of this species includes Colusa, Fresno, Glenn, Lake, Merced, Napa, Solano, Tulare, and Yolo counties. It is possibly extirpated in Colusa, Napa, Solano, and Yolo counties.[10]

There are two CNDDB occurrences of Keck's checkerbloom within 5 miles of the Project site.[11] The non-native annual grassland vegetation community within the Project site represents marginally suitable habitat for this species. Hartweg's golden sunburst has low potential to occur within the Project site.

Invertebrates

The Project site supports marginally suitable habitat for one special-status invertebrate species, the Crotch bumble bee (*Bombus crotchii*). The vegetation communities within the Project site are considered marginally suitable for this special-status invertebrate due to the disturbances from historic farming onsite. A brief discussion of this candidate for state listing follows.

CROTCH BUMBLE BEE

The Crotch bumble bee is a candidate for listing as endangered under the California ESA. The historic range of the Crotch bumble bee extends from coastal areas east to the edges of the desert in central

8 California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

9 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

10 California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

11 California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

California south to Baja California del Norte, Mexico, excluding mountainous areas.[12,13] The species was historically common throughout the southern two-thirds of its range but is now largely absent from much of that area and is nearly extirpated from the center of its historic range, the Central Valley.[14]

The Crotch bumble bee inhabits open grassland and scrub habitats.[15] The species visits a wide variety of flowering plants, although its very short tongue makes it best suited to forage at open flowers with short corollas.[16] Plant families most commonly associated with Crotch bumble bee include Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae.[17] The species primarily nests underground.[18] Little is known about overwintering sites for the species, but bumble bees generally overwinter in soft, disturbed soils or under leaf litter or other.[19,20] The flight period for Crotch bumble bee queens in California is from late February to late October, peaking in early April with a second pulse in July.[21] The flight period for workers and males is California is from late March through September with peak abundance in early July.[22]

There are no CNDDB occurrences of Crotch bumble bee within 5 miles of the Project site.[23] The farmed non-native annual grassland vegetation community within the Project site represents marginally suitable habitat for this species. Crotch's bumble bee has low potential to occur within the Project site.

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12 Thorp, R. W., D. S. Horning, and L. L Dunning. 1983. Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae). *Bulletin of the California Insect Survey* 23:1-79 pp.

13 Williams, P.H., R.W. Thorp, L.L. Richardson, and S.R. Colla. 2014. *Bumble bees of North America: An Identification Guide*. Princeton University Press. 208 pp.

14 Hatfield, R., S. Colla, S. Jepsen, L. Richardson, R. Thorp, and S. F. Jordan. 2014. IUCN assessments for North American *Bombus* spp. Technical report for the North American IUCN Bumble Bee Specialist Group. Assessments completed 2014, document updated in February 2015. 56 pp.

15 Williams, P.H., R.W. Thorp, L.L. Richardson, and S.R. Colla. 2014. *Bumble bees of North America: An Identification Guide*. Princeton University Press. 208 pp.

16 Xerces Society. 2018. A Petition to the State of California Fish and Game Commission. October. Available online at: https://xerces.org/sites/default/files/2019-10/CESA-petition-Bombus-Oct2018.pdf.

17 Xerces Society. 2018. A Petition to the State of California Fish and Game Commission. October. Available online at: https://xerces.org/sites/default/files/2019-10/CESA-petition-Bombus-Oct2018.pdf.

18 Williams, P.H., R.W. Thorp, L.L. Richardson, and S.R. Colla. 2014. *Bumble bees of North America: An Identification Guide*. Princeton University Press. 208 pp.

19 Goulson, D. 2010. *Bumblebees: Behaviour, Ecology, and Conservation*. Oxford University Press, New York. 317pp.

20 Williams, P.H., R.W. Thorp, L.L. Richardson, and S.R. Colla. 2014. *Bumble bees of North America: An Identification Guide*. Princeton University Press. 208 pp.

21 Thorp, R. W., D. S. Horning, and L. L Dunning. 1983. Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae). *Bulletin of the California Insect Survey* 23:1-79 pp.

22 Thorp, R. W., D. S. Horning, and L. L Dunning. 1983. Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae). *Bulletin of the California Insect Survey* 23:1-79 pp.

23 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

Amphibians

The Project site supports marginally suitable habitat for two special-status amphibians, western spadefoot (*Spea hammondii*) and California tiger salamander (*Ambystoma californiense*). There is no aquatic breeding habitat for either of these species within the Project site, but there are known occurrences in close proximity to the Project site. The vegetation communities within the Project site are considered marginally suitable upland habitat for these special-status amphibians due to the disturbances from historic farming onsite and the presence of possible barriers to movement, including paved roadways and the canal. A brief discussion of these species follows.

WESTERN SPADEFOOT

The western spadefoot is proposed to be listed as threatened pursuant to the federal ESA, is not listed pursuant to the California ESA but is designated as a CDFW SSC. Necessary habitat components of the western spadefoot include loose friable soils in which to burrow in upland habitats and nearby breeding ponds. Breeding sites include temporary rain pools, such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages.[24] Spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, western spadefoot toads are known to occur from the Redding area in Shasta County southward to northwestern Baja California, at elevations below 4,475 feet.[25]

There is one CNDDB occurrence of western spadefoot within 5 miles of the Project site.[26] There is no suitable aquatic breeding habitat for this species onsite, but there is potentially suitable aquatic breeding habitat on adjacent properties to the east of the Project site. The farmed non-native annual grassland vegetation community within the Project site represents marginally suitable upland habitat for this species. Western spadefoot has low potential to occur within the Project site.

CALIFORNIA TIGER SALAMANDER

The Central Valley Distinct Population Segment (DPS) of California tiger salamander is listed as threatened under the federal ESA. It is most commonly associated with annual grassland habitats but may also occur within open woodland areas of low hills and valleys. The California tiger salamander occurs from Yolo County (Dunnigan area) south through the Central Valley to Kern County, and discontinuously from Santa Barbara County north through the inner coast range to

[24] Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California. Final report to California Department of Fish and Game, Inland Fisheries Branch. Rancho Cordova, CA*.

[25] Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California. Final report to California Department of Fish and Game, Inland Fisheries Branch. Rancho Cordova, CA*.

[26] California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

Sonoma County.[27,28] Necessary habitat components include extensive uplands and breeding ponds. Tiger salamanders spend most of their adult life within underground refugia, such as California ground squirrel or Botta's pocket gopher (*Thomomys bottae*) burrows. Breeding sites include vernal pools, seasonal wetlands, stock ponds, or slow-moving streams that do not support fish, although streams are rarely used for reproduction. This species may use permanent man-made ponds for reproduction if predatory species (e.g., fish, crayfish) are absent. Adult tiger salamanders, which are generally nocturnal, may migrate over long distances (up to 1.8 mile) from underground refuges to breeding ponds.[29] Adults and post-metamorphic tiger salamanders spend most of the year underground, especially in burrows of California ground squirrels, gophers, and other small mammals, and will occasionally use manufactured structures.[30,31]

There are 22 CNDDB occurrences of California tiger salamander within 5 miles of the Project site, including two occurrences that were documented on adjacent properties to the north and east of the Project site.[32] There is no suitable aquatic breeding habitat for this species onsite, but there is potentially suitable aquatic breeding habitat on adjacent properties to the east of the Project site. The farmed non-native annual grassland vegetation community within the Project site represents marginally suitable upland habitat for this species. California tiger salamander has low potential to occur within the Project site.

Reptiles

The Project site supports marginally suitable habitat for one special-status reptile, northwestern pond turtle (*Actinemys marmorata*). There is no aquatic habitat for this species within the Project site, but the adjacent Yosemite Lateral Canal represents potentially suitable aquatic habitat and the farmed non-native annual grassland onsite represents marginally suitable upland habitat. A brief discussion of this species follows.

27 U.S. Fish and Wildlife Service (USFWS). 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October.

28 U.S. Fish and Wildlife Service (USFWS). 2015. Draft recovery plan for the Central California distinct population segment of the California tiger salamander (*Ambystoma californiense*). U. S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 53 pp.

29 U.S. Fish and Wildlife Service (USFWS). 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October.

30 Shaffer, H. B., R. N. Fisher, and S. E. Stanley. 1993. Status report: the California tiger salamander (*Ambystoma californiense*) (Contracts FG9422 and FG1383). Final report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California.

31 Stebbins, R. C. 1972. *California amphibians and reptiles*. University of California press. Berkeley, California. 152 pp.

32 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

NORTHWESTERN POND TURTLE

The northwestern pond turtle is proposed for listing as threatened pursuant to the federal ESA and is considered an SSC by CDFW. The range of the northwestern pond turtle in California extends from the Coast Ranges on the Oregon border southward to Marin County, throughout the lower elevations and foothills of the southern Cascades and Sierra Nevada Mountains, and within the Sacramento and San Joaquin Valleys.[33] They can occur in a variety of waters including ponds, lakes, streams, reservoirs, rivers, settling ponds of wastewater treatment plants, and other permanent and ephemeral wetlands.[34] However, in streams and other lotic features they generally require slack- or slow-water aquatic microhabitats.[35] Northwestern pond turtles also require basking areas such as logs, rocks, banks, and brush piles for thermoregulation.[36] Nesting sites for pond turtles are typically located in annual grasslands adjacent to a watercourse with little slope and hard, dry soil.[37] Nesting habitat soils typically display high clay or silt fraction, with few nests located in sandy soils. Nests are usually within 400 meters of a watercourse, with the majority being within 50 meters of the water's edge.[38]

There are no CNDDB occurrences of northwestern pond turtle within 5 miles of the Project site.[39] There is no suitable aquatic breeding habitat for this species onsite but the adjacent Yosemite Lateral Canal represents potentially suitable aquatic habitat and the farmed non-native annual grassland vegetation community within the Project site represents marginally suitable upland habitat for this species. Northwestern pond turtle has low potential to occur within the Project site.

Birds

The Project site supports potentially suitable habitat for seven special-status birds, white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), burrowing owl (*Athene cunicularia*), yellow-billed magpie (*Pica nuttallii*), and Bullock's oriole (*Icterus bullockii*). The habitats and vegetation communities within the

33 Thomson R. C., Wright A., Shaffer H. B. 2016. *California amphibian and reptile species of special concern*. Oakland: University of California Press.

34 Bury, R. B., D. T. Ashton, H. H. Welsh Jr., D. A. Reese, and D. J. Germano. 2012. Synopsis of Biology. Pages 9 – 19 In *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management* Bury, R. B., H. H. Welsh Jr., D. J. Germano, and D. A. Ashton, editors. Northwest Fauna No. 7.

35 Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California. Final report to California Department of Fish and Game, Inland Fisheries Branch. Rancho Cordova, CA*.

36 Bury, R. B., D. T. Ashton, H. H. Welsh Jr., D. A. Reese, and D. J. Germano. 2012. Synopsis of Biology. Pages 9 – 19 In *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management* Bury, R. B., H. H. Welsh Jr., D. J. Germano, and D. A. Ashton, editors. Northwest Fauna No. 7.

37 Ashton, D. T., A. J. Lind, K. E. Schlick. 1997. Western Pond Turtle (*Clemmys marmorata*). Natural History. United States Department of Agriculture Forest Service, Pacific Southwest Research Station, Redwood Sciences Laboratory. Arcata, CA.

38 Holland, D.C. 1994. *The Western Pond Turtle: Habitat and History*. Final Report to the United States Department of Energy, Bonneville Power Administration, Environment, Fish, and Wildlife. Portland, OR.

39 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

Project site represent potentially suitable nesting and/or foraging habitat for these special-status birds. Of these potentially occurring special-status birds, only the Swainson's hawk is listed and protected under either CESA or ESA. A brief discussion of this species follows.

SWAINSON'S HAWK

The Swainson's hawk is listed as a threatened species and is protected pursuant to the California Endangered Species Act. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta[40]. In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest in tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanoplus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, discing, and irrigating.[41] The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

A Swainson's hawk was observed soaring over the Project site during the site reconnaissance visit on May 13, 2024. There are two CNDDB occurrences of Swainson's hawk within 5 miles of the Project site.[42] An eBird report from the Project site vicinity documents a nest less than 5 miles away from 2022 with 1 fledgling.[43] The larger trees onsite represent potentially suitable nesting habitat, and the farmed non-native annual grassland vegetation community within the Project site represents suitable foraging habitat for Swainson's hawk.

Mammals

The Project site supports marginally suitable habitat for one listed mammal, the San Joaquin kit fox, and one non-listed special-status mammal, the western red bat (*Lasiurus frantzii*), which is

40 Bechard, M. J., C. S. Houston, J. H. Saransola, and A. S. England. 2020. Swainson's Hawk (*Buteo swainsoni*), version 1.0. In *Birds of the World* (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.swahaw.01.

41 Estep, J. A. 1989. *Biology, movements, and habitat relationships of the Swainson's hawk in the Central Valley of California, 1986-1987*. California Department of Fish and Game, Nongame Bird and Mammal Section Report.

42 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

43 eBird. 2024. eBird Checklist S115451019, July 20, 2022. Available online: https://ebird.org/checklist/S11545101. Accessed June 2024.

considered an SSC by CDFW. The eucalyptus trees along Lake Road and adjacent to the Yosemite Lateral Canal provide marginally suitable roosting habitat for this species.

LISTED SPECIES, CRITICAL HABITAT AND ESSENTIAL FISH HABITAT

The Project site is located within designated Critical Habitat for succulent (fleshy) owl's clover (*Castilleja campestris* ssp. *succulenta*), Colusa grass (*Neostapfia colusana*), San Joaquin Orcutt grass (*Orcuttia inaequalis*), Greene's tuctoria (*Tuctoria greenei*), Conservancy fairy shrimp (*Branchinecta conservatio*), and vernal pool fairy shrimp (*Branchinecta lynchi*). A Biological Opinion (BO) was issued by the USFWS for the "UC Villages Projects" (USFWS # 1-1-07-F-0061, USACE # 200600815) on February 2, 2007 addressing Project effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, succulent owl's clover, and San Joaquin kit fox in accordance with Section 7 of the ESA. Impacts to waters of the U.S. were permitted under Nationwide Permit 39 (NWP) on March 2, 2007. The Project did not move forward at that time, but it is presumed that the wetlands onsite were filled as authorized under the BO and the NWP. Currently, the physical and biological features (or primary constituent elements) essential to the conservation of these federally listed species are not present within the Project site.

For the fleshy owl's clover, Colusa grass, San Joaquin Orcutt grass, and Greene's tuctoria these physical and biological features are:

Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described below, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

For the Conservancy fairy shrimp and vernal pool fairy shrimp, these physical and biological features are:

- Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described below, providing for dispersal and promoting hydroperiods of adequate length in the pools;
- Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 19 (for Conservancy fairy shrimp) or 18 (for vernal pool fairy shrimp) days, in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the

development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands;

- Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and
- Structure within the pools described above, consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

Based on the literature review, anadromous fish Essential Fish Habitat for Chinook salmon (*Oncorhynchus tshawytscha*) may be present in the "Merced, California" 7.5-minute quadrangle.[44] However, there is no suitable anadromous fish habitat present within or adjacent to the Project site.

WILDLIFE MOVEMENT CORRIDORS AND NURSERY SITES

The Project site has been heavily impacted by farming and is bordered by Bellevue Road and Lake Road and surrounded by rural residences and the UC Merced campus. Wildlife use is expected to be minimal onsite and the Project site is unlikely to serve as a significant wildlife movement corridor or to support nursery sites, such as deer fawning ground or waterbird rookeries, for these reasons. However, the trees onsite may provide suitable nesting habitat for a variety of common birds protected under the MBTA, special-status birds such as the state-listed Swainson's hawk, or roosting habitat for western red bat.

PROTECTED TREES/OAK WOODLANDS

The trees in the Project site include a variety of non-native and planted cultivars along fence lines and around the rural residence and include olive and blue gum trees. There are no riparian or oak woodlands in the Project site.

3.4.2 REGULATORY SETTING

There are a number of regulatory agencies whose responsibility includes the oversight of the natural resources of the state and nation including the CDFW, USFWS, U.S. Army Corps of Engineers (USACE), and the National Marine Fisheries Service. These agencies often respond to declines in the quantity of a particular habitat or plant or animal species by developing protective measures for

[44] National Oceanic and Atmospheric Administration (NOAA). 2022. NOAA Fisheries West Coast Region. Intersection of USGS 7.5" Topographic Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data with California. Available online: https://svctenvims.dot.ca.gov/bio_link/.

those species or habitat type. The following is an overview of the federal, state and local regulations that are applicable to the proposed Project.

FEDERAL

Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS or the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, the ESA prohibits removing or possessing any listed plant on federal land, maliciously damaging or destroying any listed plant in any area, or removing, cutting, digging up, damaging, or destroying any such species in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its designated Critical Habitat. Through consultation and the issuance of a Biological Opinion, the USFWS may issue an incidental take statement allowing take of a listed species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

Critical Habitat

Critical Habitat is defined in Section 3 of ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and
2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (i.e., areas on which the primary constituent elements are found). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include, but are not limited to, the following:

- Space for individual and population growth and for normal behavior
- Food, water, air, light, minerals, or other nutritional or physiological requirements
- Cover or shelter
- Sites for breeding, reproduction, or rearing (or development) of offspring

- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species

Excluded essential habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were excluded from the Critical Habitat designation. The USFWS has stated that any action within the excluded essential habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific critical habitat designation would be afforded protection under Section 7(a)(2) of ESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The protections of the MBTA extend to disturbances that result in abandonment of a nest with eggs or young. The USFWS may issue permits to qualified applicants as authorized by the MBTA for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits.

Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas:

> …that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3 7b).

The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

STATE

California Fish and Game Code

CALIFORNIA ENDANGERED SPECIES ACT

The California ESA (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 allows CDFW to authorize incidental take permits if species-specific minimization and avoidance measures are incorporated to fully mitigate the impacts of the project.

FULLY PROTECTED SPECIES

The State of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the state and/or federal ESAs. Previously, the regulations that implement the Fully Protected Species Statute (California Fish and Game Code Sections 4700 for mammals, 3511 for birds, 5050 for reptiles and amphibians, and 5515 for fish) provided that fully protected species may not be taken or possessed at any time. However, on July 10, 2023, Senate Bill 147 was signed into law, authorizing CDFW to issue take permits under the California ESA for fully protected species for qualifying projects through 2033. Qualifying projects include:

- a maintenance, repair, or improvement project to the State Water Project, including existing infrastructure, undertaken by the Department of Water Resources;
- a maintenance, repair, or improvement project to critical regional or local water agency infrastructure;
- a transportation project, including any associated habitat connectivity and wildlife crossing project, undertaken by a state, regional, or local agency, that does not increase highway or street capacity for automobile or truck travel;
- a wind project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the State to a point of junction with any California based balancing authority; or
- a solar photovoltaic project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the State to a point of junction with any California-based balancing authority.

CDFW may also issue licenses or permits for take of these species for necessary scientific research or live capture and relocation, and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code Sections 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

SPECIAL PROTECTIONS FOR BIRDS

Sections 3503, 3513, and 3800 of the California Fish and Game Code specifically protect birds. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 prohibits the take, possession, or destruction of any birds in the orders Strigiformes (owls) or Falconiformes (hawks and eagles), as well as their nests and eggs. Section 3513 prohibits the take or possession of any migratory nongame bird as designated in the MBTA. Section 3800 states that, with limited exceptions, it is unlawful to take any nongame bird, defined as all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. These provisions, along with the federal MBTA, serve to protect all nongame birds and their nests and eggs, except as otherwise provided in the code.

LAKE OR STREAMBED ALTERATION AGREEMENTS

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The notification must incorporate proposed measures to protect affected fish and wildlife resources. CDFW may suggest additional protective measures during their review. A Lake or Streambed Alteration Agreement (LSAA) is the final proposal mutually agreed upon by CDFW and the applicant. Projects that require an LSAA often also require a permit from the USACE under Section 404 of the CWA. The conditions of the Section 404 permit and the LSAA frequently overlap in these instances.

Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb 1 or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB also regulates actions that would involve "discharging waste, or proposing

to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

California Environmental Quality Act

Per CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal and California ESAs, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

SPECIES OF SPECIAL CONCERN

Species of Special Concern (SSC) are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the State or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not State) threatened or endangered, and meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with threatened habitats. Projects that result in substantial impacts to SSC may be considered significant under CEQA.

USFWS BIRD OF CONSERVATION CONCERN

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this

requirement, the USFWS published a list of BCC[45] for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

CALIFORNIA RARE PLANT RANKS

The CNPS maintains the *Rare Plant Inventory*,[46] which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academic, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 0.1 through 0.3, with 0.1 being the most threatened and 0.3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

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45 U.S. Fish and Wildlife Service (USFWS). 2021. Birds of Conservation Concern 2021. USFWS, Division of Migratory Bird Management, Arlington, Virginia. (Online version available at https://www.fws.gov/migratorybirds/pdf/management/birds-of-conservation-concern-2021.pdf.

46 California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection.[47] Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2A, or 2B are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities are vegetation communities that are imperiled or vulnerable to environmental effects of projects. CDFW maintains the California Natural Community List,[48] which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation Online* (MCV),[49] along with their respective state and global rarity ranks, if applicable. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA.

WILDLIFE MOVEMENT CORRIDORS AND NURSERY SITES

Impacts to wildlife movement corridors or nursery sites may be considered significant under CEQA. As part of the California Essential Habitat Connectivity Project, CDFW and California Department of Transportation maintain data on Essential Habitat Connectivity areas. This data is available in the CNDDB. The goal of this project is to map large intact habitat or natural landscapes and potential linkages that could provide corridors for wildlife. In urban settings, riparian vegetated stream corridors can also serve as wildlife movement corridors. Nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries and mule deer critical fawning areas. These data are available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance.

LOCAL

2030 Merced County General Plan

The following Merced County General Plan goal and policies address protection, preservation, and enhancement of biological resources that may be pertinent for Project development.

47 California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

48 California Department of Fish and Wildlife (CDFW). 2022. California Natural Community List.

49 California Native Plant Society (CNPS). 2024b. A Manual of California Vegetation, Online Edition. California Native Plant Society, Sacramento, CA. Available online at: https://vegetation.cnps.org/. Accessed May 2024.

NATURAL RESOURCES

Goal NR-1 – Preserve and protect, through coordination with the public and private sectors, the biological resources of the County.

Policy NR-1.2 – Protected Natural Lands-Identify and support methods to increase the acreage of protected natural lands and special habitats, including but not limited to, wetlands, grasslands, and vernal pools, potentially through the use of conservation easements.

Policy NR-1.4 – Important Vegetative Resources Protection-Minimize the removal of vegetative resources which stabilize slopes, reduce surface water runoff, erosion, and sedimentation.

Policy NR-1.15 – Urban Forest Protection and Expansion-Protect existing trees and encourage the planting of new trees in existing communities. Adopt an Oak Woodland Ordinance that requires trees larger than a specific diameter that are removed to accommodate development be replaced at a set ratio.

Policy NR-1.17 – Agency Coordination-Coordinate with private, local, state and Federal agencies to assist in the protection of biological resources and prevention of degradation, encroachment, or loss of resources managed by these agencies

Merced Vision 2030 General Plan

As set forth in state law, the Open Space, Conservation, and Recreation Chapter of the Merced Vision 2030 General Plan establishes goals, policies and actions that relate to the preservation of open space and the conservation of resources. The following goals and policies may be pertinent to Project development.

OPEN SPACE, CONSERVATION, AND RECREATION

Goal Area OS-1 – Open Space for the Preservation of Natural Resources.

Goal – Maintenance of Merced's Biological Resources

Policy OS-1.1 – Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.

Implementing Action 1.1.a Identify, and recognize as significant wetlands and critical habitat areas which meet the appropriate legal definition under Federal and State law.

Implementing Action 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.

Implementing Action 1.1.c Establish development review procedures which minimize impact on sensitive species and their habitat.

City of Merced Urban Forest Management Plan

The City's Urban Forest Management Plan[50] includes an inventory of community trees (public trees) and establishes an Urban Forest Management Plan (UFMP) to prioritize maintenance needs for City-managed trees, as well as provide guidance for enhancing the urban forest (public and private trees).

3.4.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project will have a significant impact on biological resources if it will:

- 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 Wildlife or U.S. Fish and Wildlife Service;
- 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 Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

[50] Davey Resource Group, 2020. City of Merced Urban Forest Management Plan. Available: www.cityofmerced.org/home/showpublisheddocument/12178/637309276179500000. Accessed: October 7, 2024.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California," "rare, threatened, or endangered in California but more common elsewhere," "more information needed, review list, or "limited distribution, watch list" (California Rare Plant Ranks [CRPR] 1, 2, 3, and 4);
- are plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

There is no riparian habitat or other sensitive natural community located on the Project site. Therefore, the proposed Project would have ***no impact*** and these resources, and this issue is not further discussed in the EIR.

There are no state or federally protected wetlands on the Project site. The proposed Project would not result in the direct removal, filling, hydrological interruption, or other effect on wetland resources, and there would be ***no impact***. This issue is not further addressed in the EIR.

As discussed in the Biological Resources Assessment (Appendix C), significant wildlife movement corridors or wildlife nursery sites do not exist on or in the vicinity of the Project site. Therefore, the proposed Project would have ***no impact*** on these resources, and the issue is not further addressed in the EIR.

There is no habitat conservation plan or natural community conservation plan established for eastern Merced County. Therefore, the proposed Project would not conflict with the provisions of such a plan, and there would be ***no impact***. This issue is not further discussed in the EIR.

METHODOLOGY

Literature Review

As described in Appendix C, Biological Resources Assessment, ECORP biologists performed a review of existing available information for the Project site. Literature sources included current and historical aerial imagery, previous biological studies conducted for the area, topographic mapping, soil survey mapping available from the NRCS *Web Soil Survey*, USFWS National Wetlands Inventory

(NWI) mapping, USFWS Critical Habitat Mapper, NMFS Essential Fish Habitat Mapper, and other relevant literature as cited throughout this document. ECORP reviewed the following resources to identify special-status plant and wildlife species that have been documented in or near the Project site:

- CDFW's CNDDB data for the "Merced, California" 7.5-minute quadrangle and the surrounding eight quadrangles;[51]
- CNPS Rare Plant Inventory data for the "Merced, California" 7.5-minute quadrangle and the surrounding eight quadrangles;[52]
- USFWS Information for Planning and Consultation (IPaC) Resource Report List for the Project site;[53] and
- NMFS Resources data for the "Merced, California" 7.5-minute quadrangle.[54]

The results of the database queries are provided in Appendix C. Each special-status species identified in the literature review is evaluated for its potential to occur in the Project site based on available information concerning species habitat requirements and distribution, occurrence data, and the findings of the site reconnaissance.

Site Reconnaissance

ECORP senior biologist Keith Kwan conducted the site reconnaissance visit on May 13, 2024. The biologist visually assessed the Project site while walking meandering transects through all portions of the Project site, using binoculars to scan inaccessible areas. The biologist collected the following biological resource information:

- Characteristics and approximate boundaries of vegetation communities and other land cover types
- Plant and animal species or their sign directly observed
- Incidental observations of special habitat features such as burrows, active raptor nests, potential bat roost sites

The biologist qualitatively assessed and mapped vegetation communities based on dominant plant composition. Vegetation community classification was based on the classification systems

51 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

52 California Native Plant Society (CNPS). 2024a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society. Sacramento, CA. Available online: http://www.rareplants.cnps.org/. Accessed May 2024.

53 U.S. Fish and Wildlife Service (USFWS). 2024. USFWS Resource Report List. Information for Planning and Conservation. Available online: https://ipac.ecosphere.fws.gov/location/QWU5AW4GDVHTDKBNQEUKITXOMY/resources.

54 National Oceanic and Atmospheric Administration (NOAA). 2022. NOAA Fisheries West Coast Region. Intersection of USGS 7.5" Topographic Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data with California. Available online: https://svctenvims.dot.ca.gov/bio_link/.

presented in the *Manual of California Vegetation Online*, paying special attention to identifying those portions of the Project site with the potential to support special-status species or sensitive habitats. Data were recorded on a Global Positioning System unit, field notebooks, and/or maps. Photographs were taken during the survey to provide visual representation of the conditions within the Project site.

IMPACTS AND MITIGATION

Impact 3.4-1: Implementation of the proposed Project could result in direct or indirect effects on an invertebrate species. (Less than Significant with Mitigation)

The Project site supports marginally suitable habitat for one special-status invertebrate species, the Crotch bumble bee (*Bombus crotchii*). The vegetation communities within the Project site are considered marginally suitable for this special-status invertebrate due to the disturbances from historic farming onsite.

Crotch Bumble Bee: The crotch bumble bee (*Bombus crotchii*) is a State Candidate Endangered species which occurs from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera for this species include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.

There are no CNDDB occurrences of Crotch bumble bee within 5 miles of the Project site.[55] The farmed non-native annual grassland vegetation community within the Project site represents marginally suitable habitat for this species. Crotch's bumble bee has low potential to occur within the Project site. However, if Crotch bumble bee were onsite, the development of the proposed Project would have a ***potentially significant impact*** on the species.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURES

Mitigation Measure 3.4-1(a): If the Crotch bumble bee is no longer a Candidate or formally Listed species under the California ESA at the time ground-disturbing activities occur, then no additional protection measures are required.

Mitigation Measure 3.4-1(b): *If the Crotch bumble bee is legally protected under the California ESA as a Candidate or Listed species and ground-disturbing activities are scheduled to begin between*

[55] California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's Survey Considerations for CESA Candidate Bumble Bee Species (CDFW 2023), it is recommended that three Crotch bumble bee surveys be conducted at two to four week intervals during the colony active period (April-August) if possible.

If Crotch bumble bees are detected, any remaining surveys shall focus on nest location. If no nests are found but the species is observed during preconstruction surveys, work crews shall be informed of the possibility of Crotch bumble bees or their nests being present onsite. If a Crotch bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch bumble bee nest is detected on or immediately adjacent to the Project site, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

If initial grading is phased or delayed for any reason, preconstruction surveys shall be repeated prior to ground-disturbing activities if nesting habitat is still present or has re-established and will be affected.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than Significant.

Implementation of Mitigation Measure 3.4-1(a-b) requires that, prior to any activities that would result in impacts to Crotch bumble bee, a survey shall occur, and the results of that survey shall be implemented. The mitigation measure identified above would reduce the above identified impact related to Crotch bumble bee. With implementation of the above mitigation measure, this impact would be considered ***less than significant***.

Impact 3.4-2: Implementation of the proposed Project could result in direct or indirect effects on special-status reptile and amphibian species (Less than Significant)

The Project site supports marginally suitable habitat for two special-status amphibians, western spadefoot (*Spea hammondii*) and California tiger salamander (*Ambystoma californiense*). There is no aquatic breeding habitat for either of these species within the Project site, but there are known occurrences in close proximity to the Project site. The vegetation communities within the Project site are considered marginally suitable upland habitat for these special-status amphibians due to the disturbances from historic farming onsite and the presence of possible barriers to movement, including paved roadways and the canal.

The Project site supports marginally suitable habitat for one special-status reptile, northwestern pond turtle (*Actinemys marmorata*). There is no aquatic habitat for this species within the Project

site, but the adjacent Yosemite Lateral Canal represents potentially suitable aquatic habitat and the farmed non-native annual grassland onsite represents marginally suitable upland habitat.

Western Spadefoot: The western spadefoot is proposed to be listed as threatened pursuant to the federal ESA, is not listed pursuant to the California ESA but is designated as a CDFW SSC. Necessary habitat components of the western spadefoot include loose friable soils in which to burrow in upland habitats and nearby breeding ponds. Breeding sites include temporary rain pools, such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages.[56] There is one CNDDB occurrence of western spadefoot within 5 miles of the Project site.[57] There is no suitable aquatic breeding habitat for this species onsite, but there is potentially suitable aquatic breeding habitat on adjacent properties to the east of the Project site. The farmed non-native annual grassland vegetation community within the Project site represents marginally suitable upland habitat for this species. Western spadefoot has low potential to occur within the Project site.

California tiger salamander: The Central Valley Distinct Population Segment (DPS) of California tiger salamander is listed as threatened under the federal ESA. It is most commonly associated with annual grassland habitats but may also occur within open woodland areas of low hills and valleys. There are 22 CNDDB occurrences of California tiger salamander within 5 miles of the Project site, including two occurrences that were documented on adjacent properties to the north and east of the Project site.[58] There is no suitable aquatic breeding habitat for this species onsite, but there is potentially suitable aquatic breeding habitat on adjacent properties to the east of the Project site. The farmed non-native annual grassland vegetation community within the Project site represents marginally suitable upland habitat for this species. California tiger salamander has low potential to occur within the Project site.

Northwestern pond turtle: The northwestern pond turtle is proposed for listing as threatened pursuant to the federal ESA and is considered an SSC by CDFW. They can occur in a variety of waters including ponds, lakes, streams, reservoirs, rivers, settling ponds of wastewater treatment plants, and other permanent and ephemeral wetlands.[59] There are no CNDDB occurrences of northwestern pond turtle within 5 miles of the Project site.[60] There is no suitable aquatic breeding habitat for this

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56 Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California. Final report to California Department of Fish and Game, Inland Fisheries Branch. Rancho Cordova, CA*.

57 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

58 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

59 Bury, R. B., D. T. Ashton, H. H. Welsh Jr., D. A. Reese, and D. J. Germano. 2012. Synopsis of Biology. Pages 9 – 19 In *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management* Bury, R. B., H. H. Welsh Jr., D. J. Germano, and D. A. Ashton, editors. Northwest Fauna No. 7.

60 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

species onsite but the adjacent Yosemite Lateral Canal represents potentially suitable aquatic habitat and the farmed non-native annual grassland vegetation community within the Project site represents marginally suitable upland habitat for this species. Northwestern pond turtle has low potential to occur within the Project site.

Conclusion: Although the Project site represents marginally suitable habitat for these three species, and their likelihood of occurrence is low, impacts to these special-status amphibians and reptiles would be a ***potentially significant impact***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURES

Mitigation Measure 3.4-2(a): *A qualified biologist shall conduct a preconstruction survey for western spadefoot within all suitable upland habitat in the Project work area 48 hours prior to the start of vegetation removal or ground disturbing activities.*

Any individuals discovered in the Project work area immediately prior to Project construction shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

If no western spadefoot are found during the preconstruction survey, the Project applicant shall install exclusionary fencing around the entire Project footprint to prevent dispersing spadefoots and salamanders from entering.

Mitigation Measure 3.4-2(b): *A qualified biologist shall conduct a preconstruction survey for California tiger salamanders within all suitable upland habitat in the Project work area 48 hours prior to the start of vegetation removal or ground disturbing activities.*

If California tiger salamanders are found during the preconstruction survey, the Project applicant shall notify CDFW immediately and initiate consultation to develop appropriate actions before construction begins.

If no California tiger salamanders are found during the preconstruction survey, the Project applicant shall install exclusionary fencing around the entire Project footprint to prevent dispersing salamanders and spadefoots from entering.

Mitigation Measure 3.4-2(c): *A qualified biologist shall conduct a preconstruction survey for northwestern pond turtle within all suitable upland habitat in the Project work area 48 hours prior to the start of vegetation removal or ground disturbing activities.*

Any individuals discovered in the Project work area immediately prior to Project construction shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be

captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than Significant.

Implementation of Mitigation Measure 3.4-2(a-c) requires that, prior to any activities that would result in impacts to reptiles and amphibians, a preconstruction survey shall occur, and the results of that survey shall be implemented. The mitigation measure identified above would reduce the above identified impact related to reptiles and amphibians. With implementation of the above mitigation measure, this impact would be considered ***less than significant***.

Impact 3.4-3: Implementation of the proposed Project could result in direct or indirect effects on special-status bird species. (Less than Significant with Mitigation)

The Project site supports potentially suitable habitat for seven special-status birds: white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), burrowing owl (*Athene cunicularia*), yellow-billed magpie (*Pica nuttallii*), and Bullock's oriole (*Icterus bullockii*). The habitats and vegetation communities within the Project site represent potentially suitable nesting and/or foraging habitat for these special-status birds. Of these potentially occurring special-status birds, only the Swainson's hawk is listed and protected under either CESA or ESA.

White-Tailed Kite: White-tailed kite (*Elanus leucurus*) is a CDFW fully protected species. This species occurs in a variety of open habitats including grasslands, savannah, oak woodland, riparian woodland, open suburban areas, and agriculture fields. Nesting generally occurs within riparian or edge habitats or in lone trees that are adjacent to foraging habitat. Foraging habitat consists of a variety of open habitats that contain a high rodent population; especially grasslands, pastures, alfalfa fields, and other agricultural crops/fields.

The Project site supports potential nesting habitat for white-tailed kite and other common raptors that are protected under the MBTA. Project implementation, such as tree removal, could result in the direct loss of individuals, active nests, eggs, and hatchlings. Project construction could impact nearby nests by disturbing and impacting the nesting behavior of the adults, which could lead to nest abandonment and the loss of eggs and nestlings.

Cooper's hawk: Cooper's hawk (*Accipiter cooperii*) is protected under the MBTA. The species prefers mature forest, open woodlands, wood edges, and river groves. They are also found among trees along rivers through open country, and increasingly in suburbs and cities where some tall trees exist for nest sites and with openings or edge habitat nearby. Project implementation, such as tree removal, could result in the direct loss of individuals, active nests, eggs, and hatchlings. Project construction could impact nearby nests by disturbing and impacting the nesting behavior of the adults, which could lead to nest abandonment and the loss of eggs and nestlings.

Swainson's hawk: Swainson's hawk (*Buteo swainsoni*) is a raptor species currently listed as threatened in California by the CDFW. This species is a long-distance migrant with nesting grounds in western North America, and wintering grounds in Mexico and South America. Swainson's hawks typically arrive in the California Central Valley between March and early April to establish breeding territories. In the Central Valley, Swainson's hawk nest in tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. A Swainson's hawk was observed soaring over the Project site during the site reconnaissance visit on May 13, 2024. There are two CNDDB occurrences of Swainson's hawk within 5 miles of the Project site.[61] An eBird report from the Project site vicinity documents a nest less than 5 miles away from 2022 with 1 fledgling.[62] The larger trees onsite represent potentially suitable nesting habitat, and the farmed non-native annual grassland vegetation community within the Project site represents suitable foraging habitat for Swainson's hawk.

The Project site supports potential nesting and foraging habitat for the state-threatened Swainson's hawk. Project implementation, such as tree removal, could result in the direct loss of individuals, active nests, eggs, and hatchlings. Project construction could result in the loss of foraging habitat and impact nearby nests by disturbing and impacting the nesting behavior of the adults, which could lead to nest abandonment and the loss of eggs and nestlings.

Ferruginous hawk: Ferruginous hawk (*Buteo regalis*) is a raptor species protected by the MBTA. Found in prairies, deserts, and open range of the West, the ferruginous hawk hunts from a lone tree, rock outcrop, or from high in the sky. Ferruginous fawks eat a diet of small mammals, sometimes standing above prairie dog or ground squirrel burrows to wait for prey to emerge.

The ferruginous hawk does not nest in the region, but is found in the vicinity during winter and migration. The farmed non-native annual grassland onsite supports potentially suitable foraging habitat for this species. Project construction would result in the loss of foraging habitat, but is considered less than significant due to the abundance of suitable foraging habitat in the vicinity. Consequently, no avoidance or minimization measures are recommended pertaining to ferruginous hawks.

Burrowing Owl: Burrowing owl (*Athene cunicularia*) is a ground nesting raptor species that is afforded protection by CDFW as a species of special concern due to declining populations in the Great Central Valley of California. This species occurs in a variety of open habitats, typically grasslands, desert scrub, agricultural fields, washes, and disturbed areas such as golf courses or vacant lots. Burrows, perch sites, and friable soil are necessary for this species, and areas with low-

61 California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

62 eBird. 2024. eBird Checklist S115451019, July 20, 2022. Available online: https://ebird.org/checklist/S11545101. Accessed June 2024.

lying, sparse vegetation are preferred. Burrowing owls may utilize culverts, abandoned pipes, rubble piles, and other artificial structures for nesting if burrows are absent. They are often associated with high densities of burrowing mammals such as prairie dogs and ground squirrels. Breeding pairs stay near a dedicated nesting burrow, while wintering owls may move around and may roost in tufts of vegetation rather than in burrows.

The Project site supports potential burrow habitat for burrowing owls. Project implementation, such ground disturbance, could result in the direct loss of individuals, active nests, eggs, and hatchlings. Project construction could impact nearby nests by disturbing and impacting the behavior of the adults, which could lead to nest abandonment and the loss of eggs and nestlings.

Yellow-billed Magpie: The yellow-billed magpie (*Pica nuttallii*) is only found in California's central valleys, in an area about 500 miles from north to south and less than 150 miles wide. Within this limited region, yellow-billed magpies nest in colonies in groves of tall trees. Their habitat consists of fields, meadows, grasslands, forests and woodlands, shrublands, savannas, thickets, and urban and suburban habitats.

Project implementation, such as tree removal, could result in the direct loss of individuals, active nests, eggs, and hatchlings. Project construction could impact nearby nests by disturbing and impacting the nesting behavior of the adults, which could lead to nest abandonment and the loss of eggs and nestlings.

Bullock's Oriole: Bullock's oriole (*Icterus bullockii)* are found in riparian woodland areas, particularly in cottonwood trees where they forage in the outer branches or build their intricately woven, hanging nests.

Project implementation, such as tree removal, could result in the direct loss of individuals, active nests, eggs, and hatchlings. Project construction could impact nearby nests by disturbing and impacting the nesting behavior of the adults, which could lead to nest abandonment and the loss of eggs and nestlings.

Other Nesting Migratory Birds and Raptors: Migratory birds are protected under the MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10; this also includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Additionally, Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs; and Section 3513 specifically states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

A number of migratory birds and raptors have the potential to nest in or adjacent to the Project site. Suitable nest locations within and adjacent to the Project site include trees, grass, artificial structures, and bare ground.

Conclusion: As noted previously, the Project site contains 33.55 acres of annual grassland (farmed) and 2.31 acres of developed/disturbed habitat. The proposed Project is expected to result in permanent impacts to the entire Project site. **Figure 3.4-3** shows impacts to biological communities.

As discussed in the impact, the Project would result in conversion of potential foraging and/or nesting habitat for special-status and migratory birds, including white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), burrowing owl (*Athene cunicularia*), yellow-billed magpie (*Pica nuttallii*), and Bullock's oriole (*Icterus bullockii*). Additionally, a number of migratory birds and raptors have the potential to nest in or adjacent to the Project site. This is a ***potentially significant*** impact.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.4-3(a): *The Project proponent shall implement the following measure to avoid or minimize impacts on Swainson's hawk:*

1) *If construction activities will begin during the Swainson's hawk nesting season (March 20 to September 15), a qualified biologist should conduct at least the minimum number of surveys called for within at least two survey periods prior to the initiation of construction in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000) or the current CDFW-approved protocol. Current survey periods specified by the Guidelines are March 20 to April 5, April 5 to April 20, April 21 to June 10, and June 10 to July 30. All potential nest trees within 0.5-mile of the proposed Project footprint shall be visually examined for potential Swainson's hawk nests, as accessible. At a minimum, a qualified biologist shall conduct surveys during Survey Periods II and III which will total 6 surveys (3 for each Survey Period).*
2) *If no active Swainson's hawk nests are identified on or within 0.5-mile of the proposed Project, the Project applicant shall prepare a letter report documenting the survey methodology and findings and submit it to the City. No additional mitigation measures are recommended.*
3) *If active Swainson's hawk nests (a nest becomes active once the first egg is laid and remains active until the fledged young are no longer dependent on the nest [USFWS 2018]) are found within 0.5-mile of the Project footprint, a survey report should be submitted to CDFW, and an avoidance and minimization plan should be developed for approval by CDFW prior to the start of construction. The avoidance plan should identify measures to minimize impacts to the active Swainson's hawk nest depending on the location of the nest relative to the project footprint. These measures may include:*
    - *Conduct a worker awareness training program prior to the start of construction;*
    - *Establish a buffer zone and work schedule to avoid impacting the nest during critical periods. If possible, no work will occur within 200 yards of the nest while it is in active*

use. If work will occur within 200 yards of the nest, then construction will be monitored by a qualified biologist to ensure that no work occurs within 50 yards of the nest during incubation or within 10 days after hatching (Swainson's Hawk Technical Advisory Committee 2000);

- *Have a biological monitor conduct regular monitoring of the nest during construction activities; and*
- *Should the project biologist determine that the construction activities are disturbing the nest; the biologist should halt construction activities until the CDFW is consulted.*

4) The Project site contains 33.55 acres of annual grassland habitat which provide suitable foraging habitat for Swainson's hawks. CDFW has provided guidelines for mitigating impacts to Swainson's hawk foraging habitat as summarized below (CDFW 1994):

i. Projects within 1 mile of an active nest tree shall provide:

- *One acre of foraging habitat for each acre of development at a ratio of 1:1. Mitigated lands shall consist of 10 percent of the land requirements met by fee title acquisition or a conservation easement allowing for the active management of the habitat, and the remaining 90 percent of the land protected by a conservation easement on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk (grasslands, rangeland, etc.) and no requirements for active management of the habitat; or*
- *One-half acre of foraging habitat for each acre of development authorized at a ratio of 0.5:1. All the land requirements shall be met by fee title acquisition or a conservation easement, which allows for the active management of the habitat for prey production on the land. Prey abundance and availability is determined by land and farming patterns including crop types, agricultural practices, and harvesting regimes. Actively managed land for prey production may result in the land becoming less valuable for crop production due to management limitations but increases the value for Swainson's hawk through functional lift.*

ii. Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acre of foraging habitat for each acre of urban development at a ratio of 0.75:1. All foraging habitat may be protected through fee title acquisition or conservation easement on agricultural lands or other suitable habitats.

iii. Projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree shall provide 0.5 acre of Habitat Management land for each acre of urban development at a ratio of 0.5:1. All foraging habitat may be protected through fee title acquisition or a conservation easement on agricultural lands or other suitable habitat.

The City of Merced as the CEQA lead agency shall make the final determination as to the extent of the proposed Project's impacts to Swainson's hawk foraging habitat and any appropriate mitigation that might be necessary associated with project development.

Mitigation bank credits may also be used to satisfy Swainson's hawk mitigation requirements as approved by the City and CDFW.

Mitigation Measure 3.4-3(b): *The Project proponent shall implement the following measure to avoid or minimize impacts on burrowing owl:*

1) *A qualified biologist shall conduct focused burrowing owl surveys in the Project area and surrounding 500 feet, where accessible, in accordance with the CDFW's Staff Report on Burrowing Owl Mitigation (Staff Report), published March 7, 2012. Surveys shall be repeated if project activities are suspended or delayed more than 14 days.*
   - i. *According to the Staff Report, four survey visits shall be conducted during the breeding season (February 1 to August 31): 1) at least one site visit between February 15 and April 15, and 2) a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after June 15.*
   - ii. *Non-breeding season surveys shall be conducted during four site visits, spread evenly apart.*
   - iii. *Take avoidance surveys may also be conducted. An initial take avoidance survey shall be conducted no less than 14 days prior to initiating ground disturbance activities using the methods outlined in the Staff Report. Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls. Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance.*
2) *If no burrowing owls are detected, no further measures are required. If active burrowing owl burrows are detected, the avoidance, minimization, and mitigation methodologies outlined in the CDFW's Staff Report on Burrowing Owl Mitigation shall be followed prior to initiating Project related activities that may impact burrowing owls.*

Mitigation Measure 3.4-3(c): *The Project proponent shall implement the following measure to avoid or minimize impacts on white-tailed kite, Cooper's hawk, and other protected raptors:*

Active nests and nesting raptors are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513 and the MBTA. Ground-disturbing and other development activities including grading, vegetation clearing, tree removal/trim, and construction could impact nesting raptors if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting raptors, all ground disturbing activity shall be completed between September 1 and January 31, if feasible. If construction cannot occur outside of the nesting season, the following measures are recommended:

- *If construction activities occur during the nesting season, a qualified biologist shall conduct a nesting raptor survey to determine the presence of any active nests within the Project site. Additionally, the surrounding 500 feet of the Project site shall be surveyed for active raptor nests, where accessible. The nesting raptor survey shall be conducted within 14 days prior to*

commencement of ground-disturbing or other development activities. If the nesting raptor survey shows that there is no evidence of active nests, then a letter report shall be prepared to document the survey and be provided to the project proponent and no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required prior to starting or resuming work within the nesting season.

- *If active nests are found, then the qualified biologist shall establish a species-specific buffer to prohibit development activities near the nest to and minimize nest disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet for some songbirds and 0.5 mile for some raptors. Nest monitoring may also be warranted during certain phases of construction to ensure nesting birds are not adversely impacted. If active nests are found within any trees slated for removal, then an appropriate buffer shall be established around the tree and all trees within the buffer shall not be removed until a qualified biologist determines that the nest has successfully fledged and/or is no longer active.*

- *A qualified biologist shall conduct environmental awareness training that is given to all onsite personnel prior to the initiation of work.*
- *If construction occurs outside of the nesting bird season (September 1 to January 31) a nesting raptor survey and environmental training for nesting birds would not be required.*

Mitigation Measure 3.4-3(d): *The Project proponent shall implement the following measure to avoid or minimize impacts on yellow-billed magpie, Bullock's oriole, and other nesting birds (non-raptors):*

Active nests and nesting birds are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513 and the MBTA. Ground-disturbing and other development activities including grading, vegetation clearing, tree removal/trim, and construction could impact nesting birds if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting birds, all ground disturbing activity shall be completed between September 1 and January 31, if feasible. If construction cannot occur outside of the nesting season, the following measures are recommended:

- *If construction activities occur during the nesting season, a qualified biologist shall conduct a nesting bird survey to determine the presence of any active nests within the Project site. Additionally, the surrounding 100 feet of the Project site shall be surveyed for active raptor nests, where accessible. The nesting bird survey shall be conducted within 14 days prior to commencement of ground-disturbing or other development activities. If the nesting bird survey shows that there is no evidence of active nests, then a letter report shall be prepared to document the survey and be provided to the project proponent and no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required prior to starting or resuming work within the nesting season.*
    - *If active nests are found, then the qualified biologist shall establish a species-specific buffer to prohibit development activities near the nest to and minimize nest*

disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet for some songbirds and 0.5 mile for some raptors. Nest monitoring may also be warranted during certain phases of construction to ensure nesting birds are not adversely impacted. If active nests are found within any trees slated for removal, then an appropriate buffer shall be established around the tree and all trees within the buffer shall not be removed until a qualified biologist determines that the nest has successfully fledged and/or is no longer active.

- *A qualified biologist shall conduct environmental awareness training that is given to all onsite personnel prior to the initiation of work.*
- *If construction occurs outside of the nesting bird season (September 1 to January 31) a nesting bird survey and environmental training for nesting birds would not be required.*

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than Significant.

Implementation of Mitigation Measures 3.4-3(a) through 3.4-3(d) would ensure that measures to avoid or minimize impacts on white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), burrowing owl (*Athene cunicularia*), yellow-billed magpie (*Pica nuttallii*), and Bullock's oriole (*Icterus bullockii*) and a number of migratory birds and raptors are implemented. For example, Mitigation Measure 3.4-3(a) requires site surveys for Swainson's hawk and measures should nests be found during surveys. This measure also requires mitigation for impacts to Swainson's hawk foraging habitat depending on the distance from any active nests. Mitigation Measure 3.4-3(b) requires site surveys for burrowing owls and avoidance, minimization, and mitigation methodologies outlined in the CDFW's Staff Report on Burrowing Owl Mitigation should active burrows be detected during surveys. Mitigation Measures 3.4-3(c) and 3.4-3(d) requires site surveys for other protected birds if construction occurs within the nesting bird season.

These mitigation measures would reduce the potential for impacts to special-status bird species to a ***less-than-significant*** level.

Impact 3.4-4: Implementation of the proposed Project would result in direct or indirect effects on special-status mammal species (Less than Significant with Mitigation)

The Project site supports marginally suitable habitat for one listed mammal, the San Joaquin kit fox (*Vulpes macrotis mutica)*, and one non-listed special-status mammal, the western red bat (*Lasiurus frantzii*), which is considered an SSC by CDFW. The eucalyptus trees along Lake Road and adjacent to the Yosemite Lateral Canal provide marginally suitable roosting habitat for this species. These species are discussed below:

San Joaquin Kit Fox: The San Joaquin kit fox lives in the desert and grasslands of California's San Joaquin Valley. They prefer areas with minimal shrubs and grasses. The kit fox's range in the San Joaquin Valley extends from southern Kern County north to Contra Costa, Alameda, and San Joaquin

counties on the western side of the valley; and to the La Grange area of Stanislaus County on the eastern side of the valley. The kit fox's range also includes valleys along the Coast Range including the Panoche and Cuyama valleys and the Carrizo Plain in San Luis Obispo County. The disturbed non-native annual grassland within the Project site represents marginally suitable dispersal habitat for San Joaquin kit fox.

Western Red Bat: The western red bat (*Lasiurus cinereus*) is a listed CDFW species of special concern. This species typically prefers edges that have trees for roosting as well as open areas. This species on a multitude of insects and roosts primarily in trees and sometimes in shrubs, but less often.

The Project site supports marginally suitable roosting habitat (e.g., trees bordering the fields, along the roadside and near the rural residence) for the western red bat. Project implementation, such as tree removal, could result in the direct loss of individuals. Construction activity near maternity roosts could result in abandonment and loss of offspring.

Conclusion: The Project site provides marginally suitable dispersal habitat for the San Joaquin kit fox and marginally suitable roosting habitat for the western red bat. Therefore, impacts to these special-status mammals are ***potentially significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURES

Mitigation Measure 3.4-4(a): *The Project proponent shall implement the following measure to avoid or minimize impacts on San Joaquin kit fox:*

- *A qualified biologist shall conduct a preconstruction survey within 7 days on the initiation of ground disturbance. If a kit fox or suitable burrow with sign of kit fox is observed onsite, the Applicant shall implement standardized measures adopted by CDFW or USFWS.*
- *If no kit fox or suitable burrows are found, the Applicant shall prepare a letter report of findings and submit it to City. No further measures pertaining to this species are required.*

Mitigation Measure 3.4-4(b): *The Project proponent shall implement the following measure to avoid or minimize impacts on western red bat:*

- *A western red bat roosting habitat assessment shall be conducted by a qualified bat biologist within 15 days of commencement of Project construction/tree removal. This assessment will focus on trees proposed for removal and within 50 feet of proposed construction activity. If no potential western red bat roosting sites are found, the Applicant shall prepare a letter report documenting findings and submit it to the City. No further measures pertaining to western red bat are required.*
- *If potential roosting sites are found, the Applicant shall conduct further surveys to determine whether roosting bats are present. If construction will occur during the maternity roosting season, and an active western red bat maternity roost is detected, a qualified biologist, in*

consultation with CDFW, shall delineate an avoidance buffer around the roost. The avoidance buffer shall be maintained until young are capable of flight. The avoidance buffer can be removed when a qualified biologist determines that the roost is no longer occupied.

- *If a non-breeding roost is found, a qualified biologist shall delineate an avoidance buffer, if feasible. If avoidance of the occupied non-breeding roost is not feasible, a qualified biologist, in consultation with CDFW, shall develop an exclusion or tree removal plan. Removal of a tree with roosting bats will proceed only upon CDFW approval.*

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than Significant.

Implementation of Mitigation Measures 3.4-4(a) and 3.4-4(b) would ensure that measures to avoid or minimize impacts on the San Joaquin kit fox (*Vulpes macrotis mutica)* and the western red bat (*Lasiurus frantzii*) are implemented. Preconstruction surveys would identify the presence or absence of the species on the project site, and would avoid or minimize impacts to roosting or burrowing species. Therefore, the impact to mammals would be ***less than significant***.

Impact 3.4-5: Implementation of the proposed Project would result in direct or indirect effects on candidate, sensitive, or special-status plant species (Less Than Significant with Mitigation)

The Project site supports marginally suitable habitat for special-status plants, as identified in Table 3.4-2. No special-status plants were found during the initial reconnaissance field survey; however, protocol-level surveys have not been conducted.

Hartweg's golden sunburst: Hartweg's golden sunburst is listed as endangered pursuant to both the federal and California ESAs, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs on clay soils that are often acidic in cismontane woodlands, and valley and foothill grasslands. There are no CNDDB occurrences of Hartweg's golden sunburst within 5 miles of the Project site.[63] The non-native annual grassland vegetation community within the Project site represents marginally suitable habitat for this species. Hartweg's golden sunburst has low potential to occur within the Project site.

Keck's checkerbloom: Keck's checkerbloom is listed as endangered pursuant to the federal ESA, is not listed pursuant to the California ESA, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in serpentinite and clay soils in cismontane woodlands and valley and foothill grasslands. There are two CNDDB occurrences of Keck's checkerbloom within 5 miles of

[63] California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

the Project site.[64] The non-native annual grassland vegetation community within the Project site represents marginally suitable habitat for this species. Hartweg's golden sunburst has low potential to occur within the Project site.

If a special-status plant is found onsite, Project impacts could include damage or loss of individual plants, loss of occupied habitat, and indirect impacts such as disturbance from human encroachment and changes in habitat quality due to alteration of hydrology, erosion, and transport of soil, debris, or pollutants into occupied habitat from adjacent Project areas. This is a ***potentially significant impact***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURES

Mitigation Measure 3.4-5(a): *Prior to ground-disturbing activities in the Project Area, the applicant shall perform special-status plant surveys according to CDFW, CNPS, and USFWS protocols (CDFW 2018; CNPS 2001; USFWS 2000). Surveys shall be conducted throughout all suitable habitat within the Project footprint and a 50-foot buffer, where accessible, to address potential direct and indirect impacts of the Project. Surveys shall be conducted by a qualified biologist and timed according to the identifiable period for target species (typically the blooming period). To the extent feasible, known reference populations will be visited prior to surveys to confirm target species are evident and identifiable at the time of the survey.*

If no special-status plants are found, no further measures pertaining to special-status plants are necessary.

Mitigation Measure 3.4-5(b): *If special-status plants are identified onsite, the Project shall be modified to the extent feasible to prevent disturbance or loss of special-status plants. No-disturbance buffers shall be established around sensitive plant populations to be preserved in or adjacent to the Project Area. A 50-foot buffer should be maintained between project activities and sensitive plant populations, unless otherwise determined by a qualified biologist. Buffer distances may vary between species depending on listing status, rarity, and other factors. Buffer areas will be clearly demarcated in the field, and no construction or ground-disturbing activities will occur within the boundaries of the delineated area.*

Mitigation Measure 3.4-5(c): *If a special-status plant species is found and avoidance is not feasible, additional measures may be developed in consultation with CDFW and/or the CEQA Lead Agency. Appropriate measures should consider factors such as the listing status or rare plant rank of the*

[64] California Department of Fish and Wildlife (CDFW). 2024. RareFind Natural Diversity Data Base Program. Version 5. California Department of Fish and Wildlife. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed May 2024.

species, degree of threat, local rarity, distribution and condition of occurrences, and vulnerability of those occurrences. Mitigation measures may include, but are not limited to, restoration or permanent preservation of habitat for the special-status plant species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat.

If a state or federally listed threatened or endangered plant or a plant that is a candidate for state listing is found onsite, the applicant shall consult with CDFW and/or USFWS, as applicable, to determine appropriate avoidance and minimization measures. If the plants cannot be avoided, an incidental take permit and compensatory mitigation may be required.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than Significant.

Implementation of Mitigation Measure 3.4-5(a-c) requires that, prior to any activities that would result in impacts to special-status plants within the Project site, a special-status plant survey shall occur, and the results of that survey shall be implemented. Additionally, any impacts on special-status plants that cannot be avoided would be required to obtain an incidental take permit from the CDFW.

The mitigation measure identified above would reduce the above identified impact related to protected special-status plants. With implementation of the above mitigation measure, this impact would be considered ***less than significant***.

Impact 3.4-6: Implementation of the proposed Project would not result in conflicts with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant)

The City of Merced does not have a tree preservation policy or ordinance The Project site is bordered along a portion of Lake Road by blue gum (*Eucalyptus globulus*) trees, and a row of olive (*Olea europaea*) trees are found along a fence separating fields.

The Open Space, Conservation, and Recreation Element of the City's General Plan establishes one policy related to biological resources as listed below:

OPEN SPACE, CONSERVATION, AND RECREATION ELEMENT POLICIES

Policy OS-1.1 – Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.

- ***Consistent.*** *Section 3.4, Biological Resources, analyzes impacts related to including special-status species, sensitive natural communities, sensitive habitat, and wetlands. This section includes mitigation measures to reduce the potential impacts to special-status plants and animals to a less-than-significant level.*

The proposed Project would not result in conflicts with local policies or ordinances protecting biological resources, and the impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE

None Required.

CUMULATIVE IMPACTS

The cumulative setting for biological resources includes the Project site and the greater Merced County region. Development associated with implementation of the local General Plan(s) and Specific Plan(s) would contribute to the ongoing loss of natural and agricultural lands in Merced County, including the Project site. Cumulative development would result in the conversion of existing habitat to urban uses. The local General Plan(s), in addition to regional, State and federal regulations, includes policies and measures that mitigate impacts to biological resources associated with General Plan buildout.

Impact 3.4-7: The proposed Project, in combination with other cumulative development, could result in the loss of biological resources including habitats and special status species. (Less than Significant with Mitigation)

Under cumulative conditions, buildout of the General Plan(s) within Merced County will result in impacts to biological resources in the cumulative area through new and existing development and habitat loss. Further, some developments may result in the take of species and, therefore, the cumulative impact to biological resources is potentially significant.

The proposed Project has the potential to result in impacts to special-status species in the region, specifically to Swainson's hawk foraging habitat. The proposed Project would remove 33.55 acres of annual grassland which serves as foraging habitat. The proposed Project would have a cumulatively considerable contribution to the loss of Swainson's hawk foraging habitat, and the impact would be ***potentially significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

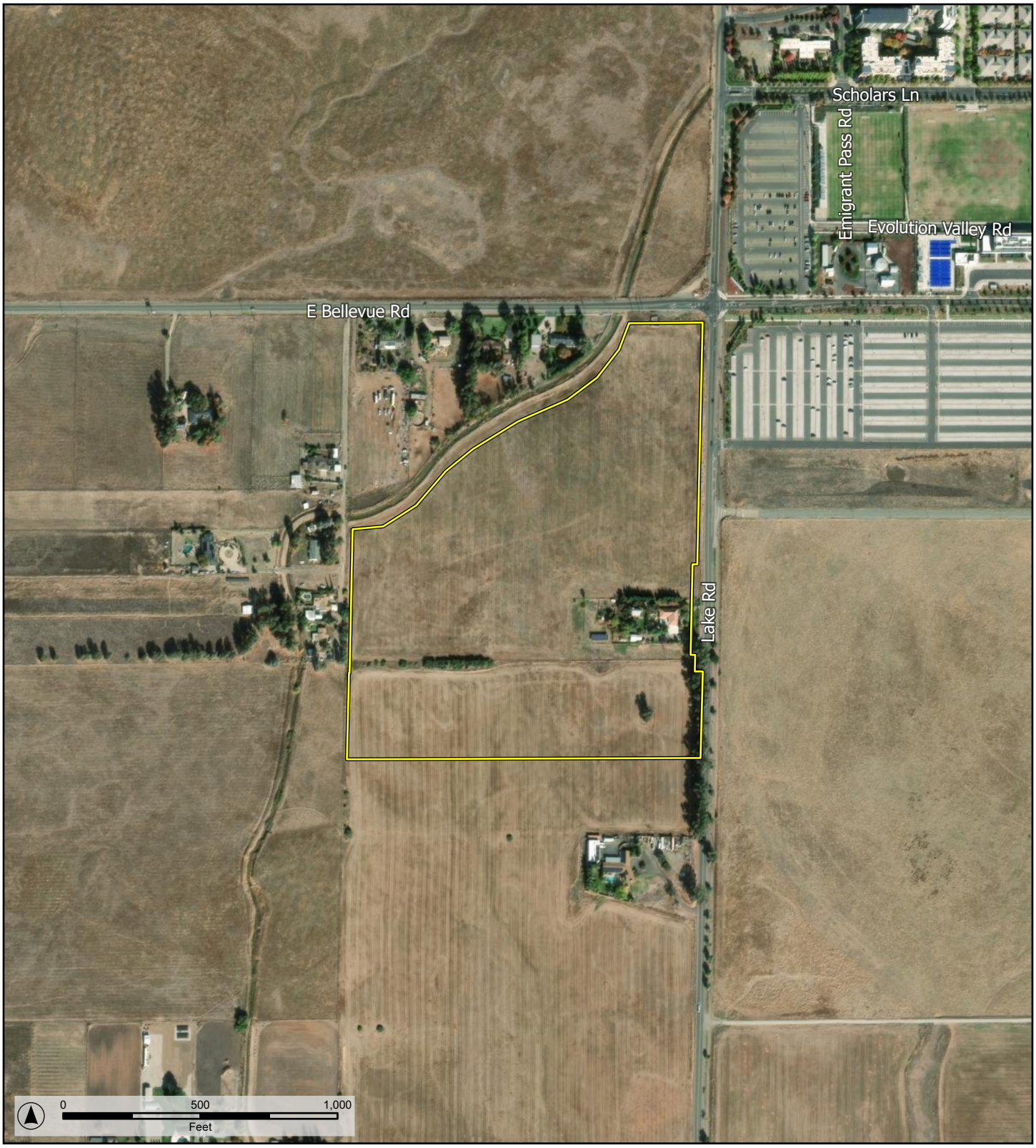
Mitigation Measure 3.4-7: *Implement Mitigation Measure 3.4-3(a).*

LEVEL OF SIGNIFICANCE AFTER MITIGATION MEASURE

Less than Significant.

Mitigation Measure 3.4-7 requires measures to avoid or minimize impacts on Swainson's hawk foraging habitat by conserving habitat mitigation lands of similar or higher quality at ratios

recommended by CDFW. Implementation of Mitigation Measure 3.4-7 would reduce potentially cumulative impacts to a ***less than significant*** level.



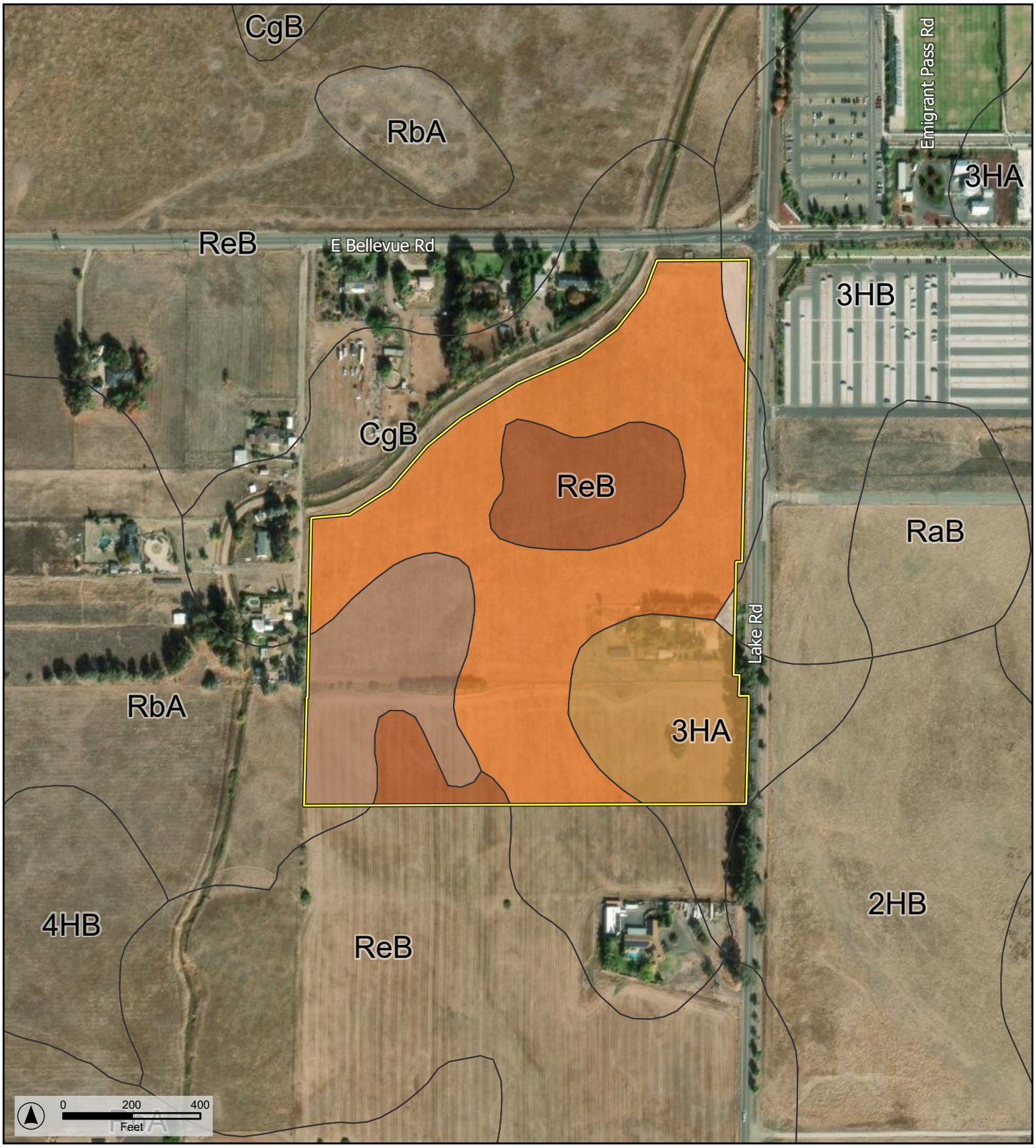
Legend

Study Area - 35.86 ac.

UC VILLAGES

Figure 3.4-1. Project Location and Vicinity

Sources: USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023.
Map date: May 21, 2024.



Legend

Study Area - 35.86 ac.

NRCS Soil Types Within Study Area

- 3HA - Hopeton clay loam, 0 to 3 percent slopes
- 3HB - Hopeton clay loam, 3 to 8 percent slopes
- CgB - Corning gravelly loam, 0 to 8 percent slopes
- RbA - Raynor cobbly clay, 0 to 3 percent slopes
- ReB - Redding gravelly loam, 0 to 8 percent slopes, dry

UC VILLAGES

Figure 3.4-2. Natural Resources Conservation Service Soils

Sources: USDA NRCS SSURGO 2019; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023.
Map date: May 22, 2024.

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

Legend

Study Area - 35.86 ac.

Vegetation Communities and Land Cover Types

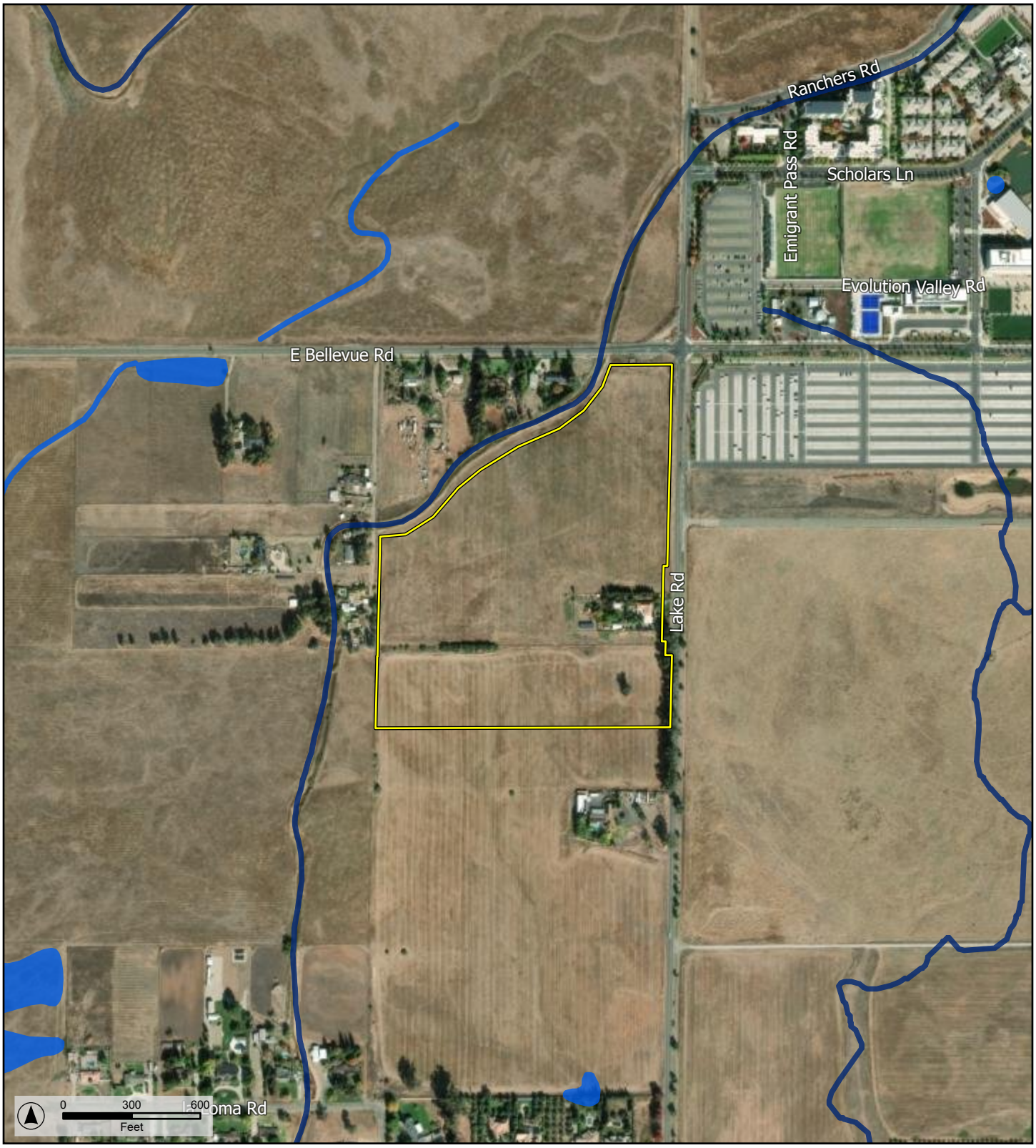
Annual Grassland (Farmed) - 33.55 ac.

Disturbed/Developed - 2.31 ac.

UC VILLAGES

Figure 3.4-3. Vegetation Communities and Land Cover Types

Sources: USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023.
Map date: May 22, 2024.



Legend

Study Area - 35.86 ac.

NWI Types

Freshwater Emergent Wetland

Riverine

UC VILLAGES

Figure 3.4-4. National Wetlands Inventory

Sources: USFWS NWI May 2022; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023.
Map date: May 21, 2024.

This section of the EIR describes the existing conditions in the Merced UC Villages Project Area, the regulatory framework necessary to evaluate potential impacts on cultural resources from the Project, and the potential Project-specific and cumulative impacts that could result from the Project. Cultural resources could include archaeological sites and historic buildings, structures, and objects.

Cultural resources include pre-contact (prehistoric) archaeological sites, historic archaeological sites, and historic structures, and generally consist of artifacts, food waste, structures, and facilities made by people in the past. Pre-contact archaeological sites are places that contain the material remains of activities carried out by the native population of the area (Native Americans) prior to the arrival of Europeans in California. The term pre-contact is increasingly being used in lieu of the term prehistoric. Artifacts found in pre-contact sites include flaked stone tools such as projectile points, knives, scrapers, drills, and the resulting waste flakes from tool production; ground stone tools such as pestles for grinding seeds and nuts; bone tools such as awls, ceramic vessels or fragments, and shell or stone beads. Pre-contact features include hearths or rock rings, bedrock mortars and milling slicks, rock shelters, rock art, and burials. Resources defined by California Native American tribes as tribal cultural resources (TCRs) are addressed separately in Section 3.16 of this EIR.

Places that contain the material remains of activities carried out by people after the arrival of Europeans are considered historic archaeological sites. Historic archaeological material usually consists of domestic refuse (e.g., bottles, cans, ceramics, and food waste) disposed of either as roadside dumps or near structure foundations. Archaeological investigations of historic-period sites are usually supplemented by historical research using written records.

Historic structures include houses, garages, barns, commercial structures, industrial facilities, community buildings, and other structures and facilities that are more than 50 years old. Historic structures may also have associated archaeological deposits, such as abandoned wells, cellars, privies, refuse deposits, and foundations of former outbuildings.

ECORP Consulting, Inc. prepared an *Archaeological Resources Inventory Report* for the Proposed Project, which included the preparation of a cultural resources inventory,[1] to determine if cultural resources were present in the Project Area and to assess the sensitivity of the Project Area for undiscovered or buried cultural resources. The inventory consisted of:

- a records search with the California Historical Resources Information System (CHRIS) at the Central California Information Center (CCaIC);
- a search of the Sacred Lands File (SLF) by the Native American Heritage Commission (NAHC);
- a review of historic maps, photographs, and other reasonably available records;
- literature pertaining to the Project Area and surrounding region;
- a review of geological and soils data; and

[1] ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

- a pedestrian survey by qualified professionals.

Due to the sensitive nature of cultural resources, the *Archaeological Resources Inventory Report*[2] is not included with the EIR appendices. Specifically, Sections 6253, 6254, and 6254.10 of the California Code authorize state agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (Government Code Section 6250 et seq.) and California's open meeting laws (The Brown Act, Government Code Section 54950 et seq.) protect the confidentiality of Native American cultural place information. Because the disclosure of cultural resources location information is prohibited by the Archaeological Resources Protection Act of 1979 (16 USC 470hh) and Section 307103 of the National Historic Preservation Act (NHPA), The location is also exempted from disclosure under the Freedom of Information Act (Exemption 3, 5 USC 5). Likewise, the CHRIS prohibits public dissemination of records search information. In compliance with these requirements, the results of the *Archaeological Resources Inventory Report*[3] were prepared as a confidential document, which is not intended for public distribution. However, all pertinent information necessary to provide substantial evidence for impact determinations is summarized in this section of the EIR. While information describing the various cultural resources time periods is included in the discussion, all references to the locations of archaeological sites and artifacts have been removed for confidentiality and protection of these resources.

3.5.1 ENVIRONMENTAL SETTING

The Project Area is located along the eastern edge of the San Joaquin Valley in a semi-rural area southwest of the University of California, Merced campus. The Project Area consists of farmland and is surrounded by farmland to the south and east. Elevations within the Project Area range from 220 to 245 feet above mean sea level. The Yosemite Lateral Canal is located along the northwestern boundary of the Project Area. Yosemite Lake is 0.5 mile to the north and Cottonwood Creek is 3 miles to the southwest of the Project Area.

CULTURAL RESOURCES STUDIES

Records Search and Literature Review

ECORP requested a records search for the Project Area at the CCaIC of the CHRIS at California State University, Sacramento on April 26, 2024 (CCaIC File No. 129031). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project Area and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area.

[2] ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

[3] ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

In addition to the official records and maps for archaeological sites and surveys in Merced County, the following references were also reviewed: Built Environment Resource Directory (BERD); the National Register Information System; OHP, California Historical Landmarks; California Points of Historical Interest; California Department of Transportation (Caltrans) Local Bridge Survey; Caltrans State Bridge Survey; and *Historic Spots in California*. Other references examined include a RealQuest Property Search, historic General Land Office (GLO) land patent records, and historic-era maps and photographs.[4]

In addition to the records search, ECORP contacted the California NAHC on April 26, 2024 to request a search of the SLF for the Project Area (Appendix D). This search determines whether the California Native American tribes within the Project Area have recorded Sacred Lands because the SLF is populated by members of the Native American community with knowledge about the locations of tribal resources. In requesting a search of the SLF, ECORP solicited information from the Native American community regarding TCRs, but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation. For this Project, the City of Merced will be conducting tribal consultation.

ECORP emailed a letter to the Merced County Historical Society on April 26, 2024 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area.

Pedestrian Survey

ECORP subjected the APE to an intensive pedestrian survey on May 7, 2024, under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties*[5] using 15-meter transects. At the time, ECORP archaeologists examined the ground surface for indications of surface or subsurface cultural resources and inspected the general morphological characteristics of the ground surface for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Whenever possible, ECORP examined the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances for artifacts or for indications of buried deposits. ECORP did not conduct subsurface investigations or artifact collections during the pedestrian survey. ECORP did not obtain access to the single-family parcel and observed the ground surface from beyond the fence line.

PRE-CONTACT HISTORY

It is generally believed that human occupation of California began at least 10,000 years Before Present (BP). The archaeological record indicates that between approximately 10,000 and 8,000 BP a predominantly hunting economy existed, characterized by archaeological sites containing numerous

4 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

5 National Park Service (NPS). 2022. 1983. Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. 48 Federal Register 44716-68.

projectile points and butchered large animal bones. Groups from this time period included only small numbers of individuals who did not often stay in one place for extended periods.[6]

Around 8,000 BP, there was a shift in focus from hunting toward a greater reliance on plant resources. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter. This period, which extended until around 5,000 years BP, is sometimes referred to as the Millingstone Horizon. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period. In sites dating to after about 5,000 BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. During this period, new peoples from the Great Basin began entering Southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The Project Area would encompass the area of the Valley Tradition class of the Middle Archaic Period in California pre-contact History. The Valley Tradition is represented at archaeological sites that show evidence of a diverse food supply and year-round occupation of one area. Sites from the later Middle Archaic Valley Tradition are well represented in the San Joaquin Valley.[7]

PROJECT AREA HISTORY

The first Spanish expedition to reach Merced was led by Lieutenant Gabriel Moraga in 1806 with a force of 30 men. When California was divided into 27 counties in 1850, the Project Area fell under Mariposa County, which was then further divided in 1855 into 10 other counties including Merced County. The construction of the Southern Pacific Railroad through the Valley in 1872 led to the growth of Merced (located on the railroad route) which superseded the town of Snelling (not on the railroad route) as the county seat in 1872.[8]

Both ranchers and farmers have adapted to the arid summer climate of the valley by constructing irrigation systems throughout the region. In the 1860s these began as small-scale projects that modified and expanded existing natural waterways. The Robla Canal Company and Farmer's Canal Company were early irrigation systems that were followed by more ambitious projects in the 1880s. The Merced Canal and Irrigation Company became the Crocker-Huffman Land and Water Company that created Lake Yosemite and the Fairfield and Le Grand canals leading out of the lake. This company created irrigated farmsteads called "colonies" totaling 30,000 acres that were designed to increase land prices and attract

6 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

7 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

8 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

settlers. Cultivated crops included fruits, nuts, and alfalfa. The latter was an important crop used as feed for dairy farming that has been an important contributor to the Merced economy since the early 1900s.[9]

After World War II, the irrigation system continued to be improved with the introduction of concrete pipes that have gradually replaced open irrigation ditches and canals. The benefits of using concrete pipe for irrigation were promoted in the early 1950s by newspaper circulars describing various structures and specifications that could be applied to orchards for agriculture or grazing. The area remains mostly agricultural today but is witnessing a building boom with the construction of residential developments and a new university with associated infrastructure. The location for University of California, Merced was chosen in 1998 and construction on various buildings began around 2003.[10]

3.5.2 REGULATORY SETTING

FEDERAL

National Environmental Policy Act

NEPA establishes national policy for the protection and enhancement of the environment. Part of the function of the federal government in protecting the environment is to "preserve important historic, cultural, and natural aspects of our national heritage." Cultural resources need not be determined eligible for the National Register of Historic Places (NRHP) through the National Historic Preservation Act (NHPA) of 1966 (as amended) to receive consideration under NEPA. NEPA is implemented by regulations of the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500-1508).

The definition of *effects* in the NEPA regulations includes adverse and beneficial effects on historic and cultural resources (40 CFR 1508.8). Therefore, the *Environmental Consequences* section of an Environmental Impact Statement (40 CFR 1502.16[f]) must analyze potential effects to historic or cultural resources that could result from the proposed action and each alternative. In considering whether an alternative may "significantly affect the quality of the human environment," a federal agency must consider, among other things:

- Unique characteristics of the geographic area, such as proximity to historic or cultural resources (40 CFR 1508.27[b][3]), and
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP (40 CFR 1508.27[b][8]).

Therefore, because Historic Properties are a subset of *cultural resources*, they are one aspect of the *human environment* defined by NEPA regulations.

9 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

10 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires that the federal government list significant historic resources on the National Register of Historic Places (NRHP), which is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service (NPS) and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP. Section 106 of the NHPA also states that the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officer (SHPO) must be afforded an opportunity to comment on such undertakings, through a process outlined in the ACHP regulations at 36 CFR Part 800. For federal undertakings, regulations (36 CFR 800) implementing Section 106 of the NHPA require that cultural resources be identified and then evaluated using NRHP eligibility criteria.

FEDERAL EVALUATION CRITERIA

Under federal regulations implementing Section 106 of the NHPA (36 CFR 800), cultural resources identified in the Project Area must be evaluated using NRHP eligibility criteria. The eligibility criteria for the NRHP are as follows (36 CFR 60.4):

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

In addition, the resource must be at least 50 years old, except in exceptional circumstances (36 CFR 60.4).

Effects to NRHP-eligible resources (historic properties) are adverse if the project may alter, directly or indirectly, any of the characteristics of a Historic Property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

With respect to Section 106, Title 36 CFR Part 800.5, Assessment of Adverse Effects, requires that the federal agency, in consultation with SHPO, apply the criteria of adverse effect to Historic Properties within the Project Area. According to 36 CFR 800.5(a)(1):

> an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of an Historic Property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association.

The regulations further define adverse effects to be those that include reasonably foreseeable effects caused by the undertaking, or those that may occur later in time or those that may be cumulative. Examples of adverse effects include, but are not limited to physical destruction or damage to all or part of the property; alteration, restoration, rehabilitation, repair, maintenance, stabilization, or remediation; removal of the property from its historic location; change of the character or physical features; introduction of visual, atmospheric, or audible elements; neglect; or transfer, lease, or sale out of federal ownership (36 CFR 800.5[a][2] et seq.).

Adverse effects on historic properties include, but are not limited to the following:

a) Physical destruction of or damage to all or part of the property;
b) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access that is not consistent with the Secretary's standards for the treatment of Historic Properties (36 CFR part 68) and applicable guidelines;
c) Removal of the property from its historic location;
d) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
e) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
f) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe or Native Hawaiian organization; and
g) Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

STATE

California Register of Historical Resources

The State Historical Resources Commission designed the California Register of Historic Resources (CRHR) for use by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's Historical Resources. The CRHR is the authoritative guide to the state's significant historical and archaeological resources. This program encourages public recognition and protection of resources of

architectural, historical, archaeological, and cultural significance, identifies Historical Resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under CEQA.

Under state law (CEQA) cultural resources are evaluated using CRHR eligibility criteria in order to determine whether any of the sites are Historical Resources, as defined by CEQA. A requirement of CEQA is that public agencies identify impacts to Historical Resources and, if the impacts would be significant, that mitigation measures to reduce the impacts be applied.

Under CEQA, a Historical Resource is a term with a defined statutory meaning (PRC Section 21084.1). Under CEQA Guidelines Section 15064.5(a), Historical Resources include the following:

- A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the CRHR (PRC Section 5024.1).
- A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k), or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a Historical Resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (PRC Section 5024.1), including the following:
    a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b) Is associated with the lives of persons important in our past;
    c) 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; or
    d) as yielded, or may be likely to yield, information important in prehistory or history.

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1(k)), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1(g)) does not preclude a lead agency from determining that the resource may be a Historical Resource as defined in PRC Sections 5020.1(j) or 5024.1.

Historical Resources are usually 45 years old or older and must meet at least one of the criteria for listing in the CRHR, described above (such as association with historical events, important people, or architectural significance), in addition to maintaining a sufficient level of integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (CCR Title 14, Section 4852[c]).

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 Section 5024.1 and 14 CCR), Title 14, Section 4850. Unless a resource listed in a survey has been demolished, 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 to be potentially eligible for the CRHR.

CEQA also requires lead agencies to determine if a proposed project would have a significant effect on unique archaeological resources. If a lead agency determines that an archaeological site is a Historical Resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a Historical Resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources. A unique archaeological resource is 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:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a Historical Resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064[c][4]).

If the project would result in a significant impact to a Historical Resource or unique archaeological resource, treatment options under PRC Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

> In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5(f), these provisions should include “an immediate evaluation of the find

by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place.

Assembly Bill 52

AB 52 is addressed in Section 3.16, Tribal Cultural Resources, of this EIR.

LOCAL

Merced County General Plan

The Merced County General Plan[11] contains the following goals and policies that are relevant to Cultural Resources:

CULTURAL, ARCHAEOLOGICAL, AND HISTORICAL RESOURCES

GOAL RCR-2. Protect and preserve the cultural, archaeological, and historic resources of the County in order to maintain its unique character.

Policy RCR-2.1: Archeological Site and Artifact Protection Require development projects that affect archeological sites and artifacts to avoid disturbance or damage to these sites.

Policy RCR-2.2: Historical Area Preservation. Support the preservation of historical structures and areas, particularly those listed on the National Registrar of Historic Places and California Registrar of Historic Places.

Policy RCR-2.3: Architectural Character Preservation Require that the original architectural character of significant State- and Federally-listed historic structures be maintained in compliance with preservation standards and regulations.

Policy ROS-2.4: Park and Open Space Historic Resource Preservation Require the preservation of historic resources located in parks and publicly owned open space areas.

Policy RCR-2.5: Human Remains Discovery Require that, in the event of the discovery of human remains on any project construction site, all work in the vicinity of the find will cease and the County Coroner and Native American Heritage Commission will be notified.

[11] Merced County. 2013. 2030 Merced County General Plan (as amended), Chapter 9: Recreation and Cultural Resources. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/BackroundRpt_2030/MCGPU_BR_Ch9_RecCultRes-2012-11-30.pdf. Accessed July 2, 2024.

Policy RCR-2.6: Historic Buildings and Areas Identify and preserve buildings and areas with special and recognized historic, architectural, or aesthetic value during the Community Plan update process. New development should respect architecturally and historically significant buildings and areas.

Policy RCR-2.7: Historic Preservation Support the efforts of local preservation groups and community property owners to preserve or improve building facades and exteriors consistent with the historic and visual character of the specific building or area.

Policy RCR-2.8: Historical Preservation Area/Site Designations Allow sites of historical and archeological significance to be designated as historical preservation areas or sites during the Community Planning process or on individual sites in rural areas.

Merced Vision 2030 General Plan

The General Plan for the City of Merced[12] contains the following goals and policies that are relevant to Cultural Resources:

GOAL AREA SD-2: CULTURAL RESOURCES

Goals:

- A Diverse and Rich Historic and Cultural Resource Environment
- A Long-Term Community Historic Preservation/Improvement Program

Policy SD-2.1: Identify and Preserve the City's Archaeological Resources

Implementing Actions for SD-2.1:

SD-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.

SD-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

[12] Merced City Planning Commission. 2012. Merced Vision 2030 General Plan, Chapter 8: Sustainable Development. https://www.cityofmerced.org/home/showpublisheddocument/4660/637028296396370000. Accessed July 2, 2024.

assist where necessary in minimizing the adverse impacts of the implementation of these laws on the City's construction industry.

SD-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.

Policy SD-2.2: Identify and Preserve the City's Historic and Cultural Resources

Implementing Actions for SD-2.2:

2.2a 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.

Policy SD-2.3: Develop and Promote Financial Incentive Programs for Historic Preservation Efforts

Implementing Actions for SD-2.3:

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.

3.5.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Based on the CEQA Guidelines, Appendix G: Items V (a) through (c), implementation of the Project would have a significant impact related to cultural resources if it would:

a) cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines section 15064.5;
b) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5; or
c) disturb any human remains, including those interred outsides of dedicated cemeteries.

CEQA Guidelines Section 15064.5(b)(2) defines *materially impaired* for purposes of the definition of substantial adverse change as follows:

> The significance of a historical resource is materially impaired when a project:
>
> a) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
> b) 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 Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, 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
> c) 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 of Historical Resources as determined by a lead agency for purposes of CEQA.

CEQA requires that public agencies consider the effects of their actions on both historical resources and unique archaeological resources. If a project would result in an effect that may cause a substantial adverse change in the significance of a historical resource or would cause significant effects on a unique archaeological resource, alternative plans or mitigation measures must be considered. Therefore, prior to assessing effects or developing mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify potential historical resources and unique archaeological resources;
- Evaluate the eligibility of historical resources; and
- Evaluate the effects of the project on eligible historical resources.

METHODS AND ANALYSIS

The records search determined that five previously recorded historic-era cultural resources are located within 0.5 mile of the Project Area. No previously recorded cultural resources are located within the Project Area. However, the Yosemite Lateral (P-24-1891) is located outside and adjacent to the northwestern boundary of the Project Area.

The SLF search by the NAHC returned negative results on May 7, 2024, meaning that sacred lands or Native American cultural resources have not been recorded within the Project Area.

The pedestrian survey uncovered no new cultural resources within the Project Area and verified the Yosemite Lateral (P-24-1891) is outside of the Project Area and will not be affected by the Project. ECORP reviewed topographic maps, aerial photographs, and soils and geological data. The data revealed there would normally exist a medium potential for buried intact pre-contact archaeological resources within the northeastern and southeastern portions of the Project Area due to the presence of alluvium and the tendency of alluvial deposits to preserve archaeological material; and while there is an increased likelihood for precontact archaeological resources along perennial waterways. the nearest such waterway is Cotton Creek, approximately 3 miles southwest of the Project Area. Therefore, the soils and hydrology data indicate a low to moderate potential for intact buried pre-contact archaeological sites within the Project Area.

IMPACTS AND MITIGATION

Impact 3.5-1: Implementation of the proposed Project has potential to cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines section 15064.5. (Less than Significant with Mitigation)

As discussed above, the records search and literature review did not reveal any Historical Resources within the Project Area.

However, there remains a possibility that historical materials will be inadvertently discovered during ground-disturbing activities. Although the review of maps and records, soils and hydrology data, and previous studies in the vicinity indicate a low potential for the presence of previously undiscovered buried historic-period and pre-contact archaeological deposits at the Project Area, the presence of alluvium in and around the Project Area suggests that there remains a potential for deeply buried pre-contact resources to be uncovered during ground-disturbing activities. If previously unknown cultural resources are encountered during ground-disturbing activities, and if those resources are determined to be historical resources, the impact could result in damage that constitutes an impact to the aspects of integrity that make the resource significant, and the impact would be ***potentially significant***.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.5-1: *Post-Review Discoveries of Historical Resources and Archaeological Resources. If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the CEQA lead agency and, if required, the Section 106 lead agency. The lead agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under CEQA, as defined by CEQA or a Historic Property under Section 106 NHPA, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction.*

SIGNIFICANCE AFTER MITIGATION

Less Than Significant

Implementation of Mitigation Measure 3.5-1 would require proper documentation, evaluation, and treatment of resources if cultural resources are inadvertently discovered. With these measures in place, the Project would have a ***less-than-significant impact*** on any potential historical resources that may be inadvertently discovered.

Impact 3.5-2: Implementation of the proposed Project has potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5. (Less than Significant with Mitigation)

As discussed under Impact 3.5-1, there remains a possibility that archaeological materials will be inadvertently discovered during ground-disturbing activities. Although the review of maps and records, soils and hydrology data, and previous studies in the vicinity indicate a low potential for the presence of previously undiscovered buried historic-period and pre-contact archaeological deposits at the Project Area, the presence of alluvium in and around the Project Area suggests that there remains a potential for deeply buried pre-contact resources to be uncovered during ground-disturbing activities. If previously unknown archaeological resources are encountered during ground-disturbing activities, and if those resources are determined to be either historical resources or unique archaeological resources, the impact could result in damage that constitutes an impact to the aspects of integrity that make the resource significant. If that occurs, the impact would be ***potentially significant***.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.5-2: *Implement Mitigation Measure 3.5-1.*

SIGNIFICANCE AFTER MITIGATION

Less Than Significant

Implementation of Mitigation Measure 3.5-2 would require proper documentation, evaluation, and treatment of resources if they are inadvertently discovered. With these measures in place, the Project would have a ***less-than-significant impact*** on potential archaeological resources that may be inadvertently discovered.

Impact 3.5-3: Implementation of the proposed Project has potential to disturb undiscovered human remains, including those interred outside of dedicated cemeteries. (Less than Significant with Mitigation)

As discussed under Impact 3.5-1, there remains a possibility that human remains will be inadvertently discovered during ground-disturbing activities. Although the review of maps and records, soils and hydrology data, and previous studies in the vicinity indicate a low potential for the presence of human remains buried within the Project Area, the presence of alluvium in and around the Project Area suggests that there remains a potential for buried human remains to be uncovered during ground-disturbing activities. The discovery and treatment of human remains is addressed by state law. If previously unknown human remains are encountered during ground-disturbing activities, the impact to human remains would be ***potentially significant***.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.5-3: *Post-Review Discoveries of Human Remains. If the find includes human remains, or remains that are potentially human, the landowner, shall ensure that reasonable measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Merced County Coroner (per Section 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California PRC, and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project Section 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.*

SIGNIFICANCE AFTER MITIGATION

Less Than Significant

Implementation of Mitigation Measure 3.5-3 would require proper documentation, evaluation, and treatment of human remains if they are inadvertently discovered. With these measures in place, the Project would have a ***less-than-significant impact*** on any potential human remains that may be inadvertently discovered.

CUMULATIVE IMPACTS

Impact 3.5-4: Implementation of the proposed Project, in combination with other cumulative development, has potential to result in a substantial adverse change in the significance of a historical resource, archaeological resource, or disturb human remains in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas. (Less than Significant with Mitigation)

Development of cumulative development in the area would increase the potential for impacts to known and previously unknown cultural resources that could contribute to the loss of such resources in California. Although all future projects would be required to follow existing state and federal law or other agency regulations and policies, some project that do not require discretionary approval may not be subject to the same level of evaluation prior to groundbreaking. Because not all such impacts from these other projects have been or can be reduced with certainty to less-than-significant levels, the loss of any historic, archaeological, or human remains resources would result in a potentially significant cumulative impact.

The Project site is immediately adjacent to the Yosemite Lateral, which is a recognized historic resource. There is no indication that the Project site contains human remains; however, the possibility cannot be entirely discounted. The discovery of previously unknown historic or archaeological resources or human remains is possible given the history of the area. As a result, development allowed under the proposed Project could result in a considerable contribution to the cumulative loss of cultural resources in Merced County, and this cumulative impact would be ***potentially significant***.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.5-4: *Implement Mitigation Measure 3.5-1, Mitigation Measure 3.5-2, and Mitigation Measure 3.5-3.*

SIGNIFICANCE AFTER MITIGATION

Less Than Significant

Implementation of Mitigation Measure 3.5-4 would require proper documentation, evaluation, and treatment of resources if they are inadvertently discovered. Mitigation Measure 3.5-4 will also require compliance with state laws regarding the discovery of human remains. With these measures in place, the proposed Project would not have a considerable contribution to the loss of historical resources, archaeological resources, or human remains, and the cumulative impact would be ***less than significant***.

The purpose of this EIR section is to identify the energy impacts that are likely to result from project implementation. Following this discussion is an assessment of consistency of the proposed Project with applicable policies and local plans. The Air Quality analysis is located in Section 3.3, and the Greenhouse Gas/Climate Change analysis is located in Section 3.7.

The analysis and discussion of the energy impacts in this section focuses on the proposed Project's consistency with local, regional, statewide, and federal energy conservation efforts and discusses the context of these planning efforts as they relate to the proposed Project. Disclosures of the project's estimated energy consumption are provided. See Appendix B for the detailed energy modeling results for proposed Project.

One comment letter referencing energy was received on the Notice of Preparation (NOP):

The **Merced Irrigation District (MID)** stated that they have been approached by the Project developer, and therefore, if the developer chooses MID to serve the Project site for electricity, it should be referenced in the EIR. Electricity suppliers are discussed in this section.

3.6.1 ENVIRONMENTAL SETTING

ENERGY CONSUMPTION

Energy in California is consumed from a wide variety of sources. Fossil fuels (including gasoline and diesel fuel, natural gas, and energy used to generate electricity) are the most widely used form of energy in the State. However, renewable sources of energy (such as solar and wind) are growing in proportion to California's overall energy mix. A large driver of renewable sources of energy in California is the State's current Renewable Portfolio Standard (RPS), which requires the State to derive at least 60 percent of electricity generated by 2030, and to achieve zero-carbon emissions by 2045 (as passed in September 2018, under Senate Bill 100). The 2021 SB 100 Joint Agency Report was published in 2021, which found that the long-term goals contained in SB 100 are technically achievable through multiple pathways, although achieving 100 clean electricity would increase the total annual electricity system cost by 6% relative to the cost under the state's Renewables Portfolio Standard requirement of having at least 60 percent clean electricity by the end of 2030. These estimates will change over time as markets change, new technologies are commercialized, and additional factors such as grid reliability are included in future analyses.

Overall, in 2022, California's per capita energy usage was ranked third-lowest in the nation.[1] California's per capita rate of energy usage has remained relatively constant since the 1970's. Many State regulations since the 1970s, including new building energy efficiency standards, vehicle fleet efficiency measures, as well as growing public awareness, have helped to keep per capita energy usage in the State in check.

The consumption of non-renewable energy (i.e., fossil fuels) associated with the operation of passenger, public transit, and commercial vehicles results in GHG emissions that contribute to global climate change.

[1] United States Energy Information Administration (U.S. EIA). 2024. Table C14. Total Energy Consumption Estimates per Capita by End-Use Sector, Ranked by State, 2022. Available at: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/rank_use_capita.html&sid=US

Alternative fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change.

Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and a very small amount of nuclear generation resources. In 2020, nearly one-half of the electricity supply came from facilities outside of the State. Much of the power delivered to California from states in the Pacific Northwest was generated by wind. States in the Southwest delivered power generated at coal-fired power plants, at natural gas-fired power plants, and from nuclear generating stations.[2] In 2022, approximately 57 percent of California's utility-scale net electricity generation was fueled by natural gas. In addition, about 28 percent of the State's utility-scale net electricity generation came from renewable sources, such as solar, wind, geothermal, hydropower, and biomass. Nuclear energy powered an additional 15 percent. The amount of electricity generated from coal was effectively zero.[3] The percentage of renewable resources as a proportion of California's overall energy portfolio is increasing over time, as directed the State's Renewable Portfolio Standard (RPS).

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 228,038 GWh in 1990, which is an estimated annual growth rate of 3.66 percent. The statewide electricity consumption in 1997 was 246,225 GWh, reflecting an annual growth rate of 1.14 percent between 1990 and 1997. Statewide consumption was 274,985 GWh in 2010, an annual growth rate of 0.9 percent between 1997 and 2010. In 2022, electricity consumption in Merced County was 3,185 GWh.[4]

Pacific Gas & Electric (PG&E) is a publicly traded utility company that, under contract with the California Public Utilities Commission (CPUC), generates, purchases, and distributes energy. PG&E's service area covers 70,000 square miles, roughly extending north to south from Eureka to Bakersfield and east to west from the Sierra Nevada to the Pacific Ocean. PG&E's electricity distribution system consists of 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines.

PG&E's electricity is generated from a combination of traditional sources, such as coal-fired plants, nuclear power plants, and hydroelectric dams, as well as newer sources of energy, such as wind turbines and photovoltaic plants, or "solar farms." "The grid," or bulk electric grid, is a network of high-voltage transmission lines that link power plants to the PG&E system. The distribution system, comprising lower-voltage secondary lines, is at the street and neighborhood level. It consists of overhead or underground distribution lines, transformers, and individual service "drops" that connect to individual customers.

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2 United States Energy Information Administration (U.S. EIA), 2024. California End-Use Energy Consumption 2024, Estimates. Available at: https://www.eia.gov/beta/states/states/ca/overview.

3 United States Energy Information Administration (U.S. EIA), 2024. California End-Use Energy Consumption 2024, Estimates. Available at: https://www.eia.gov/beta/states/states/ca/overview.

4 California Energy Commission, 2024. Electricity Consumption by County. Available: http://www.ecdms.energy.ca.gov/elecbycounty.aspx.

In addition to its base plan, PG&E has three plan options, known as Solar Choice options and Green Saver, which give customers the option of purchasing energy from solar resources. The first Solar Choice option provides up to 50 percent of a customer's energy from solar resources, while the other option provides up to 100 percent of a customer's energy from solar resources, and the Green Saver option provides up to 90 percent of a customer's energy from solar resources.

Table 3.6-1 outlines PG&E's power mix in 2021, compared to the power mix for the state. The table identifies the renewable and non-renewable energy sources for PG&E. It should be noted that some GHG free sources are not considered renewable (e.g., nuclear is GHG-free but not renewable).

TABLE 3.6-1. PG&E AND THE STATE OF CALIFORNIA POWER MIX IN 2021

ENERGY RESOURCES	PG&E OPTION: BASE	PG&E OPTION: 50% SOLAR CHOICE	PG&E OPTION: 100% SOLAR	PG&E OPTION: GREEN SAVER	CALIFORNIA POWER MIX 2021
Eligible Renewable	47.7%	70.9%	93.9%	89.9%	33.6%
Biomass and waste	4.2%	2.1%	0.0%	0.0%	2.3%
Geothermal	5.2%	2.6%	0.0%	0.0%	4.8%
Small hydroelectric	1.8%	0.9%	0.0%	0.0%	1.0%
Solar	25.7%	59.8%	93.9%	89.9%	14.2%
Wind	10.9%	5.5%	0.0%	0.0%	11.4%
Coal	0.0%	0.0%	0.0%	0.0%	3.0%
Large Hydroelectric	4.0%	2.0%	0.0%	0.0%	9.2%
Natural Gas	8.9%	7.4%	0.0%	0.0%	37.9%
Nuclear	39.3%	19.7%	0.0%	0.0%	9.3%
Other	0.0%	0.0%	0.0%	0.0%	0.2%
Unspecified	0.0%	0.0%	6.1%	10.1%	6.8%

SOURCE: PG&E. 2021. 2021 POWER CONTENT LABEL. AVAILABLE: HTTPS://WWW.ENERGY.CA.GOV/FILEBROWSER/DOWNLOAD/4653. ACCESSED: SEPTEMBER 30, 2024.

[A.] ELECTRICITY FROM TRANSACTIONS THAT ARE NOT TRACEABLE TO SPECIFIC GENERATION SOURCES ARE CLASSIFIED AS UNSPECIFIED SOURCES OF POWER.

Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2019, world consumption of oil had reached approximately 98 million barrels per day. The United States, with approximately five percent of the world's population, accounts for approximately 19 percent of world oil consumption, or approximately

18.6 million barrels per day.[5] The transportation sector relies heavily on oil. In California, petroleum-based fuels currently provide approximately 95 percent of the State's transportation energy needs.

Natural Gas/Propane

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California.[6] PG&E is the largest publicly-traded utility in California and provides natural gas for residential, industrial, and agency consumers within the Merced County area. PG&E's natural gas (i.e., methane) delivery system includes 42,000 miles of natural gas distribution pipelines and 6,700 miles of transmission pipelines. PG&E's gas transmission system serves approximately 15 million energy customers in California. The system is operated under an inspection and monitoring program in real time on a 24-hour basis, with leak inspections, surveys, and patrols continuously taking place along the pipelines. Gas delivered by PG&E originates in gas fields in California, the Southwest, the Rocky Mountains, and Canada. Transmission pipelines send natural gas from the fields and storage facilities. The smaller distribution pipelines deliver gas to individual businesses or residences.

As of March 2022, California produced 11.4 billion cubic feet of natural gas per month.[7] In 2022, natural gas consumption in Merced County was approximately 131 million therms.[8] Residential natural gas consumption by itself accounted for approximately 26 million therms of this total.

3.6.2 REGULATORY SETTING

FEDERAL

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards.

Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on

5 United States Energy Information Administration (U.S. EIA), 2023. Independent Statistics and Analysis. Frequently Asked Questions. Last updated September 22, 2023. Available at: https://www.eia.gov/tools/faqs/faq.php?id=33&t=6

6 California Public Utilities Commission, 2024. Natural Gas and California, available: https://www.cpuc.ca.gov/industries-and-topics/natural-gas/natural-gas-and-california

7 United States Energy Information Administration (U.S. EIA). 2022. California Natural Gas Marketed Production. Available at: https://www.eia.gov/dnav/ng/hist/n9050ca2M.htm

8 California Energy Commission. 2024. Natural Gas Consumption by County. Available: http://www.ecdms.energy.ca.gov/gasbycounty.aspx

the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

STATE

Statutes Setting Target for the Use of Renewable Energy for the Generation of Electricity

CALIFORNIA RENEWABLES PORTFOLIO STANDARD

Senate Bill X1-2 (Stats. 2011, 1st Ex. Sess., Ch. 1) set aggressive statutory targets for renewable electricity, culminating in the requirement that 33 percent of the State's electricity come from renewables by 2020. This legislation applies to all electricity retailers in the State, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities were required to meet renewable energy goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020. (See Pub. Utility Code, Section 399.11 et seq. [subsequently amended].) SB 350, discussed below, increases the Renewable Portfolio Standard to require 50 percent of electricity generated to be from renewables by 2030. (Pub. Utility Code, Section 399.11, subd (a); see also Section 399.30, subd. (c)(2).) In 2018, Senate Bill 100 (Stats. 2018, Ch. 312) revised the above-described deadlines and targets so that the State will have to achieve a 50 percent renewable resources target by December 31, 2026 (instead of by 2030) and achieve a 60 percent target by December 31, 2030. The legislation also establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045.

Statutes and CARB Regulations Addressing the Carbon Intensity of Petroleum-based Transportation Fuels

ASSEMBLY BILL 1493, PAVLEY CLEAN CARS STANDARDS

In 2002, the Legislature enacted Assembly Bill 1493 ("Pavley Bill") (Stats. 2002, ch. 200), which directed CARB to develop and adopt regulations that achieve the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks beginning with model year 2009. (See Health and Safety Code Section 43018.5.) In September 2004, pursuant to this directive, CARB approved regulations to reduce GHG emissions from new motor vehicles beginning with the 2009 model year. These regulations created what are commonly known as the "Pavley standards." In September 2009, CARB adopted amendments to the Pavley standards to reduce GHG emissions from new motor vehicles through the 2016 model year. These regulations created what are commonly known as the "Pavley II standards." (See California Code of Regulations, Title 13, Sections 1900, 1961, and 1961.1 et seq.)

In 2012, CARB adopted an Advanced Clean Cars (ACC) program aimed at reducing both smog-causing pollutants and GHG emissions for vehicles model years 2017-2025. This historic program, developed in coordination with the USEPA and NHTSA, combined the control of smog-causing (criteria) pollutants and GHG emissions into a single coordinated set of requirements for model years 2015 through 2025. The regulations focus on substantially increasing the number of plug-in hybrid cars and zero-emission vehicles in the vehicle fleet and on making fuels such as electricity and hydrogen readily available for these vehicle technologies. The components of the ACC program are the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years. (See California Code of Regulations, Title 13, Sections 1900, 1961, 1961.1, 1961.2, 1961.3, 1965, 1968.2, 1968.5, 1976, 1978, 2037, 2038, 2062, 2112, 2139, 2140, 2145, 2147, 2235, and 2317 et seq.)

It is expected that the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 34 percent below 2016 levels by 2025, all while improving fuel efficiency and reducing motorists' costs.

Building Code Requirements Intended to Reduce Energy Consumption

CALIFORNIA ENERGY CODE

The California Energy Code (CCR Title 24, Part 6), which is incorporated into the Building Energy Efficiency Standards, was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Although these standards were not originally intended to reduce GHG emissions, increased energy efficiency results in decreased GHG emissions because energy efficient buildings require less electricity and thus less consumption of fossil fuels, which emit GHGs. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

The most recent Title 24 standards are the 2022 Title 24 standards. Buildings permitted on or after January 1, 2023, must comply with the 2022 Standards. The California Energy Commission updates the standards every three years. The CEC estimates that the 2022 Title 24 standards will reduce 10 million metric tons of GHG over 30 years. When compared to the 2019 Title 24 standards, the 2022 update focuses on: encouraging electric heat pump technology and use; establishing electric-ready requirements when natural gas is installed; expanding solar photovoltaic (PV) system and battery storage standards; and strengthening ventilation standards to improve indoor air quality.

CALIFORNIA GREEN BUILDING STANDARDS CODE

The purpose of the California Green Building Standards Code (CalGreen) (CCR Title 24, Part 11) is to improve public health and safety and to promote the general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: 1) planning and design; 2) energy efficiency; 3) water efficiency and conservation; 4) material

conservation and resource efficiency; and 5) environmental quality. CalGreen, which became effective on January 1, 2011, instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential uses, and State-owned buildings, as well as schools and hospitals. The mandatory standards require the following:

- 20 percent mandatory reduction in indoor water use relative to baseline levels;
- 50 percent construction/demolition waste must be diverted from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particle boards.

The voluntary standards require the following:

- Tier I: 15 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste, 10 percent recycled content, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof.
- Tier II: 30 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste, 15 percent recycled content, 30 percent permeable paving, 30 percent cement reduction, and cool/solar reflective roof.

The latest version of CalGreen is the 2022 CalGreen Code, which became effective on January 1, 2023. Between 2010 and 2022, continuous updates and additions have been made to CALGreen, including water conservation and recycling, electric vehicle infrastructure and charging, and changes intended to eliminate conflicts with the California Energy Code, which is Part 6 of Title 24.

TITLE 20

CCR Title 20 requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SENATE BILL 1

SB 1 (Murray) (August 2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for homes and businesses within 10 years of adoption and placing solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

SOLID WASTE

AB 939, AB 341, and AB 1826. In 1989, AB 939, known as the Integrated Waste Management Act (PRC Sections 40000 *et seq*.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 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 percent by 1995 and 50 percent by 2000.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) 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 percent 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 (CalRecycle) 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 subject to the law decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

LOCAL

City of Merced General Plan

The City of Merced General Plan includes several policies and implementation programs that are relevant to energy. General Plan goals and policies applicable to the Project are identified below:

SUSTAINABLE DEVELOPMENT ELEMENT

Goal SD-1: Air Quality and Climate Change.

- **SD-1.1.** Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Merced.
- **SD-1.2.** Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.
- **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.
- **SD-1.4.** Educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.
- **SD-1.5.** Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs
- **SD-1.6.** Reduce emissions of PM10 and other particulates with local control potential.
- **SD-1.7.** Develop and implement a Climate Action Plan for the City.
- **SD-1.8.** Implement Policies in Other General Plan Chapters to Address Air Quality and Greenhouse Gas Emissions Reduction Goals.

3.6.3 IMPACTS AND MITIGATION MEASURES

ENERGY CONSERVATION THRESHOLDS OF SIGNIFICANCE

Consistent with Appendices F and G of the CEQA Guidelines, energy-related impacts are considered significant if implementation of the proposed Project would do the following:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency;

In order to determine whether or not the proposed Project would result in a significant impact on energy use, this EIR includes an analysis of proposed Project energy use, as provided under *Impacts and Mitigation Measures* below.

Impact 3.6-1: Project implementation would not result in the inefficient, wasteful, or unnecessary use of energy resources during operation or construction, and would not conflict with or obstruct plans for renewable energy or energy efficiency. (Less than Significant)

According to the CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. In particular, the proposed Project would be considered "wasteful, inefficient, and unnecessary" if it were to violate State and federal energy standards and/or result in significant adverse impacts related to Project energy requirements, energy inefficiencies, energy intensiveness of materials, effects on local and regional energy supplies or on requirements for additional capacity,

compliance with existing energy standards, effects on energy resources, or transportation energy use requirements. In addition, the Project could have a significant energy impact if it would conflict or create an inconsistency with an applicable plan, policy, or regulation for renewable energy or energy efficiency.

The proposed Project includes various characteristics that reduce the inefficient, wasteful, or unnecessary use of energy. Overall, a wide variety of additional Project features would also be implemented that would substantially reduce energy emissions. For example, the Project would comply with State requirements such as the energy efficiency requirements of the latest version of the California Title 24 Energy Efficiency Standards. The Project is also anticipated to produce on-site solar photovoltaic (PV) for on-site use, also consistent with the latest version of the California Title 24 Energy Efficiency Standards.

Moreover, it should be noted that, over time, electrification of the vehicles will increase due to state requirements, and state and national trends. Electric charging infrastructure would be installed on the property to facilitate the conversion of the truck fleet to zero-emission electric trucks as they become available in the market and used for truck deliveries to and from the facility.

The amount of energy used by the proposed Project during operation would include the amount of energy used by Project buildings and outdoor lighting, and the fuel used by vehicle trips generated during Project construction and operation, fuel used by off-road construction vehicles during construction activities, and fuel used by Project maintenance activities during Project operation. The following discussion provides a detailed calculation of energy usage expected for the proposed Project, as provided by applicable modelling software (i.e., CalEEMod v2022.1) and the CARB Emission Factor model (EMFAC2021). Additional assumptions and calculations are provided within Appendix B of this EIR.

ELECTRICITY AND NATURAL GAS

Electricity and natural gas used by the proposed Project would be used primarily to generate energy for Project buildings, as well as for landscaping, street and outdoor parking lot lighting. As shown in further detail in the CalEEMod modeling outputs provided in Appendix B, “Energy” is one of the categories that was modeled for GHG emissions. As also shown in the CalEEMod modeling outputs as provided in Appendix B, the proposed Project as a whole is anticipated to consume approximately 5,820,046 kWh of electricity per year and approximately 30,762,383 kBTU per of natural gas per year (see Appendix B for detail). Moreover, this is likely a conservative estimate, given that the CalEEMod model does not account for the latest version of Title 24. Furthermore, this also does not account for additional Project’s energy efficiency commitments and/or requirements, which would likely drive down the energy usage even further than identified herein.

The proposed Project’s buildings would be designed and constructed in accordance with the City’s latest adopted energy efficiency standards, which are based on the State’s Title 24 Energy Efficiency Standards for Residential Buildings and Green Building Code Standards. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., heating, ventilation, and air conditioning [HVAC] and water heating systems), and indoor and outdoor lighting, are widely regarded as the some of the most advanced and stringent building energy efficiency standards in the country. In addition, the on-site solar PV system would meet the State legal requirements. As such, the design of the

proposed project would facilitate the future commitment to renewable energy resources. Therefore, building energy consumption would not be considered wasteful, inefficient, or unnecessary.

ON-ROAD VEHICLES (OPERATION)

The proposed Project would generate vehicle trips (i.e., passenger vehicles for employees and heavy-duty trucks for hauling) during its operational phase. Compliance with applicable State laws and regulations would limit idling and a part of a comprehensive regulatory framework that is implemented by the CARB. A description of Project operational on-road mobile energy usage is provided below.

According to the *Technical Memorandum* prepared by TJKM for the proposed Project, and as described in more detail in Section 3.15 of this EIR, the proposed Project would increase total vehicle trips by approximately 4,716 daily total external vehicle trips. To calculate operational on-road vehicle energy usage, De Novo Planning Group used fleet mix data from the CalEEMod (v.2022.1) output for the proposed Project, and Year 2041 gasoline and diesel MPG (miles per gallon) factors for individual vehicle classes as provided by EMFAC2021, to derive weighted average gasoline and diesel MPG factors for the vehicle fleet. Based on these calculations, as provided in Appendix B, upon full buildout, the proposed Project would generate operational vehicle trips that would use a total of approximately 1,034 gallons of gasoline and 237 gallons of diesel per day, or 377,246 gallons of gasoline and 86,459 gallons of diesel per year.

ON-ROAD VEHICLES (CONSTRUCTION)

The proposed Project would also generate on-road vehicle trips during Project construction (from construction workers and vendors travelling to and from the Project site). De Novo Planning Group estimated the vehicle fuel consumed during these trips based on the assumed construction schedule, vehicle trip lengths and number of workers per construction phase as provided by CalEEMod, and Year 2025 gasoline and diesel MPG factors provided by EMFAC2021 (year 2025 factors were used to represent a conservative analysis, as the energy efficiency of construction activities is anticipated to improve over time). For the sake of simplicity and to be conservative, it was assumed that all construction worker light duty passenger cars and truck trips use gasoline as a fuel source, and all medium and heavy-duty vendor trucks use diesel fuel. **Table 3.6-2**, below, describes gasoline and diesel fuel consumed during each construction phase (in aggregate). As shown, the vast majority of on-road mobile vehicle fuel used during the construction of the proposed Project would occur during the building construction phase. See Appendix B of this EIR for a detailed accounting of construction on-road vehicle fuel usage estimates.

TABLE 3.6-2: ON-ROAD MOBILE FUEL USAGE BY PROJECT CONSTRUCTION ACTIVITIES – BY PHASE [A]

CONSTRUCTION PHASE	*TOTAL GALLONS OF GASOLINE FUEL[B]*	*TOTAL GALLONS OF DIESEL FUEL[B]*
Site Preparation	2082	0
Grading	594	0
Building Construction	39,341	28,932
Paving	1,610	0
Architectural Coatings	3,089	0
Total	**46,716**	**28,932**

NOTE: [A] PROVIDED BY CALEEMOD OUTPUT. [B]SEE APPENDIX B OF THIS EIR FOR FURTHER DETAIL

SOURCE: CALEEMOD (V.2022.1); EMFAC2021.

OFF-ROAD EQUIPMENT (CONSTRUCTION)

Off-road construction equipment would use diesel fuel during the construction phase of the proposed Project. A non-exhaustive list of off-road constructive equipment expected to be used during the construction phase of the proposed Project includes: forklifts, generator sets, tractors, excavators, and dozers. Based on the total amount of CO_2 emissions expected to be generated by the proposed Project (as provided by the CalEEMod output), and standard conversion factors (as provided by the U.S. Energy Information Administration), the proposed Project would use a total of approximately 91,653 gallons of diesel fuel for off-road construction equipment. Detailed calculations are provided in Appendix B of this EIR.

State laws and regulations would limit idling from both on-road and off-road diesel-powered equipment and are part of a comprehensive regulatory framework that is implemented by the CARB. Additionally, as a practical matter, it is reasonable to assume that the overall construction schedule and process would be designed to be as efficient as feasible to avoid excess monetary costs. For example, equipment and fuel are not typically used wastefully due to the added expense associated with renting the equipment, maintaining it, and fueling it. Therefore, the opportunities for further future efficiency gains during construction are limited. For the foregoing reasons, it is anticipated that the construction phase of the project would not result in wasteful, inefficient, and unnecessary consumption of energy.

CONCLUSION

The proposed Project would use energy resources for the operation of Project buildings (natural gas and electricity), outdoor lighting (electricity), on-road vehicle trips (e.g. gasoline and diesel fuel) generated by the proposed Project, and off-road and on-road construction activities associated with the proposed Project (e.g. diesel fuel). Each of these activities would require the use of energy resources. The proposed Project would be responsible for conserving energy, including through the mitigation measures provided throughout this EIR, as well as through the implementation of statewide and local measures.

The proposed Project would comply with all applicable federal, State, and local regulations regulating energy usage. Moreover, much of the electricity demand of the proposed Project would come from on-site renewable sources such as rooftop solar PV. Other statewide measures, including those intended to improve the energy efficiency of the statewide passenger and heavy-duty truck vehicle fleet (e.g., the Pavley Bill and the Low Carbon Fuel Standard), would improve vehicle fuel economies, thereby conserving gasoline and diesel fuel. These energy savings would continue to accrue over time. Moreover, the proposed Project would comply with the City's General Plan goals, objectives and policies related to energy conservation that are relevant to this analysis.

The proposed Project would comply with all existing energy standards and would not be expected to result in significant adverse impacts on energy resources. For these reasons, the proposed Project would not cause an inefficient, wasteful, or unnecessary use of energy resources nor cause a significant impact on any of the energy-related thresholds as described by the *CEQA Guidelines*. This is a ***less than significant*** impact.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

Energy impacts can be defined by region or by a political subdivision. Therefore, the cumulative setting for energy impacts includes the State of California.

Impact 3.6-2: Implementation of the proposed Project, in combination with other cumulative development, would not result in the inefficient, wasteful, or unnecessary use of energy resources during operation or construction, and would not conflict with or obstruct plans for renewable energy or energy efficiency. (Less than Significant)

The CEQA Guidelines require consideration of the potentially significant energy implications of a Project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). According to the CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. In particular, the proposed Project would be considered "wasteful, inefficient, and unnecessary" if it were to violate State and federal energy standards and/or result in significant adverse impacts related to Project energy requirements, energy inefficiencies, energy intensiveness of materials, cause significant impacts on local and regional energy supplies or generate requirements for additional capacity, fail to comply with existing energy standards, otherwise result in significant adverse impacts on energy resources, or conflict or create an inconsistency with applicable plan, policy, or regulation.

Projects constructed within the State would be in compliance with all applicable federal, State, and local regulations regulating energy usage. For example, PG&E and/or MID, the electricity provider to the proposed Project, is responsible for the mix of energy resources used to provide electricity for its customers, and it is in the process of implementing the statewide RPS to increase the proportion of renewable energy (e.g., solar and wind) within its energy portfolio. For example, both PG&E and MID had achieved more than a 33 percent mix of renewable energy resources by 2020 and is on track to achieve 60 percent mix of renewable energy by 2030. Other statewide measures, including those intended to improve the energy efficiency of the statewide passenger and heavy-duty truck vehicle fleet (e.g., the Pavley Bill and the Low Carbon Fuel Standard), would improve vehicle fuel economies, thereby conserving gasoline and diesel fuel. These energy savings would continue to accrue over time.

Development throughout the State would comply with all existing energy standards and would not be expected to result in significant adverse impacts on energy resources. For these reasons, cumulative development would not cause an inefficient, wasteful, or unnecessary use of energy resources nor cause

a significant impact on any of the thresholds as described by the *CEQA Guidelines*. Therefore, cumulative impacts associated with energy would be ***less than significant.***

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

This section provides a background discussion of the seismic and geologic hazards found in the Plan Area and the regional vicinity. This section is organized with an environmental setting, regulatory setting, and impact analysis. This section is based in part on the *Draft 2030 Merced County General Plan Environmental Impact Report*, *2030 Merced County General Plan*, *Environmental Impact Report for the Merced Vision 2030 General Plan*, *The City of Merced Vision 2030 General Plan*, and the National Resource Conservation Service *Web Soil Survey*.

There were no comment letters received during the NOP comment period that specifically addressed geology and soils (see Appendix A).

3.7.1 ENVIRONMENTAL SETTING

GEOLOGIC SETTING

Regional Setting

The Project site is located in the southern half of the Great Valley geomorphic province, and is also referred to as the San Joaquin Valley. The San Joaquin Valley is bounded by the Sierra Nevada on the east and the Coast Ranges on the west.[1] The San Joaquin River on the west side of the valley drains the Great Valley Province into the San Joaquin Delta to the north, ultimately discharging into the San Francisco Bay to the northwest. The major geologic formations in Merced County are the Basement Complex, Ione Formation, Valley Springs Formation, and Mehrten Formation. The Basement Complex consists of igneous and metamorphic rock. The Ione Formation consists of sandstone and conglomerate, and the Valley Springs Formation is mainly rhyolitic sandstone, siltstone, and claystone. The Mehrten Formation consists of sands, clays, conglomerate, sandstone, siltstone, and claystone.

The San Joaquin Valley has been filled with a thick sequence of sedimentary deposits of Jurassic to recent age. The area around Merced, including the Project site, is primarily underlain by the Pleistocene Modesto and Riverbank Formations with Holocene alluvial deposits in the drainages.

Local Setting

The Project site is relatively flat, gently sloping from north to south, and is currently fallowed grazing land while awaiting development for urban uses. The Project site is bounded by existing Bellevue Road, ranchette parcels, vacant land, the Merced Irrigation District (MID) Yosemite Lateral and the future University Vista Project to the north; Lake Road and the University of California, Merced (UC Merced) parking lot (Bellevue Lot) to the east; open vacant land parcels designated Mixed Use and Low Density to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west.

[1] United States Geological Survey, 2024. California's Central Valley. Available: https://ca.water.usgs.gov/projects/central-valley/about-central-valley.html. Accessed: June 6, 2024.

Soils

The Project site is underlain by old deposits of alluvial (Qoa),[2] which forms low terraces of gravelly sand.[3] Review of available groundwater information provided by the California Department of Water Resources indicates that a monitored well is located approximately 2.7 miles southeast of the Project site, and has a well depth of 341 feet below the ground surface.[4]

A soils map was prepared for the Project site using the Natural Resources Conservation Service (NRCS) Web Soil Survey program. The NRCS soils map is provided in **Figure 3.7-1**. **Table 3.7-1** identifies the type and range of soils found in the Project area.

TABLE 3.7-1: DEVELOPMENT AREA SOILS

UNIT SYMBOL	*NAME*	*ACRES IN DEVELOPMENT AREA*	*PERCENT OF TOTAL*
3HA	Hopeton clay loam, 0 to 3 percent slopes	5.36	14.4%
3HB	Hopeton clay loam, 3 to 8 percent slopes	0.41	1.1%
CgB	Corning gravelly loam, 0 to 8 percent slopes	20.09	54.0%
RbA	Raynor cobbly clay, 0 to 3 percent slopes	6.16	16.5%
ReB	Redding gravelly loam, 0 to 8 percent slopes, dry	5.21	14.0%
	Total	**37.23**	**100%**

SOURCE: UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL RESOURCE CONSERVATION SERVICE, WEB SOIL SURVEY, 2024. AVAILABLE: HTTPS://WEBSOILSURVEY.NRCS.USDA.GOV/APP/WEBSOILSURVEY.ASPX. ACCESSED JUNE 20, 2024.

As shown in Table 3.7-1, the majority of soils within the Development Area consist of corning gravelly loam (54.0 percent) and raynor cobbly clay (16.5 percent). Below is a brief description of prominent soils within the Project area.[5]

Corning soil series. The Corning series consists of very deep, well or moderately well drained soils formed in gravelly alluvium weathered from mixed rock sources. Corning soils are on treads and risers on high fan remnants. Slopes are 0 to 30 percent. The mean annual precipitation is about 23 inches and the mean annual temperature is about 62 degrees F.

Hornitos soil series. Raynor soil is one of the principals' associated soils of the Hornitos soil series. Raynor soils are underlain by tuff. The Hornitos series is a member of a loamy, mixed, active, thermic family of

[2] California Department of Conservation, 2024. Data Viewer: Quaternary Surficial Geology. Available: https://maps.conservation.ca.gov/cgs/DataViewer/index.html. Accessed: June 18, 2024.

[3] United States Geological Survey, n.d. Description of Map Units. Available: https://pubs.usgs.gov/of/1998/0579/pdf/fskn_dmu.pdf . Accessed June 18, 2024.

[4] California Department of Water Resources, 2024. SGMA Data Viewer. Available: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#currentconditions. Accessed: June 18, 2024.

[5] United States Department of Agriculture, National Resource Conservation Service, Official Soils Series Descriptions, 2024. Available: https://soilseries.sc.egov.usda.gov/osdname.aspx. Accessed June 19, 2024.

Lithic Dystroxerepts. The soils have pale brown, strongly acid, fine sandy loam A horizons, reddish yellow, strongly acid, fine sandy loam B2 horizons overlying sandstone.

Kimball soil series. The Hopeton series is inactivated and combined with the Kimball series. The Kimball series consists of very deep, well drained soils formed in alluvium from mixed sources. Kimball soils are on low terraces and have slopes of 0 to 15 percent. The mean annual precipitation is about 22 inches and the mean annual temperature is about 61 degrees F.

Redding soil series. The Redding series consists of moderately deep to duripan, well or moderately well drained soils that formed in alluvium derived from mixed sources. They are on nearly level or dissected fan remnants. Slopes are 0 to 30 percent. The average annual precipitation is about 24 inches (630 mm) and the average annual temperature is about 63 degrees F (17 degrees C).

SOIL HAZARDS

Erosion

Erosion refers to a process of wearing away of the land surface (e.g., rocks, soil) by running water, waves, or moving ice and wind, or by such processes as mass wasting and corrosion.[6] Two common types of soil erosion include wind erosion and water erosion. Erosion potential in soils is influenced by several factors, including rainfall intensity, steepness and length of slope, vegetative cover, and management practices.[7] Loose soils can be eroded by water or wind forces, whereas soils with high clay content are generally susceptible to water erosion. The potential for erosion generally increases because of human activity, such as through the development and the removal of vegetative cover.

The NRCS soils map identified the erosion potential for the soils in the Project site. This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. Soil property data for each map unit component includes the hydrologic soil group, erosion factors “Kf” for the surface horizon, erosion factor “T”, and the representative percentage of sand, silt, and clay in the surface horizon.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water.[8] Values of “K” range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Within the Project site, the erosion factor “Kf” exhibits a wide range, varying from 0.10 to 0.24, which is considered a low to moderate potential for erosion. Furthermore, because the Project site is relatively flat with a gentle slope, the erosion potential is slight.

6 United States Department of Agriculture, Natural Resources Conservation Service, 2024. National Soil Survey Handbook. Available: https://directives.sc.egov.usda.gov/landingpage/b93959f3-be3e-4b6f-86a6-6357d67e80e1. Accessed: June 18, 2024.

7 University of California, 2006. Publication 8194, Erodibility of Agricultural Soils. Available: https://anrcatalog.ucanr.edu/pdf/8194.pdf. Accessed: June 18, 2024.

8 United States Department of Agriculture, National Resource Conservation Service, 2024. Web Soil Survey. Available: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed: June 20, 2024.

Expansive Soils

Expansive soils can undergo significant volume change with changes in moisture content. In general, expansive soils shrink and harden when dried, and swell and soften when wet. Such changes can cause distress to building foundations and structures, slabs on grade, pavements, and other surface improvements.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state.[9] Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than three percent; moderate if three to six percent; high if six to nine percent; and very high if more than nine percent. If the linear extensibility is more than three, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots; special design commonly is needed.

The County of Merced General Plan EIR does not list areas with soils that have moderate or high shrink-swell potential. However, with the establishment of the 2010 CBC and the newly defined seismic categories C, D, and E, the County of Merced requires that proposed development or construction in high hazard seismic areas or areas with expansive soils must first submit a soils.[10] Upon review and acceptance of the soil report, the County would require that all identified design and construction measures necessary to reduce risks to acceptable levels as defined by the CBC be implemented.

Landslides

The California Geological Survey classifies landslides based on the type of material that failed and the type of movement that the failed material exhibited.[11] Material types are broadly categorized as either rock or soil, or a combination of the two for complex movements. Landslide movements are categorized as falls, topples, spreads, slides, or flows. Landslide potential is influenced by physical factors, such as slope, soil, vegetation, and precipitation. Landslides require a slope, and can occur naturally from seismic activity, excessive saturation, and wildfires, or from human-made conditions such as construction disturbance, vegetation removal, or wildfires.

The areas in Merced County with the greatest potential susceptibility to landslide hazards are in the far southwest of the county, on the western side of Interstate 5.[12] As previously stated, the Project area is relatively flat with only a gentle slope; therefore, the potential for a landslide is low.

9 United States Department of Agriculture, Natural Resources Conservation Service, 2024. National Soil Survey Handbook. Available: https://www.nrcs.usda.gov/resources/guides-and-instructions/national-soil-survey-handbook. Accessed: June 18, 2024.

10 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November. p. 10-11.

11 California Department of Conservation, California Geological Survey, 2024. Landslides. Available: https://www.conservation.ca.gov/cgs/landslides. Accessed: June 18, 2024.

12 County of Merced, 2021. 2021-2026 Merced County Multi-Jurisdictional Hazard Mitigation Plan. Page 4-87.

Collapsible Soils

Collapsible soils are defined as any unsaturated soil that goes through a radical rearrangement of particles and greatly decreases in volume upon wetting, additional loading, or both.[13] These soils are typically found in arid or semiarid regions and have a loose soil structure and a water content far less than saturation. Four conditions are necessary for soil collapse to occur: an open, partially unstable, partially saturated fabric; sufficient total stress to make the soil structure metastable; presence of a bonding agent or sufficient soil suction to stabilize the soil in the metastable condition; and the addition of water, which reduces soil suction, or softens/destroys the bonding agent, thereby causing shear failures at the inter-aggregate or inter-particle contacts.[14] Examples of common problems associated with collapsible soils include tilting floors, cracking or separation in structures, sagging floors, and nonfunctional windows and doors.

Collapsible soils have not been identified in the County of Merced General Plan EIR as an issue in the county area. However, the potential for liquefaction exists due to unconsolidated sediments and a high water table in Merced County's wetland areas adjacent to the San Joaquin River, extending west to the Union Pacific Railroad and east towards State Route 99.[15] This area is well to the southwest of the Project site and would not affect the soil stability of the Project site.

Subsidence

Land subsidence is a gradual settling or sudden sinking of the Earth's surface due to removal or displacement of subsurface earth materials.[16] Common causes of land subsidence include: aquifer-system compaction associated with groundwater withdrawals; drainage of organic soils; underground mining; and natural compaction or collapse. Subsidence takes place gradually, usually over a period of several years.

There is low risk of land surface subsidence or mine collapse in Merced County due to the general absence of subsurface rock mining operations within the county.[17]

FAULTS AND SEISMICITY

Seismic hazards include both rupture (surface and subsurface) along active faults and ground shaking, which can occur over wider areas. Ground shaking, produced by various tectonic phenomena, is the principal source of seismic hazards in areas devoid of active faults. All areas of the state are subject to some level of seismic ground shaking.

13 United States Bureau of Reclamation (Knodel, Paul C.), 1992. Characteristics and Problems of Collapsible Soils. Available: https://www.usbr.gov/tsc/techreferences/rec/R9202.pdf. Accessed: June 18, 2024.

14 California Department of Transportation, 2024. Geotechnical Manual, Collapsable Soil. February. Available: https://dot.ca.gov/-/media/dot-media/programs/engineering/documents/geotechnical-services/202402-gm-collapsiblesoil-a11y.pdf. Accessed: June 18, 2024.

15 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

16 United States Geological Survey, 2024. Land Subsidence. Available: https://www.usgs.gov/mission-areas/water-resources/science/land-subsidence#overview. Accessed: June 18, 2024.

17 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

Faults

Faults are defined as tectonic fractures or breaks in the earth's crust along which displacement (horizontal, vertical, or diagonal movement) has taken place.[18] Movement between these plates may occur rapidly, in the form of an earthquake, or may occur slowly, in the form of creep.[19] During an earthquake, the rock on one side of the fault suddenly slips with respect to the other.

Faults are classified as Historic, Holocene, Late Quaternary, Quaternary, and Pre-Quaternary according to the age of most recent movement.[20] These classifications are described as follows:

- **Historic:** faults on which surface displacement has occurred within the past 200 years;
- **Holocene:** shows evidence of fault displacement within the past 11,000 years, but without historic record;
- **Late Quaternary:** shows evidence of fault displacement within the past 700,000 years, but may be younger due to a lack of overlying deposits that enable more accurate age estimates;
- **Quaternary:** shows evidence of displacement sometime during the past 1.6 million years; and
- **Pre-Quaternary:** without recognized displacement during the past 1.6 million years.

Faults are further distinguished as active, potentially active, or inactive.[21]

- **Active:** An active fault is a Historic or Holocene fault that has had surface displacement within the last 11,000 years;
- **Potentially Active:** A potentially active fault is a pre-Holocene Quaternary fault that has evidence of surface displacement between about 1.6 million and 11,000 years ago; and
- **Inactive:** An inactive fault is a pre-Quaternary fault that does not have evidence of surface displacement within the past 1.6 million years. The probability of fault rupture is considered low; however, this classification does not mean that inactive faults cannot, or will not, rupture.

The nearest faults of major significance are the San Andreas to the west of Merced County, a distance of approximately 15 miles from the county line; the Hayward and Calaveras faults to the northwest; the White Wolf, Garlock, and Sierra Nevada faults to the south; and the Bear Mountain Fault Zone about 5 miles east of and parallel to the eastern border of Merced County.[22] The Telsa-Ortigalita Fault is the only fault located within the county. This fault has not been active in historic times, however, there is no

[18] California Department of Conservation (Jennings, C. & Bryant, W.), 2010. California Geological Survey An Explanatory Text to Accompany the Fault Activity Map of California. Available: https://www.conservation.ca.gov/cgs/Documents/Melange/FAM_phamplet.pdf. Accessed: June 18, 2024.

[19] United States Geological Survey, 2024. What is a fault and what are the different types? Available: https://www.usgs.gov/faqs/what-a-fault-and-what-are-different-types. Accessed: June 18, 2024.

[20] California Department of Conservation (Jennings, C. & Bryant, W.), 2010. California Geological Survey An Explanatory Text to Accompany the Fault Activity Map of California. Available: https://www.conservation.ca.gov/cgs/Documents/Melange/FAM_phamplet.pdf. Accessed: June 18, 2024.

[21] California Department of Conservation (Jennings, C. & Bryant, W.), 2010. California Geological Survey An Explanatory Text to Accompany the Fault Activity Map of California. Available: https://www.conservation.ca.gov/cgs/Documents/Melange/FAM_phamplet.pdf. Accessed: June 18, 2024.

[22] County of Merced, 2021. 2021-2026 Merced County Multi-Jurisdictional Hazard Mitigation Plan. Page 4-47.

guarantee that it will never become active again. **Figure 3.7-2** provides a map of known area faults in relation to the Project site.

Seismicity

Earthquakes are generally expressed in terms of intensity and magnitude. Several scales may be used to measure the strength or intensity of an earthquake.[23] Magnitude scales, like the moment magnitude (Mw), measure the size of the earthquake at its source. An earthquake event has a single magnitude; however, the degree of ground shaking that the earthquake causes varies from place to place based on distance, type of surface material, and other factors. Magnitude is expressed as a number. For example, a magnitude 5.3 is a moderate earthquake, and a 6.3 is a strong earthquake. Because of the logarithmic basis of the magnitude scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude as measured on a seismogram.

In contrast to magnitude, other scales describe earthquake intensity, which can vary depending on distance from earthquake epicenter and local characteristics. The Modified Mercalli Intensity Scale expresses earthquake intensity experienced at a particular location on a scale of increasing levels of intensity that range from imperceptible shaking to catastrophic destruction. It does not have a mathematical basis; instead, it is an arbitrary ranking based on observed effects. **Table 3.7-2** represents the potential effects of an earthquake based on the Modified Mercalli Intensities.

TABLE 3.7-2: MODIFIED MERCALLI INTENSITIES AND EFFECTS

INTENSITY	*SHAKING*	*DESCRIPTION/DAMAGE*
I	Not felt	Not felt except by very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Vibrations similar to the passing of a truck.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like a heavy truck striking a building. Standing vehicles are rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened: Some dishes and windows are broken. Unstable objects are overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, and many are frightened. Some heavy furniture is moved; a few instances of fallen plaster occur. Damage is slight.
VII	Very strong	Damage is negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys are broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.

[23] United States Geological Survey, 2024. Earthquake Magnitude, Energy Release, and Shaking Intensity. Available: https://www.usgs.gov/programs/earthquake-hazards/earthquake-magnitude-energy-release-and-shaking-intensity. Accessed: June 18, 2024.

INTENSITY	*SHAKING*	*DESCRIPTION/DAMAGE*
IX	Violent	Damage is considerable in specially designed structures; well-designed frame structures are thrown out of plumb. Damage is great in substantial buildings, with partial collapse. Buildings are shifted off foundations.

SOURCE: UNITED STATES GEOLOGICAL SURVEY, 2024. THE MODIFIED MERCALLI INTENSITY SCALE. AVAILABLE: HTTPS://WWW.USGS.GOV/PROGRAMS/EARTHQUAKE-HAZARDS/MODIFIED-MERCALLI-INTENSITY-SCALE. ACCESSED: JUNE 18, 2024.

SEISMIC HAZARDS

Alquist-Priolo Special Study Zone

An active earthquake fault, per California's Alquist-Priolo Act, is one that has ruptured within the Holocene Epoch (about the last 11,000 years).[24] The Alquist-Priolo Act requires the State Geologist to delineate Earthquake Fault Zones along known Holocene-active faults in California. These Earthquake Fault Zones are identified in Special Publication 42 (SP42), which is updated as new fault data become available. The SP42 lists all counties and cities within California that are affected by designated Earthquake Fault Zones. The Fault Zones are delineated on maps within SP42 (Earthquake Fault Zone Maps).

There is only one active fault identified in the county by the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA): the Ortigalita Fault, which is located along the western quarter of the county within the Coast Range Mountains.[25] The Ortigalita Fault Zone is located approximately 46 miles southwest from the Project site.[26]

Fault Rupture

Surface fault rupture is the result of fault movement that breaks to the surface of the earth either suddenly during earthquakes, or slowly due to a process known as fault creep, and is the result of tectonic movement that originates deep in the Earth.[27] Surface fault rupture poses a hazard to structures and infrastructure because the displacement that occurs can severely damage buildings. Fault rupture almost always follows pre-existing faults, which are zones of weakness.[28] The Alquist-Priolo Fault Zoning Act requires active earthquake fault zones to be mapped and it provides special development considerations within these zones. It is important to note that the Alquist-Priolo Act only addresses the hazard of surface fault rupture for Holocene-active faults; Pre-Holocene faults may also have the potential to rupture but

[24] California Department of Conservation, California Geological Survey. 2018 (revised). Earthquake Fault Zones (Special Publication 42). Available: https://www.conservation.ca.gov/cgs/documents/publications/special-publications/SP_042-a11y.pdf. Accessed: June 19, 2024.

[25] County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

[26] California Department of Conservation, California Geologic Survey. Earthquake Zones of Required Investigation. Available: https://maps.conservation.ca.gov/cgs/EQZApp/. Accessed: June 20, 2024.

[27] California Department of Conservation, California Geological Survey. 2018 (revised). Earthquake Fault Zones (Special Publication 42). Available: https://www.conservation.ca.gov/cgs/documents/publications/special-publications/SP_042-a11y.pdf. Accessed: June 19, 2024.

[28] California Department of Conservation, California Geological Survey, 2023. CGS Note 54. Available: https://www.conservation.ca.gov/cgs/documents/publications/cgs-notes/CGS-Note-54-SoCal-Regulatory-Earthquake-Hazard-Zones-a11y.pdf. Accessed: June 19, 2024.

are not addressed by the Alquist-Priolo Act. The Project site does not have surface expression of active faults and fault rupture is not anticipated.

Seismic Ground Shaking

The potential for seismic ground shaking in California is expected. As a result of the foreseeable seismicity in California, the State requires special design considerations for all structural improvements in accordance with the seismic design provisions in the California Building Code. These seismic design provisions require enhanced structural integrity based on several risk parameters. According to the 2021-2026 Merced County Hazard Mitigation Plan (HMP), based on the earthquake shaking potential mapped for Merced County, the proximity to the San Andreas Fault with a history of shaking, but no surface rupture, the probability of damaging seismic ground shaking in Merced County is considered "occasional".[29]

Liquefaction

Liquefaction, which is primarily associated with loose, saturated materials, is most common in areas of sand and silt or on reclaimed lands. Cohesion between the loose materials that comprise the soil may be jeopardized during seismic events and the ground will take on liquid properties. Thus, specific soil characteristics and seismic shaking must exist for liquefaction to be possible. Liquefaction typically requires a significant sudden decrease of shearing resistance in cohesionless soils and a sudden increase in water pressure, which is typically associated with an earthquake of high magnitude.

The California Geological Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones. These mapped areas are considered at risk of liquefaction-related ground failure during a seismic event based upon mapped surficial deposits. The Project site is not currently mapped for potential liquefaction hazard by the CGS.[30]

The potential for liquefaction is highest when groundwater levels are high, and loose, fine, sandy soils occur at depths of less than 50 feet. Specific liquefaction hazard areas in the county have not been identified.[31] However, the potential for liquefaction exists due to unconsolidated sediments and a high-water table in Merced County's wetland areas adjacent to the San Joaquin River, extending west to the Union Pacific Railroad and east towards State Route 99.

Lateral Spreading

Lateral spreading is a type of ground deformation that occurs when surface material extends or spreads on gentle slopes.[32] Ground shaking, especially when inducing liquefaction, may cause lateral spreading toward unsupported slopes. Oftentimes, lateral spreading is directly associated with areas of liquefaction. Given the extent of alluvium along the valley floor, development may also occur on unstable soils

29 County of Merced, 2021. 2021-2026 Merced County Multi-Jurisdictional Hazard Mitigation Plan. Page 4-52.

30 California Department of Conservation, California Geological Survey, 2024. Earthquake Zones of Required Investigation. Available: https://maps.conservation.ca.gov/cgs/EQZApp/app/. Accessed: June 20, 2024.

31 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

32 United States Geological Survey, 2024. Lateral Spread. Available: https://www.usgs.gov/media/images/lateral-spread. Accessed: June 20, 2024.

vulnerable to liquefaction or lateral spreading, and some county areas have already undergone subsidence from groundwater overdraft.[33]

Earthquake-Induced Landslides

Earthquake-Induced Landslide Zones Areas are areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required. The California Geological Survey Zones of Required Investigation map does not identify any seismically-induced landslide zones in the Project site.[34]

PALEONTOLOGICAL RESOURCES

The following information is from the County of Merced General Plan EIR.

The Sierra Nevada was formed during the Mesozoic Era (208-65 million years ago), but the region that would become the San Joaquin Valley lay several thousand feet below the surface of the Pacific Ocean. After the basic form of the Great Central Valley took shape during the Cenozoic period, the Sierra Nevada eroded to hills, the Coast Ranges rose, and the San Joaquin Valley began to form. The paleontological setting includes the Palocene Epoch, Eocene Epoch, Oligocene Epoch, Pliocene Epoch, and the Pleistocene Epoch (2 million to 10,000 years ago) when the Sierra Nevada range became increasingly elevated and glaciations occurred, resulting in the formation of features such as Yosemite Valley. It was not until the Holocene Epoch (10,000 years ago to the present) that the San Joaquin Valley was above sea level and attained its present day appearance.

Records of paleontological finds maintained by the University of California Berkeley Museum of Paleontology state that there are 12 localities (places where fossil remains have been found) in Merced County. These occur in three major formations: the Moreno, Panoche, and Kreyenhagen formations, which are exposed primarily in the western part of the county in the Coast Range. Therefore, there is a possibility for paleontological resources to be discovered at the Project site.

3.7.2 REGULATORY SETTING

FEDERAL

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act of 1977 established the National Earthquake Hazards Reduction Program (NEHRP). Under the NEHRP, four federal agencies have responsibility for long-term earthquake risk reduction: the U.S. Geological Survey (USGS), the National Science Foundation (NSF), the Federal Emergency Management Agency (FEMA), and the National Institute of Standards and Technology (NIST). NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerability; improvements of building codes and land use practices; risk reduction through post-

[33] County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

[34] California Department of Conservation, California Geological Survey, 2024. Earthquake Zones of Required Investigation. Available: https://maps.conservation.ca.gov/cgs/EQZApp/app/. Accessed: June 20, 2024.

earthquake investigation and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results.

STATE

Earthquake Fault Zoning Act (Alquist-Priolo Act)

The State of California Alquist-Priolo Earthquake Fault Zoning Act (1972) was established to mitigate the hazard of surface faulting to structures for human occupancy. Pursuant to the act, the State geologist has established regulatory zones (known as earthquake fault zones) around surface traces of active faults. Application for a development permit for any project within a delineated earthquake fault zone shall be accompanied by a geologic report, prepared by a geologist registered in the State of California, that is directed to the problem of potential surface fault displacement through a Project site.

Seismic Hazards Mapping Act

The Seismic Hazard Mapping Act (SHMA) was adopted by the State in 1990 to protect the public from the effects of non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, ground amplification or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The California Geological Survey (CGS) is the primary agency responsible for the implementation of the SHMA. The CGS prepares maps identifying seismic hazard zones and provides them to local governments, which include areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. SHMA requires responsible agencies to only approve projects within these zones following a site-specific investigation to determine if the hazard is present, and if so, the inclusion of appropriate mitigation(s). In addition, the SHMA requires real estate sellers and agents at the time of sale to disclose whether a property is within one of the designated seismic hazard zones.

California Building Standards Code, Title 24

Title 24 of the California Code of Regulations (CCR) provides State regulations that govern the design and construction of buildings, associated facilities, and equipment. These regulations are also known as California Building Standards Code (CBSC) (reference California Health and Safety Code § 18909). Cities and counties are required by State law to enforce CCR Title 24, and may adopt ordinances making more restrictive requirements than provided by CCR Title 24 due to local climatic, geological, or topographical conditions.

National Pollutant Discharge Elimination System (NPDES)

NPDES permits are required for discharges to navigable waters of the United States, which includes any discharge to surface waters, including lakes, rivers, streams, bays, oceans, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. NPDES permits are issued under the Federal CWA, Title IV, Permits and Licenses, Section 402 (33 USC 466 *et seq*.).

The RWQCB issues these permits in lieu of direct issuance by the EPA, subject to review and approval by the EPA Regional Administrator (EPA Region 9). The terms of these NPDES permits implement pertinent provisions of the CWA and implementing regulations, including pre-treatment, sludge management,

effluent limitations for specific industries, and anti-degradation. In general, the discharge of pollutants is to be eliminated or reduced as much as practicable so as to achieve the CWA's goal of "fishable and swimmable" navigable (surface) waters. Technically, all NPDES permits issued by the RWQCB are also Waste Discharge Requirements issued under the authority of the CWA.

These NPDES permits regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. NPDES permits are issued for five years or less, and are therefore to be updated regularly. Individual projects in the City that disturb more than one acre would be required to obtain NPDES coverage under the California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit). The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing BMPs the discharger would use to prevent and retain storm water runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

A Phase II Small Municipal Separate Storm Sewer (MS4) General Permit was adopted by the SWRCB on February 5, 2013 (Water Quality Order No. 2013-0001-DWQ, NPDES NO. CAS000004, as amended).

LOCAL

City of Merced

MERCED VISION 2030 GENERAL PLAN

The City of Merced Vision 2030 General Plan contains the following goals and policies that are relevant to geology and soils:

Open Space, Conservation & Recreation Element

GOAL OS-5. Conservation of Resources: Preservation and Protection of Soil Resources.

Policy OS-5.2: Protect Soil Resources from the Erosive Forces of Wind and Water.

Safety Element

Goal Area S-2. Seismic Safety: Reasonable Safety for City Residents from the Hazards of Earthquake and Other Geologic Activity.

Policy S-2.1. Reduce the potential danger from earthquake and seismic-related activity from existing buildings where necessary.

Policy S-2.2. Encourage the improvement of all public facilities and infrastructure such as natural gas, fuel, sewer, water, electricity, and railroad lines and equipment with up-to-date seismic safety features.

Policy S-2.3. Restrict urban development in all areas with potential ground failure characteristics.

BELLEVUE CORRIDOR COMMUNITY PLAN

The Bellevue Community Plan (BCP) contains the following goals and policies that are relevant to geology and soils:

Goal Area UD-2. Overall Community Appearance and Function

Policy UD-2.1: Development of private and public lands will seek to maintain existing topographical features. The hilly terrain in the planning area is unique to the City of Merced and should be maintained. The vista and swale topography provide opportunities for open space corridors, curving roadways, and distinct place-making opportunities whether on public or private lands. Removal of large amounts of soil should be avoided; rather the development should fit the character of the land.

MUNICIPAL CODE

Chapter 15.50, *Stormwater Management and Discharge Control*, contains the City's Stormwater Management and Discharge Control Ordinance. The purpose of the Ordinance is to establish minimum stormwater management requirements and controls to assist in the protection and enhancement of the water quality of watercourses, water bodies and wetlands in a manner pursuant to and consistent with the Federal CWA by reducing pollutants in stormwater discharges to the maximum extent practicable. In accordance with the Ordinance, all construction projects having soil disturbance or activities exposed to stormwater must implement BMPs for erosion and sediment controls, soil stabilization, source controls, pollution prevention measures, and prohibited discharges.

Title 17, *Buildings and Construction*, monitors and regulates buildings in the City through the establishment of construction, operation, and maintenance provisions. This title adopts the 2022 CBSC, including the California Building Code (CBC), the California Residential Code, the California Plumbing Code, the California Energy Code, and the California Green Building Standards Code (Cal Green), with local amendments.

Title 18, *Subdivisions*, contains the City's Subdivision Ordinance. Section 18.24.190, *Preliminary soil report,* requires the preparation of a preliminary soil report by a civil engineer who is registered by the state, based upon adequate test borings or excavations of every subdivision for which a final map is required containing data as required by the city engineer. The preliminary soil report may be waived if the city engineer determines that, due to his knowledge of the soil qualities of the subdivision, no preliminary analysis is necessary.

LOCAL HAZARD MITIGATION PLAN

The City of Merced has adopted a Local Hazard Mitigation Plan (LHMP) in 2015, where potential natural hazards that threaten communities are identified such as flooding, earthquakes, fire, and fog. The LHMP explains how these natural hazards would affect the community and provide strategies to save lives and reduce property damage in the event that one of these types of natural disasters occurs in the City.

County of Merced

2030 MERCED COUNTY GENERAL PLAN

The 2030 Merced County General Plan contains the following goals and policies that are relevant to geology and soils:

Health and Safety Element

GOAL HS-1. Minimize the loss of life, injury, and property damage of County residents due to seismic and geologic hazards.

Policy HS-1.1: Structure Location and Compliance (RDR). Require that all new habitable structures be located and designed in compliance with the Alquist-Priolo Special Studies Zone Act and related State earthquake legislation.

Policy HS-1.2: Financial Assistance for Seismic Upgrades (RDR/FB). Support efforts to obtain financial assistance from Federal and State agencies in order to implement corrective seismic safety measures required for existing County buildings and structures.

Policy HS-1.3: Dam Inundation Areas (RDR). Require all new structures located within dam inundation areas to conform to standards of dam safety as required by the State Division of Safety of Dams.

Policy HS-1.4: Ensure Earthquake Resistant Design (RDR). Require earthquake resistant design for proposed critical structures such as hospitals, fire stations, emergency communication centers, private schools, high occupancy buildings, bridges and freeway overpasses, and dams that are subject to County permitting requirements.

Policy HS-1.5: Public Education (RDR). Encourage educational programs to inform the public of earthquake dangers in Merced County.

Policy HS-1.6: Landslide Areas (RDR). Prohibit habitable structures on areas of unconsolidated landslide debris or in areas vulnerable to landslides.

Policy HS-1.7: Hillside Development (RDR). Discourage construction and grading on slopes in excess of 30 percent.

Policy HS-1.8: Grading Standards (RDR). Require that the provisions of the International Building Code be used to regulate projects subject to hazards from slope instability.

Policy HS-1.9: Unstable Soils (RDR). Require and enforce all standards contained in the International Building Code related to construction on unstable soils.

Natural Resources Element

GOAL NR-3. Facilitate orderly development and extraction of mineral resources while preserving open space, natural resources, and soil resources and avoiding or mitigating significant adverse impacts.

Policy NR-3.1: Soil Protection (RDR/SO). Protect soil resources from erosion, contamination, and other effects that substantially reduce their value or lead to the creation of hazards.

Policy NR-3.2: Soil Erosion and Contamination (RDR). Require minimal disturbance of vegetation during construction to improve soil stability, reduce erosion, and improve stormwater quality.

Policy NR-3.3: **Soil Improvement (RDR).** Encourage landowners to participate in programs that reduce soil erosion and increase soil productivity. This shall include promoting and coordinating the efforts of University of California Cooperative Extension, various Resource Conservation Districts, and other similar agencies and organizations.

Policy NR-3.4: New Development Compatibility (RDR). Ensure that new development is compatible with existing and potential surface mining areas and operations as identified on the Mineral Resource Zone Maps prepared by the State Division of Mines and Geology and other mineral resource areas identified by the County. The County shall:

a. Require development applicants near identified mineral resources to prepare a statement that specifies why the County should permit the proposed land use and describe how the benefits of the proposed use would clearly outweigh the impacts that may limit the potential to extract mineral resources in that area.
b. Require new incompatible land uses adjacent to existing mining operations to provide a buffer between the development and adjacent mining operations adequate to mitigate significant impacts to mineral land uses. The buffer distance shall be based on an evaluation of noise, aesthetics, drainage, operating conditions, biological resources, topography, lighting, traffic, operating hours, and air quality.
c. Require written notification to be sent to mining operators and subject landowners of land use entitlement applications for potentially incompatible land uses in areas where mining operations are currently taking place.

Policy NR-3.12: **Sand and Gravel Extraction Control (RDR).** Ensure that strict control is maintained on sand and gravel extractions in streambed channels and within areas designated as having sensitive habitat and open space resources.

Policy NR-3.14: **Residual Mercury Survey and Mitigation Requirement (RDR/SO).** Require the evaluation of existing mercury deposits within dredge tailings for mining, urban development, and infrastructure projects located in the historic dredger tailings along the Merced River or elsewhere in the county, and identify adequate mitigation necessary to prevent the migration of mercury-containing sediments or fines to the Merced River or its tributary waterways, or result in the contamination of adjacent properties as a result of the construction process by severing all exposure pathways that could result in the release of mercury into the aquatic environment.

Policy NR-3.15: **Drainage Course Setbacks (RDR/SO/IGC).** Within all areas designated for urban land uses by the 2030 General Plan, all structures, paving, or grading shall be set back from rivers, creeks, channels or other major waterways at least twenty feet from the top of bank or twenty

feet plus twice the channel depth measured from the toe of the near embankment, whichever is greater, unless a greater setback is required by state or federal regulation.

MUNICIPAL CODE

County of Merced Municipal Code Title 16, *Buildings and Construction*, adopts various codes and safety precautions that regulate development activities within the County. Chapter 16.16, *Building Code*, adopts an amended version of the 2022 California Building Code (Title 24, California Code of Regulations, Part 2) of the State of California, and appendices, as amended to address local conditions.

Chapter 18.36, *Landscaping*, establishes minimum landscape standards for all uses for enhancing the appearance of developments, reducing heat and glare, controlling soil erosion, enhancing on-site stormwater management, conserving water, establishing a buffer and/or screen between residential and non-residential land uses, and ensuring the ongoing maintenance of landscaped areas in the County.

Chapter 9.53, *Regulation of Stormwater*, contains the County's storm water control ordinance. The ordinance addresses County requirements for stormwater management and discharge control, including controlling erosion, sedimentation, and other pollutant runoff.

Title 17, *Subdivision*, contains the County's Subdivision Ordinance, which requires that soils reports, geologic reports, and other factors pertinent to the particular site location be provided as part of the application for a tentative subdivision map, unless the county engineer determines that no preliminary analysis is necessary.

MERCED COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The 2021-2026 Merced County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is a Countywide plan that identifies risks and ways to minimize damage from natural and human-caused hazards. Merced County including the participating jurisdictions of the have prepared this MJHMP to guide hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. This plan demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources.

3.7.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to geology and soils if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving;
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42;
    - Strong seismic ground shaking;

  - Seismic-related ground failure, including liquefaction; and
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Tables 18-1-D of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; and/or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

IMPACTS AND MITIGATION

Impact 3.7-1: Implementation of the proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic related ground failure, or landslides. (Less than Significant)

The Project site is not located within a currently designated Alquist-Priolo Special Study Zone and no known surface expression of active faults is believed to exist within the site. There is only one active fault identified in Merced County by the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA): the Ortigalita Fault, which is located along the western quarter of the county within the Coast Range Mountains.[35] The Ortigalita Fault is located approximately 46 miles southwest of the Project site.

The Project site is not currently mapped for potential liquefaction hazard by the CGS. The potential for liquefaction is highest when groundwater levels are high, and loose, fine, sandy soils occur at depths of less than 50 feet. Specific liquefaction hazard areas in the county have not been identified.[36] However, the potential for liquefaction exists due to unconsolidated sediments and a high-water table in Merced County's wetland areas adjacent to the San Joaquin River, extending west to the Union Pacific Railroad and east towards State Route 99.

The Project site is not mapped for potential seismically-induced landslides by the CGS. The development area is relatively flat with only a gentle slope; therefore, the potential for a landslide is low.

The potential for groundshaking caused by seismic activity is present throughout California, including the Project site. Seismic activity could come from a known active fault or any number of other faults in the region, resulting in strong seismic ground shaking, seismic related ground failure, or earthquake-induced landslides. To reduce the potential impact of seismic ground shaking on the development, the Project would be required to comply with the provisions of the CBSC, which includes design requirements to mitigate the effects of potential hazards associated with seismic ground shaking. Further, the Project

[35] County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.
[36] County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

would be reviewed by the City for conformance with the General Plan, Municipal Code, and other regulations that address seismic safety issues and would be required to comply with standard engineering and seismic safety design considerations to minimize potential impacts. Therefore, with the implementation of the applicable State and city codes, potential impacts associated with a seismic event, including rupture of an earthquake fault, seismic ground shaking, liquefaction, and landslides would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Impact 3.7-2: Implementation of the proposed Project would not result in substantial soil erosion or the loss of topsoil. (Less than Significant)

The Project would provide for development and associated improvements that would involve some land clearing, mass grading, and other ground-disturbing activities that could temporarily increase soil erosion rates during and shortly after project construction. Construction-related erosion could result in the loss of a substantial amount of nonrenewable topsoil and could adversely affect water quality in nearby surface waters. As described above, Project site soils exhibit erosion factor values (Kf) that are considered to have a low to moderate potential for erosion. Furthermore, because the development area is relatively flat with only a gentle slope, the erosion potential is slight.

The Project would be evaluated for conformance with the CBSC, General Plan, Municipal Code, and other regulations that address construction activities and soil erosion. Each phase of Project construction disturbing one acre or more of soil would be required to obtain coverage under the Construction General Permit prior to issuance of a grading permit. The Construction General Permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and monitoring plan, which must include erosion-control and sediment-control BMPs that would meet or exceed measures required by the Construction General Permit to control stormwater quality degradation due to potential construction-related pollutants. Further, Project construction would be required to implement construction site control BMPs in compliance with the City's Stormwater Management and Discharge Control Ordinance and NPDES Permit. With implementation of the policies and actions in the General Plan, as well as applicable State and city requirements, potential impacts associated with erosion and loss of topsoil would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Impact 3.7-3: Implementation of the proposed Project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of Project implementation, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. (Less than Significant)

Landslide. As previously discussed, the development area is relatively flat; therefore, the potential for a landslide is low.

Subsidence. There is low risk of land surface subsidence or mine collapse in Merced County due to the general absence of subsurface rock mining operations within the county.[37]

Liquefaction and Lateral Spreading. As previously discussed, the Project site is not currently mapped for potential liquefaction hazard by the CGS. The potential for liquefaction is highest when groundwater levels are high, and loose, fine, sandy soils occur at depths of less than 50 feet. Specific liquefaction hazard areas in the county have not been identified.[38] However, the potential for liquefaction exists due to unconsolidated sediments and a high-water table in Merced County's wetland areas adjacent to the San Joaquin River, extending west to the Union Pacific Railroad and east towards State Route 99.

Given the extent of alluvium along the valley floor, development may also occur on unstable soils vulnerable to liquefaction or lateral spreading, and some county areas have already undergone subsidence from groundwater overdraft.[39]

Collapsible Soils. Collapsible soils have not been identified in the County of Merced General Plan EIR as an issue in the county area. However, the potential for liquefaction exists due to unconsolidated sediments and a high-water table in Merced County's wetland areas adjacent to the San Joaquin River, extending west to the Union Pacific Railroad and east towards State Route 99.[40]

Conclusion. The Project site does not have a significant risk of becoming unstable as a result of landslide, subsidence, soil collapse, liquefaction, liquefaction induced settlement, and lateral spreading. The Project would be evaluated for conformance with the CBSC, the General Plan, the Municipal Code, and other regulations. In accordance with the City's Subdivision Ordinance (Title 18), a preliminary soil report and geologic report prepared by a geotechnical engineer must be submitted to the City along with the Project final map. The geotechnical evaluation would include design recommendations to ensure that geologic and soil conditions do not pose a threat to the health and safety of people or structures. Implementation of the design recommendations would ensure that all on-site fill soils are properly compacted and comply with the applicable safety requirements established by the CBC to reduce risks associated with unstable soils and excavations and fills, and that any issues associated with unstable soils are addressed at the design level. Implementation of CBSC and the Municipal Code requirements related to geologic conditions, as well as compliance with General Plan policies, would ensure that future development projects are evaluated for potential geologic risks and that potential risks are adequately addressed.

37 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.
38 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.
39 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.
40 County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

Compliance with applicable State and City regulations would reduce potential impacts associated with unstable geologic and soil conditions to ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Impact 3.7-4: Implementation of the proposed Project would not result in development on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. (Less than Significant)

Expansive soils are those that undergo volume changes as moisture content fluctuates; swelling substantially when wet or shrinking when dry. Expansive soils may swell considerably when wetted and shrink when dried. Expansive soils can be hazardous to structures and may cause cracks in building foundations, distortion of structural elements, and warping of doors and windows. Structural damage, such as warping and cracking of improvements, and rupture of underground utility lines, may occur if the expansive potential of soils is not considered during the design and construction of all improvements. The County of Merced General Plan EIR does not list areas with soil that have moderate or high shrink-swell potential. However, with the establishment of the 2010 CBC and the newly defined seismic categories C, D, and E, the County of Merced requires that proposed development or construction in high hazard seismic areas or areas with expansive soils must first submit a soils report.[41] Upon review and acceptance of the soil report, the County would require that all identified design and construction measures necessary to reduce risks to acceptable levels as defined by the CBC be implemented.

The Project would be evaluated for conformance with the CBSC, the General Plan, the Municipal Code, and other regulations. In accordance with the City's Subdivision Ordinance (Title 18), a preliminary soil report and geologic report prepared by a geotechnical engineer must be submitted to the City along with the Project final map. The geotechnical evaluation would include design recommendations to ensure that geologic and soil conditions do not pose a threat to the health and safety of people or structures. Implementation of the design recommendations would ensure that all on-site fill soils are properly compacted and comply with the applicable safety requirements established by the CBC to reduce risks associated with unstable soils and excavations and fills, and that any issues associated with unstable soils are addressed at the design level. Implementation of CBSC and the Municipal Code requirements related to geologic conditions, as well as compliance with General Plan policies, would ensure that future development projects are evaluated for potential geologic risks and that potential risks are adequately addressed. Compliance with applicable State and city regulations would reduce potential impacts associated with expansive soils to ***less than significant***.

[41] County of Merced, 2012. 2030 Merced County General Plan Draft Environmental Impact Report. November.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Impact 3.7-5: Implementation of the proposed Project, with mitigation, would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant with Mitigation)

Implementation of the UC Villages project would provide for development and associated improvements that would involve construction activities such as grading, excavation, and other ground-disturbing activities with the potential to result in the accidental destruction or disturbance of paleontological resources. As discussed in the County of Merced General Plan EIR, numerous paleontological resources have been discovered throughout the Merced County and San Joaquin Valley region, there is potential that resources could be found in the future.

The Project site is currently fallowed grazing land while awaiting development for urban uses. While the project is not anticipated to directly or indirectly impact previously undiscovered paleontological resources, there is the potential for project excavation activities to encounter paleontological resources. Therefore, the impact would be ***potentially significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.7-5: *If fossils or fossil-bearing deposits are encountered during ground-disturbing activities, work within a 25-foot radius of the find shall halt, the Merced Planning Division shall be notified, and a professional vertebrate paleontologist (as defined by the Society for Vertebrate Paleontology) shall be contacted immediately to evaluate the find. The paleontologist shall have the authority to stop or divert construction, as necessary. Documentation and treatment of the discovery shall occur in accordance with Society of Vertebrate Paleontology standards. The significance of the find shall be evaluated pursuant to the CEQA Guidelines. If the discovery proves to be significant, before construction activities resume at the location of the find, additional work such as data recovery excavation may be warranted, as deemed necessary by the paleontologist.*

SIGNIFICANCE AFTER MITIGATION

Less than Significant

If previously undiscovered paleontological resources are uncovered during ground disturbing activities, Mitigation Measure 3.7-5 would require all work within a 25-foot radius of the find to be suspended until the resource is evaluated by a professional vertebrate paleontologist. If the discovery proves to be

significant, before construction activities resume at the location of the find, additional work such as data recovery excavation may be warranted, as deemed necessary by the paleontologist. Implementation of Mitigation Measure 3.7-5 would reduce the potential for impacts to paleontological resources to a ***less-than-significant*** level.

CUMULATIVE IMPACTS

Related projects in the vicinity of the Project site may have the potential to interact with the proposed Project to the extent that a significant cumulative effect relative to geology and soils may occur. The geographic setting for geology and soils typically contains regional and local considerations, as the cumulative projects' geologic setting and regional seismicity would be similar; however, the local geologic setting, surficial geology, and subsurface soil conditions would vary according to the site location and specific conditions. Therefore, cumulative impacts consider development within the City, as well as development within the vicinity of the Project site.

Impact 3.7-6: Implementation of the proposed Project, in combination with other cumulative development, would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-related ground failure, including liquefaction. (Less than Significant)

Potentially adverse environmental effects associated with seismic hazards are usually site-specific and generally do not result in cumulative effects. Cumulative projects could be exposed to considerable ground shaking during seismic events, but the development of individual projects would not increase the potential for impacts to occur. Individual development proposals within the vicinity of the Project site would be reviewed separately by the appropriate public agency (i.e., City or County) and undergo environmental review if appropriate. In the event that future cumulative development would result in impacts related to geologic or seismic impacts, those potential project or site-specific impacts would be addressed in accordance with the requirements of CEQA. New buildings would be constructed utilizing current design and construction methodologies for earthquake resistant design as required by relevant regulations. Thus, the cumulative impact regarding strong seismic ground shaking or seismic-related ground failure, including liquefaction, would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.7-7: Implementation of the proposed Project, in combination with other cumulative development, would not result in substantial soil erosion or the loss of topsoil. (Less than Significant)

Potentially adverse environmental effects associated with topographic alteration and erosion are usually site-specific and generally do not result in cumulative effects. Development of the proposed Project and cumulative projects would involve some land clearing, mass grading, and other ground-disturbing activities that could temporarily increase soil erosion rates during and shortly after project construction. Site specific geology and soil conditions would be evaluated on a project-by-project basis, and each project would be required to comply with stormwater runoff and pollution control requirements required by the RWQCB and implemented by the specific jurisdiction in which the development occurs. Construction activities for projects in the City would also be subject to the City's Stormwater Management and Discharge Control Ordinance. The existing regulatory environment would reduce potential impacts associated with soil erosion or the loss of topsoil during short-term construction activities and long-term operation of individual and cumulative development projects. Thus, the cumulative impact to soil erosion or the loss of topsoil would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.7-8: Implementation of the proposed Project, in combination with other cumulative development, would not 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. (Less than Significant)

Potentially adverse environmental effects associated with seismic hazards, as well as those associated with expansive soils, topographic alteration, and erosion, are usually site-specific and generally do not result in cumulative effects. Cumulative projects could be exposed to considerable ground shaking during seismic events, but the development of individual projects would not increase the potential for impacts to occur. Individual development proposals within the vicinity of the Project site would be evaluated on a project-by-project basis and by the appropriate public agency (i.e., City or County) and undergo environmental review if appropriate. In the event that future cumulative development would result in impacts associated with unstable geologic units or soils, those potential project or site-specific impacts would be addressed in accordance with the requirements of CEQA. New buildings would be constructed utilizing current design and construction methodologies as required by relevant regulations. Thus, the cumulative impact involving a geologic unit or soil that is unstable, potentially resulting in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse, would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.7-9: Implementation of the proposed Project, in combination with other cumulative development, would not be located on expansive soil, as defined in Tables 18-1-D of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. (Less than Significant)

Potentially adverse environmental effects associated with expansive soils, topographic alteration, and erosion, are usually site-specific and generally do not result in cumulative effects. Individual development proposals within the vicinity of the Project site would be evaluated on a project-by-project basis and by the appropriate public agency (i.e., City or County) and undergo environmental review if appropriate. In the event that future cumulative development would result in impacts associated with expansive soils, those potential project or site-specific impacts would be addressed in accordance with the requirements of CEQA. New buildings would be constructed utilizing current design and construction methodologies as required by relevant regulations. Thus, the cumulative impact involving expansive soils, creating substantial direct or indirect risks to life or property would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.7-10: Implementation of the proposed Project, in combination with other cumulative development, would not or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant)

Any project involving earth-moving activity could potentially result in inadvertent discovery and disturbance of paleontological resources during grading and excavation work; these inadvertent discoveries could create potentially-significant impacts.

As discussed in the County of Merced General Plan EIR, numerous paleontological resources have been discovered throughout the Merced County and San Joaquin Valley region. Future ground disturbing activities associated with project implementation and cumulative projects could have potential to cumulatively impact paleontological resources, and the project would have a cumulatively considerable contribution to that impact. As such, the cumulative impact to paleontological resources would be ***potentially significant***.

The Project site is currently fallowed grazing land while awaiting development for urban uses. There is a potential to uncover previously unknown paleontological resources. Therefore, the proposed Project would have a cumulatively considerable contribution to the cumulative impact, and the cumulative impact would be ***potentially significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

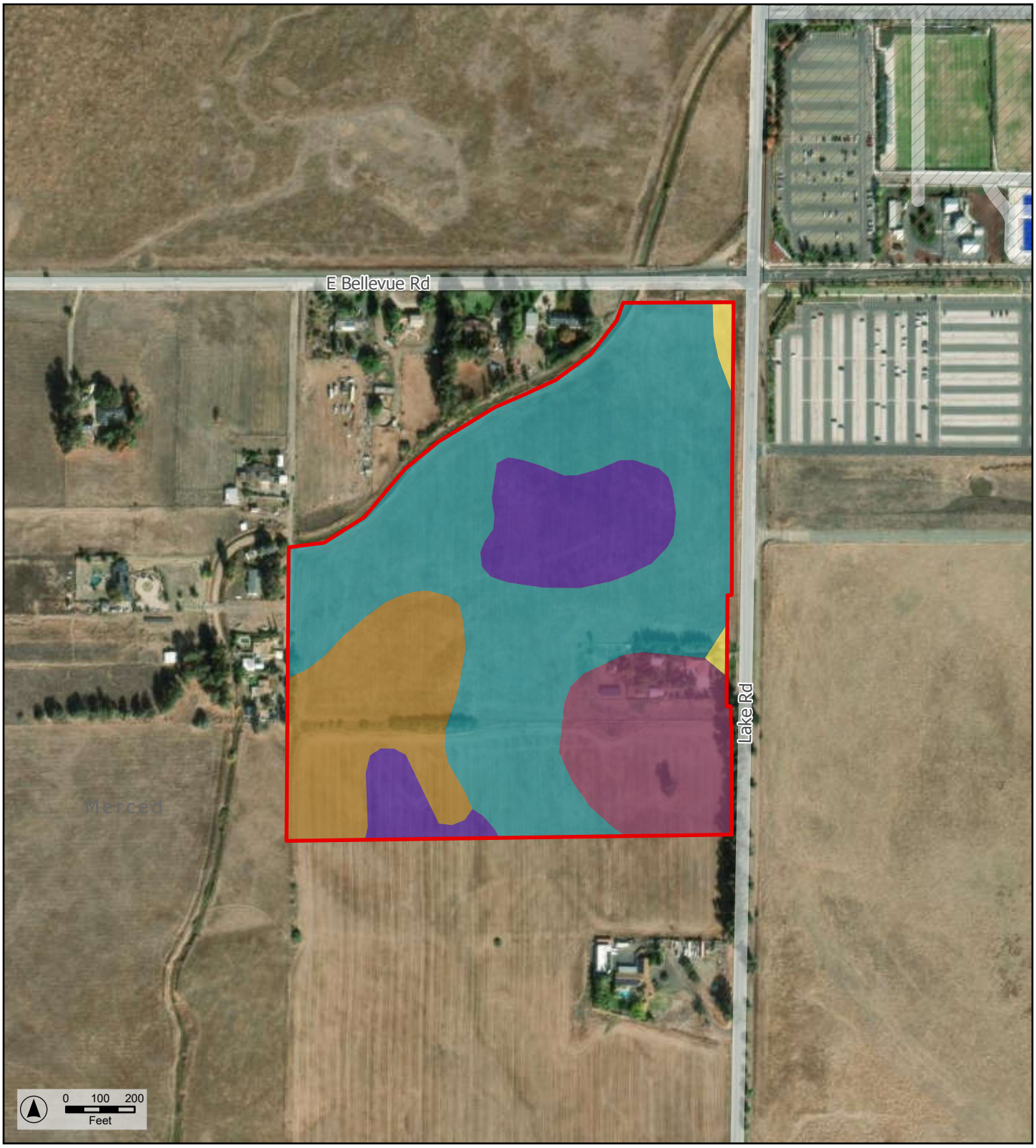
MITIGATION MEASURE(S)

Mitigation Measure 3.7-10: *Implement Mitigation Measure 3.7-5.*

SIGNIFICANCE AFTER MITIGATION

Less than Significant

If previously undiscovered paleontological resources are uncovered during ground disturbing activities, Mitigation Measure 3.7-10 would require all work within a 25-foot radius of the find to be suspended until the resource is evaluated by a professional vertebrate paleontologist. If the discovery proves to be significant, before construction activities resume at the location of the find, additional work such as data recovery excavation may be warranted, as deemed necessary by the paleontologist. Implementation of Mitigation Measure 3.7-10 would reduce the potential for impacts to paleontological resources to a ***less-than-significant*** level.



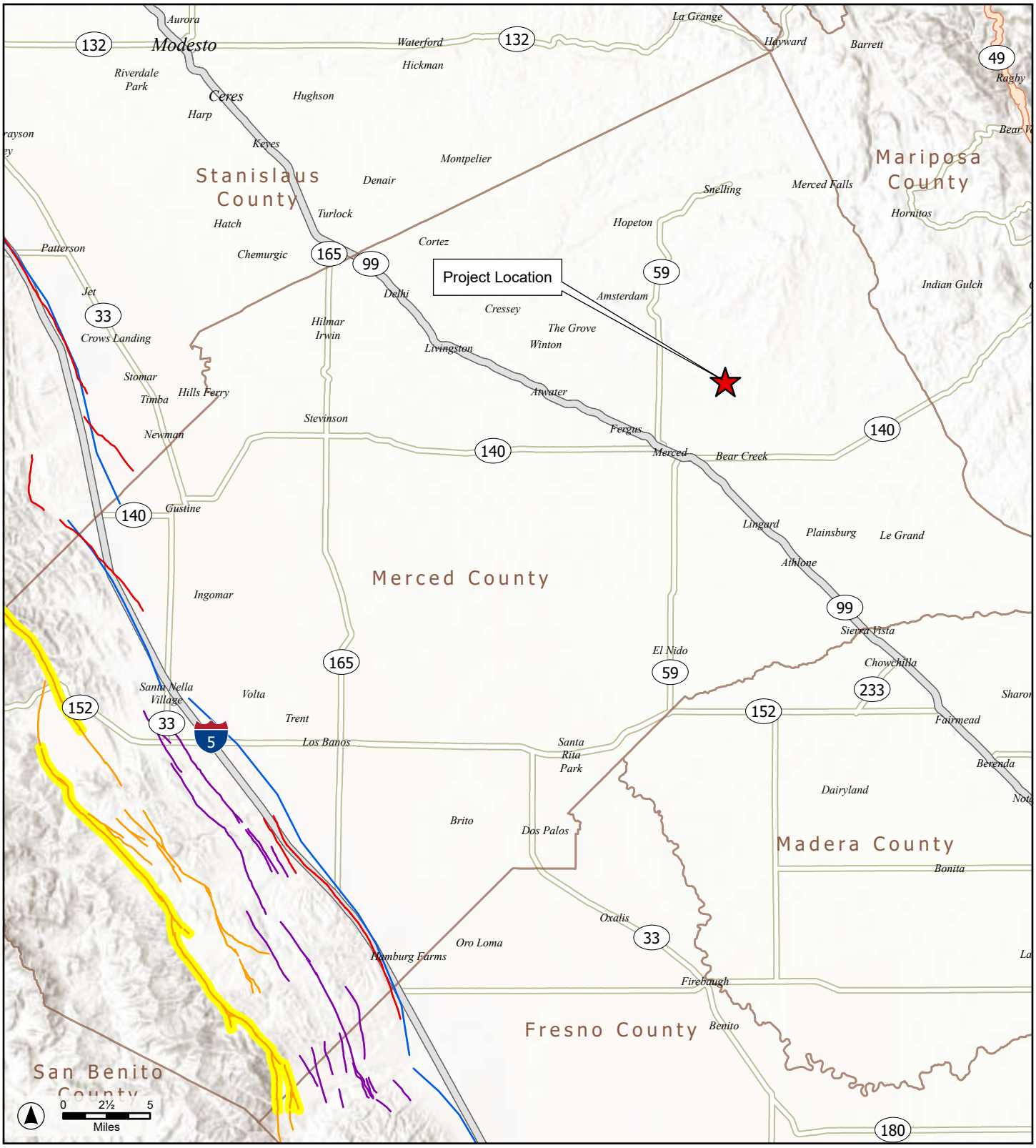
Legend

- Project Boundary
- 3HA: Hopeton clay loam, 0-3% slopes (5.36 ac)
- 3HB: Hopeton clay loam, 3-8% slopes (0.41 ac)
- CgB: Corning gravelly loam, 0-8% slopes (20.09 ac)
- RbA: Raynor cobbly clay, 0-3% slopes (6.16 ac)
- ReB: Redding gravelly loam, 0-8% slopes (5.21 ac)

UC VILLAGES

Figure 3.7-1. Project Area Soils

Sources: NRCS Web Soil Survey, Soil Survey Area CA648, v18, 8-31-2023; California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date July 9, 2024.



Legend

- Project Location
- County Boundary
- Alquist-Priolo Zone of Required Investigation

USGS Quaternary Faults

- Great Valley thrust fault system
- O'Neill fault system
- Ortigalita fault zone
- San Joaquin fault

UC VILLAGES

Figure 3.7-2.
Known Faults in the Project Area

Sources: USGS Quaternary Faults Database; CGS Alquist-Priolo Zones; California State Geoportal; USGS Roads Database; Merced County GIS; ArcGIS Online hillshade service. Map date: July 9, 2024.

This section discusses regional greenhouse gas (GHG) emissions, climate change, and energy conservation impacts that could result from Project implementation. The analysis contained in this section is intended to be at a Project-level, and covers impacts associated with the conversion of the entire Master Plan site to urban uses. This section provides a background discussion of greenhouse gases and climate change linkages and effects of global climate change. This section is organized with an existing setting, regulatory setting, approach/methodology, and impact analysis. The analysis and discussion of the GHG, climate change, and energy conservation impacts in this section focuses on the proposed Project's consistency with local, regional, and statewide climate change planning efforts and discusses the context of these planning efforts as they relate to the proposed Project. Disclosure and discussion of the Project's estimated energy usage and GHG emissions are provided. See Appendix B for the detailed CalEEMod modeling results for proposed Project.

One comment letter referencing greenhouse gas emissions and climate change was received on the Notice of Preparation (NOP):

The **San Joaquin Valley Air Pollution Control District** requested that the proposed Project should be evaluated for its consistency with the Air District's criteria pollutant thresholds. The comment letter also provides several recommended mitigation measures related to air quality. The comment letter also provides a list of potential Air District Rules and regulations that may be applicable the proposed Project. These issues are addressed in this section.

3.8.1 ENVIRONMENTAL SETTING

GREENHOUSE GASES AND CLIMATE CHANGE LINKAGES

Various gases in the Earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation.

Naturally occurring GHGs include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also GHGs, but they are, for the most part, solely a product of industrial activities. Although the direct GHGs CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From the pre-industrial era (i.e., ending about 1750) to 2019, concentrations of these three GHGs have increased globally by 47, 156, and 23 percent, respectively.[1]

GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the

[1] Intergovernmental Panel on Climate Change, 2023. Climate Change 2023 Synthesis Report. Available: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf

prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs).

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by the industrial and electricity generation sectors.[2]

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California produced 371 million gross metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2022.[3]

Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2022, accounting for 39% of total GHG emissions in the State. This category was followed by the industrial sector (23%), the electricity generation sector (including both in-state and out of-state sources) (16%), the agriculture and forestry sector (8%), the residential energy consumption sector (8%), and the commercial energy consumption sector (6%).[4]

EFFECTS OF GLOBAL CLIMATE CHANGE

The effects of increasing global temperature are far-reaching and extremely difficult to quantify. The scientific community continues to study the effects of global climate change. In general, increases in the ambient global temperature because of increased GHGs are anticipated to result in rising sea levels, which could threaten coastal areas through accelerated coastal erosion, threats to levees and inland water systems and disruption to coastal wetlands and habitat.

If the temperature of the ocean warms, it is anticipated that the winter snow season would be shortened. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the State. The snowpack portion of the supply could potentially decline by 50% to 75% by the end of the 21st century.[5] This

2 California Air Resources Board, 2024. Current California GHG Emission Inventory Data. Available: https://ww2.arb.ca.gov/ghg-inventory-data

3 California Air Resources Board, 2024. Current California GHG Emission Inventory Data. Available: https://ww2.arb.ca.gov/ghg-inventory-data.

4 California Air Resources Board, 2024. Current California GHG Emission Inventory Data. Available: https://ww2.arb.ca.gov/ghg-inventory-data.

5 National Resources Defense Council (NRDC), 2014. NRDC Fact Sheet: California Snowpack and the Drought. April 2014. Available at: https://www.nrdc.org/sites/default/files/ca-snowpack-and-drought-FS.pdf

phenomenon could lead to significant challenges securing an adequate water supply for a growing state population. Further, the increased ocean temperature could result in increased moisture flux into the State; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's levee/flood control system.

Sea level has risen approximately seven inches during the last century and it is predicted to rise an additional 22 to 35 inches by 2100, depending on the future GHG emissions levels. If this occurs, resultant effects could include increased coastal flooding, saltwater intrusion, and disruption of wetlands. As the existing climate throughout California changes over time, mass migration of species, or failure of species to migrate in time to adapt to the perturbations in climate, could also result. According to the Indicators of Climate Change in California report,[6] the impacts of global warming in California are anticipated to include, but are not limited to, public health, water resources, agriculture, forests and landscapes, and sea level rise.

Public Health

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase from 25% to 35% under the lower warming range and to 75% to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea

[6] California Office of Environmental Health Hazard Assessment, 2022 Report: Indicators of Climate Change in California. Available at: https://oehha.ca.gov/climate-change/epic-2022. Accessed September 2024.

levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major State fresh water supply. Global warming is also projected to seriously affect agricultural areas, with California farmers projected to lose as much as 25% of the water supply they need; decrease the potential for hydropower production within the State (although the effects on hydropower are uncertain); and seriously harm winter tourism. Under the lower warming range, the snow dependent winter recreational season at lower elevations could be reduced by as much as one month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing, snowboarding, and other snow dependent recreational activities.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snow pack by as much as 70% to 90%. Under the lower warming scenario, snow pack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range. How much snow pack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snow pack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry, reducing the quantity and quality of agricultural products statewide. Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for several of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

Crop growth and development will be affected, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global warming is expected to alter the distribution and character of natural vegetation thereby resulting in a possible increased risk of large wildfires. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State. For example, if precipitation increases as temperatures rise, wildfires in southern California are expected to increase by approximately 30% toward the end of the century. In contrast, precipitation decreases could increase wildfires in northern California by up to 90%.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the State. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60% to 80% by the end of the century because of increasing temperatures. The productivity of the State's forests is also expected to decrease because of global warming.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the State's coastal regions. Under the higher warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

ENERGY CONSUMPTION

Energy in California is consumed from a wide variety of sources. Fossil fuels (including gasoline and diesel fuel, natural gas, and energy used to generate electricity) are the most widely used form of energy in the State. However, renewable sources of energy (such as solar and wind) are growing in proportion to California's overall energy mix. A large driver of renewable sources of energy in California is the State's current Renewable Portfolio Standard (RPS), which requires the State to derive at least 60 percent of electricity generated by 2030, and to achieve zero-carbon emissions by 2045 (as passed in September 2018, under Senate Bill 100). The 2021 SB 100 Joint Agency Report was published in 2021, which found that the long-term goals contained in SB 100 are technically achievable through multiple pathways, although achieving 100 clean electricity would increase the total annual electricity system cost by 6% relative to the cost under the state's Renewables Portfolio Standard requirement of having at least 60 percent clean electricity by the end of 2030. These estimates will change over time as markets change, new technologies are commercialized, and additional factors such as grid reliability are included in future analyses.

Overall, in 2022, California's per capita energy usage was third second-lowest in the nation.[7] California's per capita rate of energy usage has remained relatively constant since the 1970's. Many

[7] United States Energy Information Administration (U.S. EIA). 2024. Table C14. Total Energy Consumption Estimates per Capita by End-Use Sector, Ranked by State, 2022. Available at: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/rank_use_capita.html&sid=US

State regulations since the 1970s, including new building energy efficiency standards, vehicle fleet efficiency measures, as well as growing public awareness, have helped to keep per capita energy usage in the State in check.

The consumption of non-renewable energy (i.e., fossil fuels) associated with the operation of passenger, public transit, and commercial vehicles results in GHG emissions that contribute to global climate change. Alternative fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change.

Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and a very small amount of nuclear generation resources. In 2020, nearly one-half of the electricity supply came from facilities outside of the State. Much of the power delivered to California from states in the Pacific Northwest was generated by wind. States in the Southwest delivered power generated at coal-fired power plants, at natural gas-fired power plants, and from nuclear generating stations.[8] In 2020, approximately 41 percent of California's utility-scale net electricity generation was fueled by natural gas. In addition, about 48 percent of the State's utility-scale net electricity generation came from renewable sources, such as solar, wind, geothermal, hydropower, and biomass. Nuclear energy powered an additional 11 percent. The amount of electricity generated from coal was effectively zero.[9] The percentage of renewable resources as a proportion of California's overall energy portfolio is increasing over time, as directed the State's Renewable Portfolio Standard (RPS).

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 228,038 GWh in 1990, which is an estimated annual growth rate of 3.66 percent. The statewide electricity consumption in 1997 was 246,225 GWh, reflecting an annual growth rate of 1.14 percent between 1990 and 1997. Statewide consumption was 274,985 GWh in 2010, an annual growth rate of 0.9 percent between 1997 and 2010. In 2022, electricity consumption in Merced County was 3,185 GWh.[10]

Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2019, world consumption of oil had reached approximately 98 million barrels per day. The United States, with approximately five percent of the world's population, accounts for approximately 19 percent of world oil consumption,

[8] United States Energy Information Administration (U.S. EIA), 2024. California End-Use Energy Consumption 2024, Estimates. Available at: https://www.eia.gov/beta/states/states/ca/overview

[9] United States Energy Information Administration (U.S. EIA), 2024. California End-Use Energy Consumption 2024, Estimates. Available at: https://www.eia.gov/beta/states/states/ca/overview.

[10] California Energy Commission, 2024. Electricity Consumption by County. Available: http://www.ecdms.energy.ca.gov/elecbycounty.aspx

or approximately 18.6 million barrels per day.[11] The transportation sector relies heavily on oil. In California, petroleum-based fuels currently provide approximately 95 percent of the State's transportation energy needs.

Natural Gas/Propane

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California.[12] PG&E is the largest publicly-traded utility in California and provides natural gas for residential, industrial, and agency consumers within the Merced County area. PG&E's natural gas (i.e., methane) delivery system includes 42,000 miles of natural gas distribution pipelines and 6,700 miles of transmission pipelines. PG&E's gas transmission system serves approximately 15 million energy customers in California. The system is operated under an inspection and monitoring program in real time on a 24-hour basis, with leak inspections, surveys, and patrols continuously taking place along the pipelines. Gas delivered by PG&E originates in gas fields in California, the Southwest, the Rocky Mountains, and Canada. Transmission pipelines send natural gas from the fields and storage facilities. The smaller distribution pipelines deliver gas to individual businesses or residences.

As of March 2022, California produced 11.4 billion cubic feet of natural gas per month.[13] In 2022, natural gas consumption in Merced County was approximately 131 million therms (California Energy Commission, 2024).[14] Residential natural gas consumption by itself accounted for approximately 26 million therms of this total.

3.8.2 REGULATORY SETTING

FEDERAL

Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort, and it is composed of the following basic elements: National Ambient Air Quality Standards (NAAQS) for criteria air pollutants, hazardous air pollutant standards, State attainment plans, NAAQS motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

11 United States Energy Information Administration (U.S. EIA), 2023. Independent Statistics and Analysis. Frequently Asked Questions. Last updated September 22, 2023. Available at: https://www.eia.gov/tools/faqs/faq.php?id=33&t=6

12 California Public Utilities Commission, 2024. Natural Gas and California, available: https://www.cpuc.ca.gov/industries-and-topics/natural-gas/natural-gas-and-california

13 United States Energy Information Administration (U.S. EIA). 2022. California Natural Gas Marketed Production. Available at: https://www.eia.gov/dnav/ng/hist/n9050ca2M.htm

14 California Energy Commission. 2024. Natural Gas Consumption by County. Available: http://www.ecdms.energy.ca.gov/gasbycounty.aspx

The EPA is responsible for administering the FCAA. The FCAA requires the EPA to set NAAQS for several problem air pollutants based on human health and welfare criteria. Two types of NAAQS were established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction.

In 2007, in the court case of *Massachusetts et al. vs. the USEPA et al*. (549 U.S. 497), the U.S. Supreme Court found that GHGs are air pollutants covered by the Federal Clean Air Act (42 USC Sections 7401-7671q). The Supreme Court held that the Administrator of the United States Environmental Protection Agency must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which 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 Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite for implementing GHG emission standards for vehicles. In collaboration with the National Highway Traffic Safety Administration (NHTSA) and CARB, the USEPA developed emission standards for light-duty vehicles (2012-2025 model years), and heavy-duty vehicles (2014-2027 model years).

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards.

Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel

economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Federal Climate Change Policy

According to the U.S. EPA, "the United States government has established a comprehensive policy to address climate change" that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, "the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science." The U.S. EPA administers multiple programs that encourage voluntary GHG reductions, including "ENERGY STAR," "Climate Leaders," and Methane Voluntary Programs.

The following are actions taken at the federal level relating to GHG emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the U.S. EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applies to passenger cars, light duty trucks, and medium duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. The U.S. EPA and the National Highway Safety Administration issued final rules on a second phase joint rulemaking, establishing national standards for light duty vehicles for model years 2017 through 2025 in August 2012. The standards for model years 2017 through 2025 apply to passenger cars, light duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO2 in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The U.S. EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies adopted engine and vehicle standards that began in the 2014 model year and achieved up to a 20 percent reduction in CO2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies adopted separate gasoline and diesel truck standards, which phased in starting in the 2014 model year.

Mandatory Reporting of Greenhouse Gases. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On

September 22, 2009, the U.S. EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the U.S. EPA.

Cap and Trade. Cap and trade refer to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently, only California and Quebec are participating in the cap-and-trade program.

STATE

The California Legislature has enacted a series of statutes in recent years addressing the need to reduce GHG emissions across the State. These statutes can be categorized into four broad categories: (i) statutes setting numerical statewide targets for GHG reductions, and authorizing CARB to enact regulations to achieve such targets; (ii) statutes setting separate targets for increasing the use of renewable energy for the generation of electricity throughout the State; (iii) statutes addressing the carbon intensity of vehicle fuels, which prompted the adoption of regulations by CARB; and (iv) statutes intended to facilitate land use planning consistent with statewide climate objectives. The discussion below will address each of these key sets of statutes, as well as Executive Orders and CARB "Scoping Plans" intended to achieve GHG reductions under the first set of statutes and recent building code requirements intended to reduce energy consumption.

Statutes Setting Statewide GHG Reduction Targets

ASSEMBLY BILL 32 (GLOBAL WARMING SOLUTIONS ACT)

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006 (Health & Safety Code Section 38500 et seq.), also known as Assembly Bill (AB) 32 (Stats. 2006, ch. 488). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction was accomplished through an enforceable statewide cap on GHG emissions that was phased in starting in 2012. To effectively implement the cap, AB 32 directed the CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

SENATE BILL 32

SB 32 (Stats. 2016, ch. 249) added Section 38566 to the Health and Safety Code. It provides that "[i]n adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions authorized by [Division 25.5 of the Health and Safety Code], [CARB] shall ensure that statewide GHG emissions are reduced to at least 40 percent below the statewide GHG emissions limit no later than December 31, 2030." In other words, SB 32 requires California, by 2030, to reduce its statewide GHG emissions so that they are 40 percent below those that occurred in 1990.

EXECUTIVE ORDERS S-3-05, B-30-15, AND B-55-18

The 2020 statewide GHG reduction target in AB 32 was consistent with the second of three statewide emissions reduction targets set forth in former Governor Arnold Schwarzenegger's 2005 Executive Order known as S-3-05, which is expressly mentioned in AB 32. (See Health & Safety Code Section 38501, subd. (i).) That Executive Branch document included the following GHG emission reduction targets: 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. To meet the targets, the Governor directed several State agencies to cooperate in the development of a climate action plan. The Secretary of Cal-EPA leads the Climate Action Team, whose goal is to implement global warming emission reduction programs identified in the Climate Action Plan and to report on the progress made toward meeting the emission reduction targets established in the executive order.

In 2015, Governor Brown issued Executive Order, B-30-15, which created and established a "new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050." SB 32 codified this target.

In 2018, the Governor issued Executive Order B-55-18, which established a statewide goal to "achieve carbon neutrality as soon as possible, and no later than 2045, and maintain and achieve negative emissions thereafter." The order directs the CARB to work with other State agencies to identify and recommend measures to achieve those goals. As discussed below, the 2022 Scoping Plan lays out a path towards achieving carbon neutrality by 2045.

SB 350

Senate Bill 350 (SB 350) (Stats. 2015, ch. 547) added to the Public Utilities Code language that puts into statute the 2050 GHG reduction target identified in Executive Order S-3-05, albeit in the limited context of new state policies (i) increasing the overall share of electricity that must be produced through renewable energy sources and (ii) directing certain State agencies to begin planning for the widespread electrification of the California vehicle fleet. Section 740.12(a)(1)(D) of the Public Utilities Code states that "[t]he Legislature finds and declares [that] … [r]educing emissions of [GHGs] to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 will require widespread transportation electrification." Furthermore, Section 740.12(b) states that the California Public Utilities Commission (CPUC), in consultation with CARB and the California Energy Commission

(CEC), must "direct electrical corporations to file applications for programs and investments to accelerate widespread transportation electrification to reduce dependence on petroleum, meet air quality standards, … and reduce emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050."

AB 1279

In September 2022, the Legislature enacted AB 1279 (Stats. 2022, ch. 337). The bill declares the policy of the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter. Additionally, the bill requires that by 2045, statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels.

Statutes Setting Target for the Use of Renewable Energy for the Generation of Electricity

CALIFORNIA RENEWABLES PORTFOLIO STANDARD

Senate Bill X1-2 (Stats. 2011, 1st Ex. Sess., ch. 1) set aggressive statutory targets for renewable electricity, culminating in the requirement that 33 percent of the State's electricity come from renewables by 2020. This legislation applies to all electricity retailers in the State, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All these entities were required to meet renewable energy goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020. (See Pub. Utility Code, Section 399.11 et seq. [subsequently amended].) SB 350, discussed below, increases the Renewable Portfolio Standard to require 50 percent of electricity generated to be from renewables by 2030. (Pub. Utility Code, Section 399.11, subd (a); see also Section 399.30, subd. (c)(2).) In 2018, Senate Bill 100 (Stats. 2018, ch. 312) revised the above-described deadlines and targets so that the State will have to achieve 50% renewable resources target by December 31, 2026 (instead of by 2030) and achieve a 60% target by December 31, 2030. The legislation also establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% of electricity procured to serve all State agencies by December 31, 2045.

Statutes and CARB Regulations Addressing the Carbon Intensity of Petroleum-based Transportation Fuels

ASSEMBLY BILL 1493, PAVLEY CLEAN CARS STANDARDS

In 2002, the Legislature enacted Assembly Bill 1493 ("Pavley Bill") (Stats. 2002, ch. 200), which directed CARB to develop and adopt regulations that achieve the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks beginning with model year 2009. (See Health and Safety Code Section 43018.5.) In September 2004, pursuant to this directive, CARB approved regulations to reduce GHG emissions from new motor vehicles beginning with the 2009 model year. These regulations created what are commonly known as the "Pavley standards." In September 2009, CARB adopted amendments to the Pavley standards to reduce GHG emissions from new motor vehicles through the 2016 model year. These regulations created what are

commonly known as the "Pavley II standards." (See California Code of Regulations, Title 13, Sections 1900, 1961, and 1961.1 et seq.)

In 2012, CARB adopted an Advanced Clean Cars (ACC) program aimed at reducing both smog-causing pollutants and GHG emissions for vehicles model years 2017-2025. This historic program, developed in coordination with the USEPA and NHTSA, combined the control of smog-causing (criteria) pollutants and GHG emissions into a single coordinated set of requirements for model years 2015 through 2025. The regulations focus on substantially increasing the number of plug-in hybrid cars and zero-emission vehicles in the vehicle fleet and on making fuels such as electricity and hydrogen readily available for these vehicle technologies. The components of the ACC program are the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years. (See California Code of Regulations, Title 13, Sections 1900, 1961, 1961.1, 1961.2, 1961.3, 1965, 1968.2, 1968.5, 1976, 1978, 2037, 2038, 2062, 2112, 2139, 2140, 2145, 2147, 2235, and 2317 et seq.)

It is expected that the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 34 percent below 2016 levels by 2025, all while improving fuel efficiency and reducing motorists' costs.

Statute Intended to Facilitate Land Use Planning Consistent with Statewide Climate Objectives

CALIFORNIA SENATE BILL 375 (SUSTAINABLE COMMUNITIES STRATEGY)

This 2008 legislation built on AB 32 by setting forth a mechanism for coordinating land use and transportation on a regional level for the purpose of reducing GHGs. The focus is to reduce miles traveled by passenger vehicles and light trucks. CARB is required to set GHG reduction targets for each metropolitan region for 2020 and 2035.[15] Each of California's metropolitan planning organizations then prepares a sustainable communities strategy that demonstrates how the region will meet its GHG reduction target through integrated land use, housing, and transportation planning. Once adopted by the metropolitan planning organizations, the sustainable communities strategy is to be incorporated into that region's federally enforceable regional transportation plan. If a metropolitan planning organization is unable to meet the targets through the sustainable communities strategy, then an alternative planning strategy must be developed that demonstrates how targets could be achieved, even if meeting the targets is deemed to be infeasible.

[15] The San Joaquin COG region was assigned reduction targets of 12% by 2020 and 16% by 2035.

Climate Change Scoping Plans

2022 SCOPING PLAN UPDATE

In accordance with AB 32, the CARB developed the first Scoping Plan in 2008 to outline the State's strategy to achieve 1990 level emissions by year 2020. In May 2014, the CARB released and adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching AB 32 goals and evaluate the progress that has been made between 2000 and 2012. A newer version of the Scoping Plan was then adopted by the CARB in December 2017 (entitled *California's 2017 Climate Change Scoping Plan*). Lastly, the most recent version of the Scoping Plan was adopted by the CARB in November 2022 (entitled *Final 2022 Scoping Plan for Achieving Carbon Neutrality*) (2022 Scoping Plan), which was designed consistent with the long-term GHG reduction targets embedded in AB 1279. Since adoption of the 2008 Scoping Plan and the subsequent updates in 2014, 2017, and 2022, State agencies have adopted programs identified in the plan, and the Legislature has passed additional legislation to achieve the GHG reduction targets. Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard, California Appliance Energy Efficiency regulations, California Building Standards (e.g., CALGreen and the 2022 Building and Energy Efficiency Standards), zero carbon electricity by 2045, and changes in the corporate average fuel economy standards (e.g., Pavley I and California Advanced Clean Cars).

SB 605 AND SB 1383

SB 605 (2014) required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state, and SB 1383 (2016) required CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of short-lived climate pollutants (40% below 2013 levels by 2030 for methane and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, CARB adopted its Short-Lived Climate Pollutant Reduction Strategy (Reduction Strategy) in March 2017. The Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases.

ASSEMBLY BILL 1757

AB 1757 (September 2022) requires the California Natural Resources Agency (CNRA) to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. These targets are to be determined by no later than January 1, 2024, and are established to support the state's goals to achieve carbon neutrality and foster climate adaptation and resilience.

Building Code Requirements Intended to Reduce GHG Emissions

CALIFORNIA ENERGY CODE

The California Energy Code (CCR Title 24, Part 6), which is incorporated into the Building Energy Efficiency Standards, was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Although these standards were not originally intended to reduce

GHG emissions, increased energy efficiency results in decreased GHG emissions because energy efficient buildings require less electricity and thus less consumption of fossil fuels, which emit GHGs. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

The most recent Title 24 standards are the 2022 Title 24 standards. Buildings permitted on or after January 1, 2023, must comply with the 2022 Standards. The California Energy Commission updates the standards every three years. The CEC estimates that the 2022 Title 24 standards will reduce 10 million metric tons of GHG over 30 years. When compared to the 2019 Title 24 standards, the 2022 update focuses on: encouraging electric heat pump technology and use; establishing electric-ready requirements when natural gas is installed; expanding solar photovoltaic (PV) system and battery storage standards; and strengthening ventilation standards to improve indoor air quality.

CALIFORNIA GREEN BUILDING STANDARDS CODE

The purpose of the California Green Building Standards Code (CalGreen) (CCR Title 24, Part 11) is to improve public health and safety and to promote the general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: 1) planning and design; 2) energy efficiency; 3) water efficiency and conservation; 4) material conservation and resource efficiency; and 5) environmental quality. CalGreen, which became effective on January 1, 2011, instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential uses, and State-owned buildings, as well as schools and hospitals. The mandatory standards require the following:

- 20 percent mandatory reduction in indoor water use relative to baseline levels;
- 50 percent construction/demolition waste must be diverted from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particle boards.

The voluntary standards require the following:

- Tier I: 15 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste, 10 percent recycled content, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof.
- Tier II: 30 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste, 15 percent recycled content, 30 percent permeable paving, 30 percent cement reduction, and cool/solar reflective roof.

The latest version of CalGreen is the 2022 CalGreen Code, which became effective on January 1, 2023. Between 2010 and 2022, continuous updates and additions have been made to CALGreen,

including water conservation and recycling, electric vehicle infrastructure and charging, and changes intended to eliminate conflicts with the California Energy Code, which is Part 6 of Title 24.

TITLE 20

CCR Title 20 requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SOLID WASTE

AB 939, AB 341, and AB 1826. In 1989, AB 939, known as the Integrated Waste Management Act (PRC Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 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 (Chapter 476, Statutes of 2011 [Chesbro]) 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 (CalRecycle) 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 subject to the law decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

REGIONAL

PG&E adopted the 2020 Integrated Resource Plan (IRP) on September 1, 2020, to provide guidance for serving the electricity and natural gas needs of residents and businesses within its service area while fulfilling regulatory requirements. The IRP contains the following objectives that are relevant to the Project:

- Clean Energy: In 2021, PG&E delivered nearly 50 percent of its electricity from RPS-eligible renewable resources, such as solar, wind, geothermal, biomass, and small hydropower. In addition, PG&E's GHG-free energy production, which encompasses renewable resources, large hydropower, and nuclear, satisfied all of PG&E's bundled retail sales in 2021.
- Reliability: PG&E's IRP analysis includes PG&E's contribution to system and local reliability, in compliance with the CPUC's resource adequacy requirements, especially as California transitions toward higher shares of GHG-free generation resources.
- Affordability: PG&E's IRP analysis selects resources to meet the state's clean energy and reliability goals and provides a system average rate forecast in compliance with the CPUC's requirements for investor-owned utilities.

SAN JOAQUIN AIR POLLUTION CONTROL DISTRICT

Climate Change Action Plan

On August 21, 2008, the Valley Air District Governing Board approved a proposal called the Climate Change Action Plan (CCAP). The CCAP began with a public process bringing together stakeholders, land use agencies, environmental groups, and business groups to conduct public workshops to develop comprehensive policies for CEQA Guidelines, a carbon exchange bank, and voluntary GHG emissions mitigation agreements for the Governing Board's consideration. The CCAP contains the following goals and actions:

- Develop GHG significance thresholds to address CEQA projects with GHG emission increases.
- Develop the San Joaquin Valley Carbon Exchange for banking and trading GHG reductions.
- Authorize use of the SJVAPCD [Valley Air District's] existing inventory reporting system to allow use for GHG reporting required by AB 32 regulations.
- Develop and administer GHG reduction agreements to mitigate proposed emission increases from new projects.
- Support climate protection measures that reduce GHG emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted areas.

Rule 2301

While the CCAP indicated that the GHG emission reduction program would be called the San Joaquin Valley Carbon Exchange, the Valley Air District incorporated a method to register voluntary GHG emission reductions into its existing Rule 2301-Emission Reduction Credit Banking through

amendments of the rule. Amendments to the rule were adopted on January 19, 2012. The purposes of the amendments to the rule include the following:

- Provide an administrative mechanism for sources to bank voluntary GHG emission reductions for later use.
- Provide an administrative mechanism for sources to transfer banked GHG emission reductions to others for any use.
- Define eligibility standards, quantitative procedures, and administrative practices to ensure that banked GHG emission reductions are real, permanent, quantifiable, surplus, and enforceable.

LOCAL

City of Merced General Plan

The City of Merced General Plan includes several policies and implementation programs that are relevant to greenhouse gases and climate change. General Plan goals and policies applicable to the Project are identified below:

SUSTAINABLE DEVELOPMENT ELEMENT

Goal SD-1: Air Quality and Climate Change.

- **SD-1.1.** Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Merced.
- **SD-1.2.** Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.
- **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.
- **SD-1.4.** Educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.
- **SD-1.5.** Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs
- **SD-1.6.** Reduce emissions of PM10 and other particulates with local control potential.
- **SD-1.7.** Develop and implement a Climate Action Plan for the City.
- **SD-1.8.** Implement Policies in Other General Plan Chapters to Address Air Quality and Greenhouse Gas Emissions Reduction Goals.

Merced Climate Action Plan

The Merced Climate Action Plan (2012) sets forth a strategy to reduce community-generated GHG emissions, consistent with statewide GHG reduction efforts. Merced's Climate Action Plan includes goals, strategies, and actions to reduce local community GHG emissions to 1990 levels by the year 2020, consistent with the state objectives set forth in the "Global Warming Solutions Act," otherwise known as AB 32. The Merced Climate Action Plan was designed to reduce GHG emissions within this larger framework of sustainability. Merced's Climate Action Plan presents a comprehensive list of

actions were designed to help to achieve broadly-supported community values including: 1) protecting the community's 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, while at the same time reducing greenhouse gas emissions.

3.8.3 IMPACTS AND MITIGATION MEASURES

GREENHOUSE GAS EMISSIONS THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, climate change-related impacts are considered significant if implementation of the proposed Project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Most individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

For individual proposed projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). Although the City of Merced published a Climate Action Plan in 2012, since this was published over a decade ago, the City of Merced does not have a current, formal GHG emissions reduction plan (or any other form of a Climate Action Plan).

Therefore, the Project is assessed based on its consistency with the CARB's latest adopted Scoping Plan, including the Project's compliance with relevant Scoping Plan measures, as well as the latest RTP/SCS for the region within which the Project is located within (i.e., the Merced County Association of Governments' 2022 RTP/SCS). It should be noted that the Scoping Plan is consistent with the AB 1279 GHG reduction targets of achieving carbon neutrality by 2045, and reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. Therefore, consistency with the CARB's most recent Scoping Plan would also demonstrate consistency with the carbon neutrality requirements encapsulated by AB 1279. Additionally, although the City's Climate Action Plan is over a decade old, for the sake of disclosure, a qualitative analysis of the Project's consistency with the City's Climate Action Plan is also provided.

This analysis provides a qualitative assessment of the Project's compliance with the applicable plans, policies, and regulations for the purposes of reducing greenhouse gas emissions to determine whether the project would have a significant impact on the environment relative to GHGs.

Separately, disclosure of the Project's estimated construction and operation-related GHG emissions are provided for the purposes of disclosure.[16]

IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Project implementation would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (Less than Significant)

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. Implementation of the Project would contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to Project development would be primarily associated with increases of CO_2 and other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O), from mobile sources and utility usage.

The Project's short-term construction-related and long-term operational GHG emissions were estimated using the California Emission Estimator Model (CalEEMod)™ (v.2022.1). CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify GHG emissions from land use projects. 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, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of CO_2 equivalent units of measure (i.e., MT CO_2e), based on the global warming potential of the individual pollutants.

STATEWIDE GHG REDUCTION MEASURES THAT APPLY TO THE PROJECT

Several statewide GHG reduction strategies apply to the Project either directly or indirectly. A summary of these strategies is provided in **Table 3.8-1**.

[16] Project GHG emissions were provided using the latest version of CalEEMod (v2022.1), which represents the Air District's recommended modeling tool for estimating emissions for projects under CEQA.

TABLE 3.8-1: SUMMARY OF STATEWIDE GHG REDUCTION STRATEGIES THAT APPLY TO THE PROJECT

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
BUILDING COMPONENTS / FACILITY OPERATIONS		
Roofs/Ceilings/ Insulation	CAL Green Code (Title 24, Part 11) California Energy Code (Title 24, Part 6)	The Project must comply with efficiency standards regarding roofing, ceilings, and insulation. For example: Roofs/Ceilings: New construction must reduce roof heat island effects per CALGreen Code Section 106.11.2, which requires use of roofing materials having a minimum aged solar reflectance, thermal emittance complying with Sections A5.106.11.2.2 and A5.106.11.2.3, or a minimum aged Solar Reflectance Index as specified in Table A5.106.11.2.2 or A5.106.11.2.3. Roofing materials must also meet solar reflectance and thermal emittance standards contained in Title 20 Standards. Roof/Ceiling Insulation: Requirements for the installation of roofing and ceiling insulation (see Title 24, Part 6 Compliance Manual at Section 3.2.2).
Flooring	CALGreen Code	The Project must comply with efficiency standards regarding flooring materials. For example, for 80% of floor area receiving "resilient flooring," the flooring must meet applicable installation and material requirements contained in CALGreen Code Section 5.504.4.6.
Window and Doors	California Energy Code	The Project must comply with fenestration efficiency requirements. For example, the choice of windows, glazed doors, and any skylights for the Project must conform to energy consumption requirements affecting size, orientation, and types of fenestration products used (see Title 24, Part 6 Compliance Manual, Section 3.3).
Building Walls/ Insulation	CALGreen Code California Energy Code	The Project must comply with efficiency requirements for building walls and insulation. Exterior Walls: Must meet requirements in the current edition of the California Energy Code and comply with Section A5.106.7.1 or A5.106.7.2 of CALGreen for wall surfaces, as well as Section 5.407.1, which requires weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2. Construction must also meet requirements contained in Title 24, Part 6, which vary by material of the exterior walls (see Title 24, Part 6 Compliance Manual, Part 3.2.3). Demising (Interior) Walls: Mandatory insulation requirements for demising walls (which separate conditioned from non-conditions space) differ by the type of wall material used (Title 24, Part 6 Compliance Manual Part 3.2.4). Door Insulation: Mandatory requirements for air infiltration rates to improve insulation efficiency; they differ according to the type of door (Title 24, Part 6 Compliance Manual Part 3.2.5).

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
		Flooring Insulation: Mandatory requirements for insulation that depend on the material and location of the flooring (Title 24, Part 6 Compliance Manual Part 3.2.6).
Finish Materials	CALGreen	The Project must comply with pollutant control requirements for finish materials. For example, materials including adhesives, sealants, caulks, paints and coatings, carpet systems, and composite wood products must meet requirements in CALGreen to ensure pollutant control (CALGreen Section 5.504.4).
Wet Appliances (Toilets/Faucets/Urinal, Dishwasher/Clothes Washer, Spa and Pool/Water Heater)	CALGreen, California Energy Code, Appliance Efficiency Regulations (Title 20 Standards)	Wet appliances associated with the Project must meet various efficiency requirements. For example: Pool: Use associated with the Project is subject to appliance efficiency requirements for service water heating systems and equipment and spa and pool heating systems and equipment (Title 24, Part 6, Sections 110.3, 110.4, 110.5; Title 20 Standards, Sections 1605.1(g), 1605.3(g); see also California Energy Code). Toilets/Faucets/Urinals: Use associated with the Project is subject to new maximum rates for toilets, urinals, and faucets effective January 1, 2016 (Title 20 Standards, Sections 1605.1(h),(i) 1065.3(h),(i)): • Showerheads maximum flow rate 2.5 gallons per minute (gpm) at 80 pounds per square inch (psi) • Wash fountains 2.2 x (rim space in inches/20) gpm at 60 psi • Metering faucets 0.25 gallons per cycle • Lavatory faucets and aerators 1.2 gpm at 60 psi • Kitchen faucets and aerators 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi • Public lavatory faucets 0.5 gpm at 60 psi • Trough-type urinals 16 inches length • Wall mounted urinals 0.125 gallons per flush • Other urinals 0.5 gallons per flush Water Heaters: Use associated with the Project is subject to appliance efficiency requirements for water heaters (Title 20 Standards, Sections 1605.1(f), 1605.3(f)). Dishwasher/Clothes Washer: Use associated with the Project is subject to appliance efficiency requirements for dishwashers and clothes washers (Title 20 Standards, Sections 1605.1(o),(p),(q), 1605.3(o),(p),(q)).
Dry Appliances (Refrigerator/Freezer, Heater/Air Conditioner, Clothes Dryer)	Title 20 Standards CALGreen Code	Dry appliances associated with the Project must meet various efficiency requirements. For example:

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
		Refrigerator/Freezer: Use associated with the Project is subject to appliance efficiency requirements for refrigerators and freezers (Title 20 Standards, Sections 1605.1(a), 1605.3(a)). Heater/Air Conditioner: Use associated with the Project is subject to appliance efficiency requirements for heaters and air conditioners (Title 20 Standards, Sections 1605.1(b),(c),(d),(e), 1605.3(b),(c),(d),(e) as applicable). Clothes Dryer: Use associated with the Project is subject to appliance efficiency requirements for clothes dryers (Title 20 Standards, Section 1605.1(q)).
	CALGreen Code	Installations of heating, ventilation, and air conditioning; refrigeration and fire suppression equipment must comply with CALGreen Sections 5.508.1.1 and 508.1.2, which prohibits CFCs, halons, and certain HCFCs and HFCs.
Lighting	Title 20 Standards	Lighting associated with the Project are subject to energy efficiency requirements contained in Title 20 Standards. General Lighting: Indoor and outdoor lighting associated with the Project must comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(j),(k),(n), 1605.3(j),(k),(n)). Emergency Lighting and Self-Contained Lighting: Project must also comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(l), 1605.3(l)). Emergency Lighting and Self-Contained Lighting: Project must also comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(l), 1605.3(l)). Traffic Signal Lighting: For any necessary Project improvements involving traffic lighting, traffic signal modules and traffic signal lamps will need to comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(m), 1605.3(m)).
	California Energy Code	Lighting associated with the Project will also be subject to energy efficiency requirements contained in Title 24, Part 6, which contains energy standards for non-residential indoor lighting and outdoor lighting (see Title 24 Part 6 Compliance Manual, at Sections 5, 6). Mandatory lighting controls for indoor lighting include, for example, regulations for automatic shut-off, automatic daytime controls, demand responsive controls, and certificates of installation (Title 24 Part 6 Compliance Manual at Section 5).
		Regulations for outdoor lighting include, for example, creation of lighting zones, lighting power requirements, a hardscape lighting power allowance, requirements for outdoor incandescent and

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
		luminaire lighting, and lighting control functionality (Title 24 Part 6 Compliance Manual Section 6).
	AB 1109	Lighting associated with the Project will be subject to energy efficiency requirements adopted pursuant to AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting to reduce electricity consumption 25% for indoor commercial lighting.
Bicycle and Vehicle Parking	CALGreen Code	The Project will be required to provide compliant bicycle parking, fuel-efficient vehicle parking, and electric vehicle (EV) charging spaces (CALGreen Code Sections 5.106.4, 5.106.5.1, 5.106.5.3).
	California Energy Code	The Project is subject to parking requirements contained in Title 24, Part 6. For example, parking capacity is to meet but not exceed minimum local zoning requirements, and the Project should employ approved strategies to reduce parking capacity (Title 24, Part 6, Section 106.6).
Landscaping	CALGreen Code	CALGreen requires and has further voluntary provisions for the following: • A water budget for landscape irrigation use • For new water service, separate meters or submeters must be installed for indoor and outdoor potable water use for landscaped areas of 1,000 to 5,000 square feet • Provide water-efficient landscape design that reduces use of potable water beyond initial requirements for plant installation and establishment
	Model Water Efficient Landscaping Ordinance	The model ordinance promotes efficient landscaping in new developments and establishes an outdoor water budget for new and renovated landscaped areas that are 500 square feet or larger (CCR, Title 23, Division 2, Chapter 2.7).
Refrigerants	CARB Management of High GWP Refrigerants for Stationary Sources	Any refrigerants associated with the Project would be subject to CARB standards. CARB's Regulation for the Management of High GWP Refrigerants for Stationary Sources reduces emissions of high-GWP refrigerants from leaky stationary, non-residential refrigeration equipment; reduces emissions resulting from the installation and servicing of stationary refrigeration and air conditioning appliances using high-GWP refrigerants; and requires verification GHG emission reductions (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.).
Consumer Products	CARB High GWP GHGs in Consumer Products	All consumer products associated with the Project will be subject to CARB standards. CARB's consumer products regulations set VOC limits for numerous categories of consumer products, and limits the reactivity of the ingredients used in numerous categories of aerosol

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
		coating products (CCR, Title 17, Division 3, Chapter 1, Subchapter 8.5).
		CONSTRUCTION
Use of Off-Road Diesel Engines, Vehicles, and Equipment	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the Project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; restricts the adding of older vehicles into fleets starting on January 1, 2014; and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road Regulation vary by fleet size, as defined by the regulation.
Greening New Construction	CALGreen Code	All new construction, including the Project, must comply with CALGreen, as discussed in more detail throughout this table. Adoption of the mandatory CALGreen standards for construction has been essential for improving the overall environmental performance of new buildings; it also sets voluntary targets for builders to exceed the mandatory requirements.
Construction Waste	CALGreen Code	The Project would be subject to CALGreen requirements for construction waste reduction, disposal, and recycling, such as a requirement to recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2, or 5.408.1.3, or meet a local construction and demolition waste management ordinance, whichever is more stringent.
		SOLID WASTE
Solid Waste Management	Landfill Methane Control Measure	Waste associated with the Project would be disposed of per state requirements for landfills, material recovery facilities, and transfer stations. Per the statewide GHG emissions inventory, the largest emissions from waste management sectors come from landfills and are in the form of methane (CH_4). In 2010, CARB adopted a regulation that reduces emissions from CH_4 in landfills, primarily by requiring owners and operators of certain uncontrolled municipal solid waste landfills to install gas collection and control systems, and requires existing and newly installed gas and control systems to operate in an optimal manner. The regulation allows local air districts to voluntarily enter into a memorandum of understanding with CARB to implement and

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
		enforce the regulation and to assess fees to cover costs of implementation.
	Mandatory Commercial Recycling (AB 341)	AB 341 will require the Project, if it generates 4 cubic yards or more of commercial solid waste per week, to arrange for recycling services using one of the following: self-haul, subscribe to a hauler, arrange for pickup of recyclable materials, or subscribe to a recycling service that may include mixed waste processing that yields diversion results comparable to source separation. The Project will also be subject to local commercial solid waste recycling programs required to be implemented by each jurisdiction under AB 341.
	CALGreen Code	The Project will be subject to CALGreen requirements to provide areas that serve the entire building and are identified for depositing, storing, and collecting nonhazardous materials for recycling (CALGreen Code Section 5.410.1).
ENERGY USE		
Renewable Energy	California RPS (SB X1-2, SB 350, SB 100, and SB 1020)	Energy providers associated with the Project will be required to comply with the RPS set by SB X1 2, SB 350, and SB 100. SB X1 2 required investor-owned utilities, publicly owned utilities, and electric service providers to increase purchases of renewable energy such that at least 33% of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity was required to procure an average of 20% of renewable energy for the period of January 1, 2011 through December 31, 2013; and were required to procure an average of 25% by December 31, 2016, and 33% by 2020. SB 350 requires retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030. SB 100 increased the standards set forth in SB 350 establishing that 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, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California by 2045. SB 1020 built on the standards set forth in SB 100, establishing that 90% of the retail sales of electricity must be carbon free by 2035, 95% must be carbon free by 2040, and, as stated in SB 100, 100% must be carbon free by 2045.

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
	California Solar Initiative-Thermal Program	Multifamily properties qualify for rebates of up to $800,000 on solar water heating systems and eligible solar pool heating systems qualify for rebates of up to $500,000. Funding for the California Solar Initiative –Thermal program comes from ratepayers of Pacific Gas & Electric, SCE, Southern California Gas Company, and San Diego Gas & Electric. The rebate program is overseen by the CPUC as part of the California Solar Initiative.
VEHICULAR/MOBILE SOURCES		
General	SB 375 and RTP/SCS	The Project complies with, and is subject to, the Merced County Association of Governments' (MCAG) RTP/SCS adopted in 2022, as shown in Table 3.8-5.
Fuel	Low Carbon Fuel Standard (LCFS)/ EO S-01-07	Auto trips associated with the Project will be subject to the Low Carbon Fuel Standard (EO S-01-07), which required a 10% or greater reduction in the average fuel carbon intensity by 2020 with a 2010 baseline for transportation fuels in California regulated by CARB. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals.
Automotive Refrigerants	CARB Regulation for Small Containers of Automotive Refrigerant	Vehicles associated with the Project will be subject to CARB's Regulation for Small Containers of Automotive Refrigerant (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.). The regulation applies to the sale, use, and disposal of small containers of automotive refrigerant with a GWP greater than 150. The regulation achieves emission reductions through implementation of four requirements: use of a self-sealing valve on the container, improved labeling instructions, a deposit and recycling program for small containers, and an education program that emphasizes best practices for vehicle recharging. This regulation went into effect on January 1, 2010, with a 1-year sell-through period for containers manufactured before January 1, 2010. The target recycle rate was initially set at 90%, and rose to 95% beginning January 1, 2012.
Light-Duty Vehicles	AB 1493 (or the Pavley Standard)	Cars that drive to and from the Project will be subject to AB 1493, which directed CARB to adopt a regulation requiring the maximum feasible and cost-effective reduction of GHG emissions from new passenger vehicles. Pursuant to AB 1493, CARB adopted regulations that established a declining fleet average standard for CO2, CH4, N2O, and HFCs (air conditioner refrigerants) in new passenger vehicles and light-duty trucks beginning with the 2009 model year and phased-in through the 2016 model year. These standards were divided into those applicable to lighter and those applicable to heavier portions of the passenger vehicle fleet. The regulations will reduce "upstream" smog-forming emissions from refining, marketing, and distribution of fuel.

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
	Advanced Clean Car and ZEV Programs	Cars that drive to and from the Project will be subject to the Advanced Clean Car and ZEV Programs. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles (ZEVs) into a single package of standards called Advanced Clean Cars. By 2025, new automobiles will emit 34% less global warming gases and 75% less smog-forming emissions. The ZEV Program will act as the focused technology of the Advanced Clean Cars Program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018–2025 model years. The Advanced Clean Cars II (ACC II) regulation builds on the Advanced Clean Cars (ACC) rule adopted in 2012. ACC II decreases emissions by increasing EV sales via two programs. First, the under the ZEV program, original equipment manufacturers (OEMs) must increase sales of ZEV vehicles from 35 percent in 2026 to 100 percent in 2035. Second, ACC II further strengthened the LEV program discussed above, with more stringent emission standards beginning with model year 2025.
	Tire Inflation Regulation	Cars that drive to and from the Project will be subject to the CARB Tire Inflation Regulation, which took effect on September 1, 2010, and applies to vehicles with a gross vehicle weight rating of 10,000 pounds or less. Under this regulation, automotive service providers must, inter alia, check and inflate each vehicle's tires to the recommended tire pressure rating, with air or nitrogen, as appropriate, at the time of performing any automotive maintenance or repair service, to keep a copy of the service invoice for a minimum of 3 years, and to make the vehicle service invoice available to the CARB or its authorized representative upon request.
	EPA and NHTSA GHG and CAFÉ standards	Mobile sources that travel to and from the Project site would be subject to EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles (75 FR 25324–25728 and 77 FR 62624–63200).
Medium-and Heavy-Duty Vehicles	CARB In-Use On-Road Heavy-Duty Diesel Vehicles Regulation (Truck and Bus Regulation)	Any heavy-duty trucks associated with the Project will be subject to CARB standards. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
		To further reduce emissions, the Advanced Clean Truck Act (ACT) requires original equipment manufacturers of medium- and heavy-duty vehicles to sell ZEVs or near-zero-emissions vehicles (NZEVs) such as plug-in electric hybrids as an increasing percentage of their annual sales from 2024 to 2035. The ACT includes a cap-and-trade system, capping the number of fossil fuel vehicles sold by stipulating annual sales percentage requirements. Manufacturers can comply with the ACT by generating compliance credits through the sale of ZEVs or NZEVs or through the trading of compliance credits.
	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the Project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulations impose limits on idling, require a written idling policy, and require a disclosure when selling vehicles; require all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; restricted the adding of older vehicles into fleets starting on January 1, 2014; and require fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.
	Heavy-Duty Vehicle GHG Emission Reduction Regulation	Any relevant vehicle or machine use associated with the Project will be subject to CARB standards. The CARB Heavy-Duty Vehicle GHG Emission Reduction Regulation applies to heavy-duty tractors that pull 53-foot or longer box-type trailers (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.). Fuel efficiency is improved through improvements in tractor and trailer aerodynamics and the use of low rolling resistance tires.
	EPH and NHTSA GHG and CAFÉ standards	Mobile sources that travel to and from the Project site would be subject to EPA and NHTSA GHG and CAFE standards for medium-and heavy-duty vehicles (76 FR 57106–57513).
WATER USE		
Water Use Efficiency	Emergency State Water Board Regulations	Water use associated with the Project will be subject to emergency regulations. On May 18, 2016, partially in response to EO B-27-16, the State Water Board adopted emergency water use regulations (CCR, title 23, Section 864.5 and amended and re-adopted Sections 863, 864, 865, and 866). The regulation directs the State Water Board, Department of Water Resources, and CPUC to implement rates and pricing structures to incentivize water conservation, and calls upon water suppliers, homeowner's associations, California businesses, landlords and tenants, and wholesale water agencies to take stronger conservation measures.

PROJECT COMPONENT	*APPLICABLE LAWS/REGULATIONS*	*GREENHOUSE GAS REDUCTION MEASURES REQUIRED FOR PROJECT*
	SB X7-7	Water provided to the Project will be affected by SB X7-7's requirements for water suppliers. SB X7-7, or the Water Conservation Act of 2009, requires all water suppliers to increase water use efficiency. It also requires, among other things, that the Department of Water Resources, in consultation with other state agencies, develop a single standardized water use reporting form, which would be used by both urban and agricultural water agencies.
	CALGreen Code	The Project is subject to CALGreen's water efficiency standards, including a required 20% mandatory reduction in indoor water use (CALGreen Code, Division 4.3).
	California RPS	Electricity usage associated with Project water and wastewater

SHORT-TERM CONSTRUCTION GHG EMISSIONS

Estimated maximum GHG emissions associated with construction of the proposed Project are summarized in **Table 3.8-2**. These emissions include all worker vehicle, vendor vehicle, hauler vehicle, and off-road construction vehicle GHG emissions. For the purposes of this analysis, based on input from the Project applicant, the proposed Project is assumed to commence construction in 2025 and finish in 2038. See Appendix B for further detail.

As presented in Table 3.8-2, short-term construction emissions of GHGs are estimated to be a total of approximately 16,327 MT CO_2e.

TABLE 3.8-2: TOTAL CONSTRUCTION GHG EMISSIONS (MT CO_2E/YEAR)

YEAR	*BIO- CO_2*	*NON-BIO- CO_2*	*TOTAL CO_2*	*CH_4*	*N_2O*	*REFRIGERANTS*	*CO_2E*
2025	0	209	209	0	0	0	210
2026	0	747	747	0	0	0	753
2027	0	1,348	1,348	0	0	1	1,377
2028	0	1,348	1,348	0	0	1	1,376
2029	0	1,321	1,321	0	0	1	1,349
2030	0	1,298	1,298	0	0	1	1,324
2031	0	1,276	1,276	0	0	1	1,302
2032	0	1,254	1,254	0	0	1	1,279
2033	0	1,231	1,231	0	0	1	1,256
2034	0	1,212	1,212	0	0	1	1,230
2035	0	1,195	1,195	0	0	1	1,212
2036	0	1,183	1,183	0	0	0	1,200
2037	0	1,166	1,166	0	0	0	1,182
2038	0	1,079	1,079	0	0	0	1,094
2039	0	183	183	0	0	0	184

YEAR	BIO- CO_2	NON-BIO- CO_2	TOTAL CO_2	CH_4	N_2O	REFRIGERANTS	CO_2E
Total	**0**	**16,052**	**16,052**	**0**	**1**	**10**	**16,327**

SOURCES: CALEEMOD (V.2022.1)

NOTE: NUMBERS MAY NOT ADD UP EXACTLY DUE TO ROUNDING

OPERATIONAL GHG EMISSIONS

The operational GHG emissions estimate for the proposed Project includes on-site area, energy, mobile, waste, and water emissions. Estimated GHG emissions associated with operation of the proposed Project are summarized in **Table 3.8-3**. It should be noted that CalEEMod does not account for Governor Newsom's Zero-Emission by 2035 Executive Order (N-79-20), which requires that all new cars and passenger trucks sold in California be zero-emission vehicles by 2035; CalEEMod also does not account for the new CARB rules related to truck electrification (e.g., Advanced Clean Trucks Regulation). This is anticipated to substantially reduce the operational emissions associated with vehicles (i.e., mobile emissions) over time. The operational emissions results provided in Table 3.8-3 are likely an overestimate for the Project's mobile emissions, given the State's ongoing effort to increase electric vehicles and trucks. As shown in Table 3.8-3, the annual GHG emissions associated with the proposed Project would be approximately 8,127 MT CO_2e under the unmitigated scenario.

TABLE 3.8-3: OPERATIONAL GHG EMISSIONS AT BUILDOUT (METRIC TONS/YEAR) - UNMITIGATED

CATEGORY	BIO- CO_2	NON-BIO- CO_2	TOTAL CO_2	CH_4	N_2O	REFRIGERANTS	CO_2E
Mobile	0	5,444	5,444	0	0	1	5,555
Area	0	14	14	0	0	0	14
Energy	0	2,171	2,171	0	0	0	2,181
Water	12	12	24	1	0	0	64
Waste	68	0	68	7	0	0	238
Refrig.	0	0	0	0	0	76	76
Total	**80**	**7,640**	**7,720**	**8**	**0**	**78**	**8,127**

SOURCES: CALEEMOD (V.2022.1)

NOTE: NUMBERS MAY NOT ADD UP EXACTLY DUE TO ROUNDING.

CONSISTENCY WITH 2022 SCOPING PLAN

The CARB's 2022 Scoping Plan (the latest version of the Scoping Plan) provides policies that are considered needed to meet the State's mid-term and long-term GHG emissions reduction targets. Specifically, the CARB's *Final* 2022 Scoping Plan identifies that it "…lays out the sector-by-sector roadmap for California, the world's fifth largest economy, to achieve carbon neutrality by 2045 or earlier…". The Scoping Plan addresses recent legislation and direction from Governor Newsom, by extending and expanding upon the earlier Scoping Plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045, and adding carbon neutrality as a science-based guide and touchstone for California's climate work. The Scoping Plan is therefore consistent with the AB 1279 GHG reduction targets of achieving carbon neutrality by 2045, and reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. The Project's consistency with the applicable 2022 Scoping Plan policies is discussed in **Table 3.8-4**.

TABLE 3.8-4: PROJECT CONSISTENCY WITH THE 2022 SCOPING PLAN

POLICY	*PROJECT CONSISTENCY*
Transportation Electrification	
Convert local government fleets to ZEVs and provide EV charging at public sites	**No Conflict.** While this goal is not applicable to an individual residential or commercial development project, the Project includes an EV parking requirement and includes EV spaces consistent with the requirements of the California Energy Code (CCR Title 24, Part 6).
Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans)	
VMT Reduction	
Reduce or eliminate minimum parking standards	**No Conflict.** Although this goal is not applicable to an individual residential or commercial development project, the Project is implementing neighborhood design improvements such as pedestrian network improvements and traffic calming measures. Furthermore, the proposed Project would enable walkable development.
Implement Complete Streets policies and investments, consistent with general plan circulation element requirements	
Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.	
Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking	
Implement parking pricing or transportation demand management pricing strategies	
Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing the allowable density of a neighborhood)	
Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert “greenfield” land to urban uses (e.g., green belts, strategic conservation easements)	
Building Decarbonization	
Adopt all-electric new construction reach codes for residential and commercial uses	**No Conflict.** Although this goal is not applicable to an individual residential or commercial development project, the Project would be consistent with the applicable Title 24 Building Envelope Energy Efficiency Standards, which ensure highly energy efficient development. Additionally, the proposed Project would utilize electricity from PG&E and/or Merced Irrigation District (MID), which has been increasing its overall supply of renewable energy as part of its overall energy portfolio, consistent with the State’s Renewable Portfolio Standard.
Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers)	
Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances	
Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing)	
Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings)	

The proposed Project's operational emissions would be reduced as regulations are implemented by the CARB and other State agencies to comply with the statewide GHG reduction targets. Many of these regulations are already identified in the 2022 Scoping Plan. These statewide actions are anticipated to reduce operational GHG emissions even further below those identified in Table 3.8-4. For example, the proposed Project's transportation emissions would be expected to decline as vehicle efficiency standards are implemented beyond the Advanced Clean Cars II program and the Low Carbon Fuel Standard is strengthened. Furthermore, CalEEMod does not account for Governor Newsom's Zero-Emission by 2035 Executive Order (N-79-20) or CARB's subsequent regulations, which requires that all new cars and passenger trucks sold in California be zero-emission vehicles by 2035. This is anticipated to substantially reduce the operational emissions associated with passenger vehicles (i.e. mobile emissions) further, over time.

Overall, the proposed Project would not conflict with the 2022 Scoping Plan. The proposed Project would be developed according to the latest State and federal regulatory requirements, including those associated with operational building energy efficiency. Therefore, the Project would be considered consistent with the 2022 Scoping Plan. Based on this, recognizing the CARB as an authoritative substantial evidence source in evaluating post-2020 GHG impacts, since the proposed Project would be consistent with the CARB's 2022 Scoping Plan, buildout of the proposed Project would not interfere with the main programs the CARB has identified to support its conclusions that the State is on a trajectory to meet the 2045 GHG target. Overall, the proposed Project would not impede the 2022 Scoping Plan and would help the State to progress towards this target.

CONSISTENCY WITH MERCED COUNTY ASSOCIATION OF GOVERNMENT'S 2022 RTP/SCS

The MCAG's 2022 RTP/SCS includes eighteen goals that were established to meet the regulatory requirements of the FAST Act, the Clean Air Act, Title VI of the Civil Rights Act, Senate Bill (SB) 375, the California Complete Streets Act, and the California Environmental Quality Act (CEQA). They were tailored specifically to the unique needs of Merced County and incorporate 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. The Project's consistency with the applicable 2022 RTP/SCS strategies is discussed in **Table 3.8-5**.

TABLE 3.8-5: PROJECT CONSISTENCY WITH THE MCAG'S 2022 RTP/SCS

GOAL	*PROJECT CONSISTENCY*
Goal 1. Active Transportation (Bicycle & Pedestrian): A regional transportation system for bicyclists and pedestrians. Create a safe, connected, and integrated regional transportation system for bicyclists and pedestrians.	**No Conflict.** The proposed Project includes pedestrian and roadway connectivity to adjacent roadways, thereby enhancing the overall regional transportation system for bicyclists and pedestrians, and integrating it with the existing nearby pedestrian and bicycle networks.
Goal 2. Air Quality: Achieve air quality standards set by the Environmental Protection Agency (EPA), and the State Air Resources Board.	**No Conflict.** As provided in Section 3.3: Air Quality, the proposed Project would not exceed the criteria pollutant thresholds established by the Air District, for both Project construction and operation. Therefore, the Project would not conflict

GOAL	*PROJECT CONSISTENCY*
	the ability of the region to achieve the air quality standards set by the Environmental Protection Agency (EPA), and the State Air Resources Board.
Goal 3. Aviation: Provide a fully-functional and integrated air service and airport system that complements the countywide transportation system.	**Not applicable.** The proposed Project is not an aviation project.
Goal 4. Energy: Reduce usage of nonrenewable energy resources for transportation purposes.	**No Conflict.** The proposed Project would comply with the State's EV parking requirement and includes EV spaces consistent with the requirements of the California Energy Code (CCR Title 24, Part 6).
Goal 5. Goods Movement: Improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.	**Not applicable.** The proposed Project is not a transportation project.
Goal 6. Highways, Streets, and Roads: Provide a safe and efficient regional road system that accommodates the demand for movement of people and goods.	**No Conflict.** Although the proposed Project is not a transportation project, the Project would enhance the existing road system, which would accommodate the demand for movement of people and goods, including after full buildout of the Project.
Goal 7. Land Use Development Patterns and Strategies: Provide economical, long-term solutions to transportation problems by encouraging community designs that encourage walking, transit, and bicycling**.**	**No Conflict.** The proposed Project includes pedestrian and roadway connectivity to adjacent roadways, thereby enhancing the overall regional transportation system for bicyclists and pedestrians, and integrating it with the existing nearby pedestrian and bicycle networks.
Goal 8. Outreach and Coordination: Provide a forum for participation and cooperation in transportation planning and facilitate relationships for transportation issues that transcend jurisdictional boundaries.	**Not applicable.** The proposed Project is not a transportation project.
Goal 9. Passenger Rail: Provide a rail system that offers safe and reliable service for passengers.	**Not applicable.** The proposed Project is not a passenger rail project.
Goal 10. Reduce Project Delivery Delays: Efficiently use available transportation funding to expedite delivery of transportation improvements within the region, and delivery of the Measure V expenditure plan.	**Not applicable.** The proposed Project is not a transportation project.
Goal 11. Reliability & Congestion: Achieve a significant reduction in congestion on the National Highway System. Improve the efficiency of the surface transportation system.	**Not applicable.** The proposed Project is not a transportation project.
Goal 12. Safety for all Roadway Users: Achieve a significant reduction in traffic fatalities and serious injuries on all public roads.	**No Conflict.** The proposed Project includes pedestrian and roadway connectivity to adjacent roadways, and would preserve the overall safety of both Project roadways and those roadways effected by increased demand associated with the Project.

GOAL	*PROJECT CONSISTENCY*
Goal 13. Smart Infrastructure: Coordinate, monitor, and integrate planning and programming for intelligent transportation system (ITS), smart infrastructure, demand-responsive transportation, and automated vehicles.	**Not applicable.** The proposed Project is not a transportation project.
Goal 14. 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 improvements.	**No Conflict.** The Project would add housing and commercial uses to area that currently has a shortage of available housing options. The Project is also designed to be highly accessible to varied modes of travel, including pedestrians and bicyclists. Therefore, the Project would promote and provide equitable transportation and housing options for all populations and ensure that all populations share in the benefits of transportation improvements.
Goal 15. Sustainable Communities: Reduce per capita greenhouse gas emissions through compact growth and 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. Support a vibrant and sustainable regional economy. Maximize the use of Regional Early Action Planning 2.0 funds to implement and advance efforts to reduce per capita greenhouse gas emissions**.**	**No Conflict.** The proposed Project is a dense mixed-used development project that would minimize transportation emissions, via an emphasis on walking and bicycling modes. Moreover, the proposed Project would comply with the State's EV parking requirement and includes EV spaces consistent with the requirements of the California Energy Code (CCR Title 24, Part 6). Overall, the proposed Project would be consistent with sustainable communities.
Goal 16. System Preservation: Maintain the existing transportation system in a state of good repair.	**No Conflict.** The Project would not degrade the existing transportation system.
Goal 17. Transit: Provide an efficient, effective, coordinated regional transit system that increases mobility for urban and rural populations, including transportation for disadvantaged persons.	**No Conflict.** The Project would not interfere with existing transit systems.
Goal 18. Transportation Financing: Develop and support financing strategies that provide for a continuous implementation of the Regional Transportation Plan projects and strategies	**Not applicable.** The proposed Project is not a transportation project.

SOURCE: MCAG 2022 RTP/SCS

As shown in Table 3.8-5, the Project would not conflict with any of the GHG emissions reduction strategies contained in the MCAG's 2022 RTP/SCS. Therefore, the Project would be consistent with MCAG's 2022 RTP/SCS.

CONSISTENCY WITH MERCED CLIMATE ACTION PLAN

The proposed Project would be consistent with the relevant GHG reduction measures associated with the Merced Climate Action Plan (CAP), published in 2012. **Table 3.8-6**, provides an analysis of the consistency of the proposed Project with applicable GHG reduction measures contained within

the CAP. As shown, the proposed Project would be consistent with all GHG reduction measures that would be applicable to the proposed Project.

TABLE 3.8-6: PROJECT CONSISTENCY WITH THE CITY OF MERCED CLIMATE ACTION PLAN

GHG REDUCTION MEASURE	*PROJECT CONSISTENCY*
Strategy EM 1.1: Site Design Planning	**No Conflict.** The Project would connect the City's existing transportation system, via pedestrian walkways (including sidewalks) and bicycle lanes and connect with the existing system. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy EM 1.2: Transit Planning	**No Conflict.** The Project would not hinder the development of the City's transit system. Furthermore, the increased residential density of the area that would occur with development of the proposed Project would incentivize further development of local transit options, beyond which would be anticipated to occur without development of the proposed Project. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy EM 1.3: Bicycle Planning and Projects	**No Conflict.** The Project would connect the City's existing transportation system, including via bicycle lanes and connect with the existing system. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy EM 1.4: Pedestrian Planning and Projects	**No Conflict.** The Project would connect the City's existing transportation system, via pedestrian walkways (including sidewalks) and bicycle lanes and connect with the existing system. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy SC 2.1: Compact Urban Form/Infill	**No Conflict.** The Project would increase density in the City of Merced, thereby facilitating additional land use and existing transportation integration. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy SC 2.2: Mixed Use/Transit-oriented Development	**No Conflict.** The Project proposed mixed use development, thereby facilitating additional land use and existing transportation integration, and development oriented around multiple transportation choices. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy WC 3.1: Water Conservation and Technology	**No Conflict.** The Project would be consistent with the State's statewide goal of a 20% reduction in urban per capita use, as required by Senate Bill X7-7. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy WC 3.2: Reduce Groundwater Pumping	**No Conflict.** The Project would be consistent with the State's statewide goal of a 20% reduction in urban per capita use, as required by Senate Bill X7-7. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy WC 3.3: Water Efficient Landscapes	**No Conflict.** The Project would be consistent with the State's statewide goal of a 20% reduction in urban per capita use, as required by Senate Bill X7-7. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy AR 4.1: Reduced Vehicle Trips	**No Conflict.** The Project would connect the City's existing transportation system, via pedestrian walkways (including sidewalks) and bicycle lanes and connect with the existing system. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy AR 4.2: Clean Trips – Clean Vehicles	**No Conflict.** The Project would not conflict with the City's goal to reduce vehicle emissions. For example, The Project would connect the City's existing transportation system, via pedestrian walkways (including

GHG REDUCTION MEASURE	*PROJECT CONSISTENCY*
	sidewalks) and bicycle lanes and connect with the existing system. Therefore, the proposed Project would not conflict with this GHG reduction measure. It should also be noted that some of the actions associated with this Strategy are not applicable to the Project.
Strategy AR 4.3: Reduce Non-vehicular Emissions	**No Conflict.** The Project would connect the City's existing transportation system, via pedestrian walkways (including sidewalks) and bicycle lanes and connect with the existing system. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy WR 5.1: Reduce, Reuse, Recycle	**No Conflict.** The Project would be consistent with the State's 75% waste diversion goal as required by AB 341, as the local waste haulers are required by State law to implement this measure. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy RE 6.1: Renewable Energy Systems	**No Conflict.** The Project would be consistent with the current Title 24 Standards associated with solar PV. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy BE 7.2: Energy Efficiency in New Development	**No Conflict.** The Project would exceed the 2008 Title 24 of the California Code of Regulations Standards, since the most recent version of the Title 24 Standards is much more stringent. Simply meeting the current Title 24 Standards would result in significant energy and GHG savings for the City because the state has regularly updated the Title 24 requirements since 2005 and plans to continue to update the Title 24 standards periodically in the future. Therefore, the proposed Project would not conflict with this GHG reduction measure.
Strategy BE 7.5: Urban Forestry/Heat Island Effect	**No Conflict.** The Project would include landscaping trees that would not conflict with this GHG reduction measure.

SOURCE: MERCED CLIMATE ACTION PLAN, 2012

EXECUTIVE ORDER S-3-05

The Executive Order S-3-05 2050 target has not been codified by legislation. However, studies have shown that, to meet the 2050 target, aggressive pursuit of technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. Because of the technological shifts required and the unknown parameters of the regulatory framework in 2050, quantitatively analyzing the project's impacts further relative to the 2050 goal is speculative for purposes of CEQA.[17]

The CARB recognizes that AB 32 establishes an emissions reduction trajectory that will allow California to achieve the more stringent 2050 target: "These [greenhouse gas emission reduction] measures also put the State on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels. This trajectory is consistent with the reductions that are needed globally to stabilize the climate." In addition, the CARB's First Update to the Scoping Plan "lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050," and many of the emission reduction

[17] California Air Resources Board (CARB). 2013. First Update to the Climate Change Scoping Plan. Website: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed September 11, 2023.

strategies recommended by the CARB would serve to reduce the proposed project's post-2020 emissions level to the extent applicable by law:

- Energy Sector: Continued improvements in California's appliance and building energy efficiency programs and initiatives, such as the State's zero net energy building goals, would serve to reduce the proposed project's emissions level. Additionally, further additions to California's renewable resource portfolio would favorably influence the project's emissions level.
- Transportation Sector: Anticipated deployment of improved vehicle efficiency, zero-emission technologies, lower carbon fuels, and improvement of existing transportation systems all will serve to reduce the project's emissions level.
- Water Sector: The project's emissions level will be reduced because of further utilization of water conservation technologies.
- Waste Management Sector: Plans to further improve recycling, reuse and reduction of solid waste will beneficially reduce the project's emissions level.

Further, studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050. Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow the Statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the State to meet the 2050 target.[18]

Given the proportional contribution of mobile source-related GHG emissions to the State's inventory, recent studies also show that relatively new trends—such as the increasing importance of web-based shopping, the emergence of different driving patterns, and the increasing effect of web-based applications on transportation choices—are beginning to substantially influence transportation choices and the energy used by transportation modes. These factors have changed the direction of transportation trends in recent years and will require the creation of new models to effectively analyze future transportation patterns and the corresponding effect on GHG emissions. For the reasons described above, the proposed Project's post-2020 emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets.

MORE STRINGENT TITLE 24 STANDARDS

The proposed Project would be required to comply with the latest (i.e., 2022) version of the Title 24 standards, which are more stringent than the 2019 Title 24 standards that are modeled in CalEEMod.[19] Therefore, proposed Project emissions would continue to decline beyond the buildout

[18] Energy and Environmental Economics, 2014. Pathways to Deep Carbonization in the United States. Available at: https://mahb.stanford.edu/wp-content/uploads/2014/12/US-Deep-Decarbonization-Report.pdf. Accessed September 30, 2024.

[19] Since the latest version of CalEEMod (v.2022.1) only accounts for the energy efficiency requirements associated with the 2019 version of Title 24, and since there is no well-established methodology for quantifying the reductions in energy consumption associated with the 2022 version of Title 24 over the 2019

year due to regulations that would indirectly affect Project emissions. Moreover, the Title 24 standards are anticipated to be revised again in Year 2025, with even stricter energy efficiency and renewable energy requirements for new development, which help to ensure that new development is consistent with the State's GHG reduction goals, consistent with the Scoping Plan.[20] These improvements to the Title 24 standards will be reflected in per capita GHG emission reductions at the Project buildout.

CONSISTENCY WITH THE SJVAPCD REQUIREMENTS

The proposed Project would be required to comply with all applicable SJVAPCD (i.e., Air District) Rules and regulations. For example, Regulations and rules that may apply to the proposed Project could include Regulation VIII that provides fugitive PM_{10} dust prohibitions; Rule 8021 that provides rules for PM_{10} dust prohibition associated with construction, demolition activities, excavation, extraction, and other earthmoving activities; Rule 4601 that provides rules to limit VOC emissions for architectural coatings. Moreover, the proposed Project would be required to comply with SJVAPCD Rule 9510, as described in further detail below.

SJVAPCD'S RULE 9510

In accordance with the SJVAPCD's Rule 9510, an Air Impact Assessment (AIA) is required to be prepared for the proposed Project based on the applicability and exemption criteria of the rule.[21] The rule includes general mitigation requirements for construction and/or operational emissions. Per the general mitigation requirements of Rule 9510, the Project would be required to reduce the Project's operational baseline NOx emissions 33.3%, and the Project's operational baseline PM_{10} emissions 50%, over a period of 10 years as quantified in the approved AIA. Although the purpose of Rule 9510 is to reduce NOx and PM_{10} emissions, rather than GHG emissions, it should be noted that these reductions are enforced through on- and off-site measures, many of which would also reduce GHG emissions. For example, according to the SJVAPCD's most recent Indirect Source Review Program annual report (*the Indirect Source Review Program 2023 Annual Report, July 1, 2022 to June 30, 2023*), during the reporting period (July 1, 2022 through June 30, 2023), the District spent ISR monies to fund clean-air emission reduction projects, including off-site projects such as the replacement of older, higher-emitting agricultural tractors with new latest-tier tractors, replacement of older, higher-emitting agricultural irrigation water pump engines with electric motors, retrofitting of residential open-hearth fireplaces with certified natural gas burning inserts, and a dairy feed mixer electrification project. Total off-site emission reductions alone for the reporting period totaled 1,270.4 tons of NOx and 220.5 tons of PM_{10}, for a paid-out total of $19,609,480, and a cost effectiveness of $13,153/ton.[22]

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version of Title 24, the CalEEMod modeling does not account for the energy efficiency improvements that would be associated with the 2022 (or future, more stringent) versions of Title 24.

20 See: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-building-energy-efficiency

21 Available at: https://www.valleyair.org/rules/currntrules/r9510-a.pdf. Accessed: September 30, 2024.

22 See the SJVAPCD's Indirect Source Review Rule Annual Report (2023) for more detail: https://ww2.valleyair.org/permitting/indirect-source-review-rule-overview/isr-annual-report/

These off-site emission reductions have the ancillary benefit of reducing GHG emissions, beyond what has been modeled herein. For example, the reduction in carbon intensity of natural gas burning inserts compared with open-hearth fireplaces is improved by 39.7%, according to data from Appendix G of the latest version of the CalEEMod v2022.1 Guidebook.[23] Although the reductions in GHGs will be attributed to the proposed Project through the Rule 9510 ISR, these reductions are not reflected in the Project GHG modeling estimates included herein, except that the modeling estimates do reflect that fact that the Project does not include any open-hearth fireplaces. It is notable, however, that the GHG reductions are projected to be substantial and are in alignment with the goals of the 2022 Scoping Plan.

CONCLUSION

The proposed Project would be consistent with relevant plans, policies, and regulations associated with GHGs, notably the most recent version of the CARB's Scoping Plan, and the SJCOG's 2022 RTP/SCS. This would ensure that the proposed Project would be consistent with, and would not impair, the State's carbon neutrality standard by year 2045 as established under AB 1279. The State is making progress toward reducing GHG emissions in key sectors such as transportation, industry, and electricity. Since the Project would be consistent with State GHG Plans, it would not impede the State's goals of reducing GHG emissions 40 percent below 1990 levels by 2030, and of achieving carbon neutrality by 2045. The proposed Project would make a reasonable fair share contribution to the State's GHG reduction goals, by implementing a wide array of Project features that would substantially reduce GHG emissions and therefore, the proposed Project's GHG emissions would be considered to have a ***less than significant*** impact.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required

[23] See Table G-23 of the CalEEMod v2022.1 Appendix (Appendix G) for detail.

The purpose of this section is to disclose and analyze the potential impacts associated with hazards and hazardous materials related to the project site and general vicinity, and to analyze the potential for exposure of people to hazards and hazardous materials as the project is built and operated in the future. This section is based in part on the:

- *Merced Vision 2030 General Plan* (City of Merced, 2012);
- *Draft Program Environmental Impact Report - City of Merced - Merced Vision 2030 General Plan* (City of Merced, 2010);
- City of Merced Municipal Code;
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Search (United States Environmental Protection Agency [EPA], 2021);
- Envirostar database search (California Department of Toxic Substances Control [DTSC], 2021);
- GeoTracker Information System and Geographic Environmental Information Management System database search (State Water Resources Control Board [SWRCB], 2020);
- National Priorities List (NPL) of Superfund Sites and Proposed NPL Sites (United States EPA], 2020);
- Toxics Release Inventory (TRI) Program database search (United States EPA], 2019);
- *California Airport Land Use Planning Handbook* (California Department of Transportation, Division of Aeronautics, 2011);
- *Merced County Airport Land Use Compatibility Plan* (Merced County Airport Land Use Commission, 2012); and
- Web Soil Survey (United States Department of Agriculture Natural Resources Conservation Service, 2024).

No comments were received during the public review period or scoping meeting for the Notice of Preparation regarding this topic (see Appendix A).

3.9.1 ENVIRONMENTAL SETTING

PHYSICAL SETTING

Existing Site Uses

The project site is comprised of largely vacant lands with one residence and several support structures and several trees. The vacant lands on the project site have been used historically for intensive agricultural purposes. An east-west agricultural ditch is located in the southern half of the project site. The trees are located along the southeastern boundary and along the agricultural ditch in the western part of the Project site.

Figure 2-4 in Chapter 2, Project Description, shows aerial imagery of the current existing site uses within the project site.

Existing Surrounding Uses

The project site is surrounded by rural residential and agricultural uses to the north, west, and south. The University of California, Merced (UC Merced) campus lies to the northeast of the project site, and agricultural uses are farther to the east. The project site is bordered by Bellevue Road to the north, Lake Road to the east, lands designated Mixed Use and Low Density to the south and Los Olivos Road and the Yosemite Lateral canal to the west.

Site Topography

The project site ranges in elevation from approximately 215 to 245 feet above mean sea level. The Project site slopes gently downward from north to south.

Site Soils

A Custom Soil Survey was completed for the project site using the National Resources Conservation Services (NRCS) Web Soil Survey program. The NRCS Soils Map provided in Figure 3.7-1 in Section 3.7, Geology and Soils, identifies the type and range of soils found in the Project site, which is summarized below in **Table 3.9-1**.

TABLE 3.9-1: NRCS SOIL SERIES INFORMATION

UNIT SYMBOL	*NAME*	*ACRES IN DEVELOPMENT AREA*	*PERCENT OF TOTAL*
3HA	Hopeton clay loam, 0 to 3 percent slopes	5.36	14.4%
3HB	Hopeton clay loam, 3 to 8 percent slopes	0.41	1.1%
CgB	Corning gravelly loam, 0 to 8 percent slopes	20.09	54.0%
RbA	Raynor cobbly clay, 0 to 3 percent slopes	6.16	16.5%
ReB	Redding gravelly loam, 0 to 8 percent slopes, dry	5.21	14.0%
	Total	**37.23**	**100%**

SOURCE: NRCS WEB SOIL SURVEY 2024.

HAZARDS ASSESSMENT

For the purposes of this EIR, "hazardous material" is defined as provided in California Health & Safety Code, Section 25501:

- Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

"Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

"Hazardous waste" is a subset of hazardous materials. For the purposes of this EIR, the definition of hazardous waste is essentially the same as that in the California Health & Safety Code, Section 25517, and in the California Code of Regulations (CCR), Title 22, Section 66261.2:

- Hazardous wastes are wastes that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

CCR Title 22 categorizes hazardous waste into hazard classes according to specific characteristics of ignitibility, corrosivity, reactivity, or toxicity. Hazardous waste with any of these characteristics is also known as a Resource Conservation and Recovery Act (RCRA) waste.

Hazardous materials can be categorized as hazardous non-radioactive chemical materials, radioactive materials, toxic materials, and biohazardous materials. The previous definitions are adequate for non-radioactive hazardous chemicals. Radioactive and biohazardous materials are further defined as follows:

- Radioactive materials contain atoms with unstable nuclei that spontaneously emit ionizing radiation to increase their stability.
- Radioactive wastes are radioactive materials that are discarded (including wastes in storage) or abandoned.
- Toxic wastes are harmful or fatal when ingested or absorbed (e.g., containing mercury, lead). When toxic wastes are land disposed, contaminated liquid may leach from the waste and pollute groundwater.
- Biohazardous materials include materials containing certain infectious agents (microorganisms, bacteria, molds, parasites, and viruses) that cause or significantly contribute to increased human mortality or organisms capable of being communicated by invading and multiplying in body tissues.
- Medical wastes include both biohazardous wastes (byproducts of biohazardous materials) and sharps (devices capable of cutting or piercing, such as hypodermic needles, razor blades, and broken glass) resulting from the diagnosis, treatment, or immunization of human beings, or research pertaining to these activities.

There are countless categories of hazardous materials and hazardous wastes that could be found on any given property based on past uses. Some common examples include agrichemicals (chlorinated herbicides, organophosphate pesticides, and organochlorine pesticides, such as such as Mecoprop (MCPP), Dinoseb, chlordane, dichloro-diphenyltrichloroethane (DDT), and dichloro-diphenyl-dichloroethylene (DDE)), petroleum-based products (oil, gasoline, diesel fuel), a variety of chemicals including paints, cleaners, and solvents, and asbestos-containing or lead-containing materials (e.g., paint, sealants, pipe solder).

Site Reconnaissance

Site reconnaissance was conducted in May 2024 by ECORP Consulting, Inc., as part of the Archaeological Resources Inventory Report.[1] Ground surface visibility ranged from 90 to 100 percent across the Project Area due to grasses and other vegetation that ranged in height from approximately 4 inches to taller than 5 feet. ECORP noted the presence of the Yosemite Lateral to the northwest of the Project area; however, it was confirmed to be outside of the Project area.

The underlying geology of the Project Area consisted of nonmarine (continental) sedimentary rocks dating from the Pliocene to the Pleistocene. The underlying geology is described as Pliocene and/or Pleistocene age sandstone, shale and gravel deposits; mostly loosely consolidated. This geological formation corresponds earliest time frame that humans began to occupy North American.

No aboveground storage tanks (ASTs) were observed on-site.

Historical Use Information

Historical information was reviewed to develop a history of the previous uses on the project site and surrounding area, in order to evaluate the project site and adjoining properties for evidence of Recognized Environmental Conditions. Standard historical sources reviewed during the preparation of this report included the following, as available: Aerial Photographs, Environmental Records, and Databases.

AERIAL PHOTOGRAPHS

Aerial photographs of the project site and general vicinity were reviewed. In 1998, the project site appeared to be used for agricultural purposes while the lands to the north appear developed with residential uses. During this time, the on-site residence that exists today was being constructed. By July 1999, the residence was completed. Between 1999 and present day, the site conditions appear to be as they exist today.

ENVIRONMENTAL RECORDS

A search of local, state, and federal agency databases for the project site and known contaminated sites in the vicinity was performed. None of the parcels in the project site were found to contain any known contamination.

The U.S. Environmental Protection Agency (EPA) Toxic Release Inventory (TRI) does not list data on disposal or other releases of toxic chemicals in the project site.[2] There are three TRI facilities in the

1 ECORP Consulting, Inc. Archaeological Resources Inventory Report for the Merced UC Villages Project. June 2024.

2 US Environmental Protection Agency, 2022. Toxics Release Inventory (TRI) Program, TRI Toxics Tracker, Summary of 3 TRI Facilities in Merced, CA, Reporting Year 2022. Available: https://www.epa.gov/toxics-release-inventory-tri-program#:~:text=The%20Toxics%20Release%20Inventory%20(TRI,agencies%2C%20companies%2C%20and%20others. Accessed: July 11, 2024.

City of Merced, none of which are near the project site. The nearest TRI site is QG Printing, located at 2201 Cooper Avenue, approximately 4.9 miles southwest of the Project site.

The California Department of Toxic Substances Control (DTSC) maintains the *Envirostor Data Management System*, which provides information on hazardous waste facilities (both permitted and corrective action) as well as any available site cleanup information. There are no sites listed in the Envirostor database within the Project site. The nearest site listed on the Envirostor database is the Paulson Road Property located 1.8 miles southwest of the Project site. This site is listed as a School Investigation Site on Envirostor with a "No Further Action" status.

GeoTracker is the State Water Resources Control Board's (SWRCB's) Internet-accessible database system used by the SWRCB, regional boards, and local agencies to track and archive compliance data from authorized or unauthorized discharges of waste to land, or unauthorized releases of hazardous substances from underground storage tanks (USTs). **Table 3.9-2** identifies the sites reported by the GeoTracker database within 0.5 miles of the Project site.

TABLE 3.9-2: GEOTRACKER HAZARDOUS MATERIAL RELEASE SITES WITHIN 0.5 MILES OF PROJECT SITE

SITE NAME	*TYPE*	*CLEANUP STATUS*	*ADDRESS*
University of California Merced (SL0604722749)	Cleanup Program Site	Completed – Case Closed	5200 North Lake Road
Zizza Site (T10000000058)	LUST Cleanup Site	Completed – Case Closed	2632 La Loma Road

NOTE: LUST = LEAKING UNDERGROUND STORAGE TANK.

SOURCE: SWRCB, GEOTRACKER, 2024.

The Solid Waste Information System (SWIS) is a database of solid waste facilities that is maintained by the California Integrated Waste Management Board (CIWMB). The SWIS data identifies active, planned and closed sites. The project site does not have any active or planned solid waste facilities listed in the database. The nearest active facility, the City of Merced Transfer Site, is located approximately 4.0 miles southwest of the project site.

DATABASES

There is a broad list of federal and state databases that provide information for sites with varying potential for risk from the possible existence of hazardous materials. There are numerous redundancies among these various database listings. Below is a brief summary of each.

National Priorities List: The National Priorities List (NPL) of Superfund Sites and Proposed NPL Sites is EPA's database of more than 1,200 sites designated or proposed for priority cleanup under the Superfund program. NPL sites may encompass relatively large areas. The project site is not listed in this database.

Cortese Database: The Cortese database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release, and all solid waste disposal facilities from which there is known hazardous

substance migration. The source of this database is the California Environmental Protection Agency (Cal-EPA) and are found in the GeoTracker database. The project site is not listed in this database.

GeoTracker has replaced past databases, such as the Leaking Underground Storage Tank Information System (LUSTIS) and the Underground Storage Tank (UST) database. Permitted USTs are not located in the project site.

Transportation of Hazardous Materials

The transportation of hazardous materials within the City of Merced and Merced County is subject to various federal, state, and local regulations. Hazardous materials are routinely transported on area roadways. The following provisions are included in the California Vehicle Code (CVC) and pertain to the transportation of hazardous related materials.

- The Highway Patrol designates the routes in California which are to be used for the transportation of explosives. (Section 31616)
- The CVC applies when the explosives are transported as a delivery service for hire or in quantities in excess of 1,000 pounds. The transportation of explosives in quantities of 1,000 pounds or less, or other than on a public highway, is subject to the California Health and Safety Code. (Section 31601(a))
- It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery of, or the loading of, such materials. (Section 31602(b) and Section 32104(a))
- When transporting explosives through or into a city for which a route has not been designated by the Highway Patrol, drivers must follow routes as may be prescribed or established by local authorities. (Section 31614(a))
- Inhalation hazards and poison gases are subject to additional safeguards. These materials are highly toxic, spread rapidly, and require rapid and widespread evacuation if there is loss of containment or a fire. The Highway Patrol designates through routes to be used for the transportation of inhalation hazards. It may also designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant. (Section 32100 and Section 32102(b))

HAZARDS FROM AIR TRAFFIC

The State Division of Aeronautics has compiled extensive data regarding aircraft accidents around airports in California. This data is much more detailed and specific than data currently available from the FAA and the National Transportation Safety Board (NTSB). According to the California Airport Land Use Planning Handbook,[3] prepared by the State Division of Aeronautics, 21 percent of general aviation accidents occur during takeoff and initial climb and 44.2 percent of general aviation accidents occur during approach and landing. The State Division of Aeronautics has plotted accidents

[3] California Department of Transportation (Caltrans), 2011.Division of Aeronautics. California Airport Land Use Planning Handbook. October.

during these phases at airports across the country and has determined certain theoretical areas of high accident probability.

Approach and Landing Accidents

As nearly half of all general aviation accidents occur in the approach and landing phases of flight, considerable work has been done to determine the approximate probability of such accidents. Nearly 77 percent of accidents during this phase of flight occur during touchdown onto the runway or during the roll-out. These accidents typically consist of hard or long landings, ground loops (where the aircraft spins out on the ground), departures from the runway surface, etc. These types of accidents are rarely fatal and often do not involve other aircraft or structures. Commonly these accidents occur due to loss of control on the part of the pilot and, to some extent, weather conditions.[4]

The remaining 23 percent of accidents during the approach and landing phase of flight occur as the aircraft is maneuvered towards the runway for landing, in a portion of the airspace around the airport commonly called the traffic pattern. Common causes of approach accidents include the pilot's misjudging of the rate of descent, poor visibility, unexpected downdrafts, or tall objects beneath the final approach course. Improper use of rudder on an aircraft during the last turn toward the runway can sometimes result in a stall (a cross-control stall) and resultant spin, causing the aircraft to strike the ground directly below the aircraft. The types of events that lead to approach accidents tend to place the accident site fairly close to the extended runway centerline. The probability of accidents increases as the flight path nears the approach end of the runway.[5]

According to aircraft accident plotting provided by the State Division of Aeronautics, most accidents that occur during the approach and landing phase of flight occur on the airport surface itself. The remainder of accidents that occur during this phase of flight are generally clustered along the extended centerline of the runway, where the aircraft is flying closest to the ground and with the lowest airspeed.[6]

Takeoff and Departure Accidents

According to data collected by the State Division of Aeronautics, nearly 65 percent of all accidents during the takeoff and departure phase of flight occur during the initial climb phase, immediately after takeoff. This data is correlated by two physical constraints of general aviation aircraft:

- The takeoff and initial climb phase are times when the aircraft engine(s) is under maximum stress and is thus more susceptible to mechanical problems than at other phases of flight; and

[4] California Department of Transportation (Caltrans), 2011.Division of Aeronautics. California Airport Land Use Planning Handbook. October.

[5] California Department of Transportation (Caltrans), 2011.Division of Aeronautics. California Airport Land Use Planning Handbook. October.

[6] California Department of Transportation (Caltrans), 2011.Division of Aeronautics. California Airport Land Use Planning Handbook. October.

- Average general aviation runways are not typically long enough to allow an aircraft that experiences a loss of power shortly after takeoff to land again and stop before the end of the runway.

While the majority of approach and landing accidents occur on or near to the centerline of the runway, accidents that occur during initial climb are more dispersed in their location as pilots are not attempting to get to any one specific point (such as a runway). Additionally, aircraft vary widely in payload, engine power, glide ratio, and several other factors that affect glide distance, handling characteristics after engine loss, and general response to engine failure. This further disperses the accident pattern. However, while the pattern is more dispersed than that seen for approach and landing accidents, the departure pattern is still generally localized in the direction of departure and within proximity of the centerline. This is partially due to the fact that pilots are trained to fly straight ahead and avoid turns when experiencing a loss of power or engine failure. Turning flight causes the aircraft to sink faster and flying straight allows for more time to attempt to fix the problem.[7]

Nearby Airports

The Merced-Castle Airport is located approximately 6.6 miles west of the project site. The project site is not located in the Runway Protection Zone, Inner Approach/Departure Zone, Inner Turning Zone, Extended Approach/Departure Area, or Other Flight Areas for the Merced-Castle Airport.

The Merced Regional Airport is located approximately 6.4 miles southwest of the project site. The project site is not located in the Airport Influence Area, FAA Height Notification Surface, or Airport Land Use Compatibility Zones for the Merced Regional Airport.

WILDFIRE HAZARDS

Fire Hazards

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents) and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area to mass ratio and require less heat to reach the ignition point.

The California Department of Forestry and Fire Protection (CAL FIRE) classifies lands within State Responsibility Areas (SRAs) into Fire Hazard Severity Zones (FHSZs). These lands represent the risks associated with wildland fires and are designated by CAL FIRE as moderate, high, or very high FHSZs based on fuel loading, slope, fire weather, and other relevant factors. Incorporated areas such as the City are considered Local Responsibility Areas (LRAs), meaning that the City and/or other local fire districts are responsible for fire protection services.

As shown in Figure 3.17-2 in Section 3.17, Wildfire, there are no VHFHSZs located in eastern Merced County, east of I-5. The Project site is not located in an SRA nor in a FHSZ. Areas to the east of the

[7] California Department of Transportation (Caltrans), 2011.Division of Aeronautics. California Airport Land Use Planning Handbook. October.

project site, including areas on the north and east of Lake Yosemite, and grasslands east of the UC Merced campus are in a Moderate FHSZ. As the county's topography rises to the east, the land enters a High FHSZ within an SRA. No areas within or adjacent to the project site are categorized as containing a Very High FHSZ as designated by CAL FIRE.[8]

3.9.2 REGULATORY SETTING

FEDERAL

The primary federal agencies that are responsible for overseeing regulations and policies regarding hazardous materials are the Environmental Protection Agency (EPA), Department of Labor Occupational Safety and Health Administration (OSHA), and the Department of Transportation (DOT). Several laws governing the transport, storage, and use of hazardous materials are governed by these agencies as well as oversight for contaminated sites cleanup. Federal laws and regulations that are applicable to hazards and hazardous materials are presented below.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act, as amended, is the basic statute regulating hazardous materials transportation in the United States. The purpose of the law is to provide adequate protection against the risks to life and property inherent in transporting hazardous materials in interstate commerce. This law gives the U.S. Department of Transportation (USDOT) and other agencies the authority to issue and enforce rules and regulations governing the safe transportation of hazardous materials.

Natural Gas Pipeline Safety Act

The Natural Gas Pipeline Safety Act authorizes the U.S. Department of Transportation Office of Pipeline Safety to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases as well as the transportation and storage of liquefied natural gas. The Office of Pipeline Safety regulates the design, construction, inspection, testing, operation, and maintenance of pipeline facilities. While the federal government is primarily responsible for developing, issuing, and enforcing pipeline safety regulations, the pipeline safety statutes provide for State assumption of the intrastate regulatory, inspection, and enforcement responsibilities under an annual certification. To qualify for certification, a state must adopt the minimum federal regulations and may adopt additional or more stringent regulations as long as they are not incompatible.

Resource Conservation and Recovery Act

The 1976 Federal Resource Conservation and Recovery Act (RCRA) and the 1984 RCRA Amendments regulate the treatment, storage, and disposal of hazardous and non-hazardous wastes. The legislation mandated that hazardous wastes be tracked from the point of generation to their

[8] CAL FIRE, 2024. Office of the State Fire Marshal, Fire Hazard Severity Zones in State Responsibility Area. Map date September 29, 2023, effective April 1, 2024. Available: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones. Accessed June 20, 2024.

ultimate fate in the environment. This includes detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities.

The 1984 RCRA amendments provided the framework for a regulatory program designed to prevent releases from USTs. The program established tank and leak detection standards, including spill and overflow protection devices for new tanks. The tanks must also meet performance standards to ensure that the stored material will not corrode the tanks. The RCRA was further amended in 1988 to set additional standards for USTs.

In July 2015, the EPA revised the federal UST regulation, which strengthened the 1988 federal UST regulations by increasing emphasis on properly operating and maintain UST equipment. The revision added new operation and maintenance requirements and addressed UST systems deferred in the 1988 UST regulation. The purpose of the revision was to help prevent and detect UST releases, which are a leading source of groundwater contamination. To ensure compliance performance measures reflect the 2015 UST regulation, the Environmental Protection Agency (EPA) and the Association of State and Territorial Solid Waste Management Officials coordinated to update existing compliance performance measures and add new measures. The measures required states to switch from tracking compliance against significant operational compliance measures to the more stringent technical compliance rate (TCR) measures. As of June 2020, only 45.6 percent of USTs were in compliance with all TCR categories.[9]

Comprehensive Environmental Response, Compensation, and Liability Act

CERCLA introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. CERCLA was intended to be comprehensive in encompassing both the prevention of, and response to, uncontrolled hazardous substances releases. CERCLA deals with environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

STATE

The primary state agencies that are responsible for overseeing regulations and policies regarding hazardous materials are the California Office of Emergency Services (OES), Cal-EPA, DTSC, California Department of Transportation (Caltrans), California Highway Patrol (CHP), State Water Quality Control Board, and the California Air Resources Board. Several laws governing the generation, transport, and disposal of hazardous materials are administered by these agencies. State laws and regulations that are applicable to hazards and hazardous materials are presented below.

[9] EPA. *Semiannual Report of UST Performance Measures Mid Fiscal Year 2020*. June 2020. Access: https://www.epa.gov/sites/production/files/2020-06/documents/ca-20-12.pdf.

California Health and Safety Code

Cal-EPA has established rules governing the use of hazardous materials and the management of hazardous wastes. Many of these regulations are embodied in the California Health and Safety Code. The code includes regulations that govern safe drinking water, substances control, land reuse and revitalization, remediation, restoration, and methamphetamine contaminated cleanups.

California Code of Regulations Title 22 and Title 26

The California Code of Regulations (CCR) Title 22 provides state regulations for hazardous materials, and CCR Title 26 provides regulation of hazardous materials management. In 1996, Cal-EPA established the "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program) which consolidated the six administrative components of hazardous waste and materials into one program.

LOCAL

Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan includes several policies and actions that are relevant to hazards and hazardous materials. General Plan policies and actions applicable to the project are identified below:

POLICIES: SAFETY ELEMENT

- S-1.1. Develop and maintain emergency preparedness procedures for the City.
- S-4.1 Promote the concept of fire protection master planning with fire safety goals, missions, and supporting objectives for the community.
- S-4.2 Maintain a reasonable level of accessibility and infrastructure support for fire suppression, disaster, and other emergency services.
- S-5.2 Prevent the encroachment of potential hazards to flight within the Airport's airspace.

ACTIONS: SAFETY ELEMENT

- S-1.1.c. Require that all new annexation areas be incorporated into the City's emergency plan at the time of annexation.
- S-4.2.a. Continue to use 8-inch or larger pipe in high-value districts. In residential districts, additional "looping" or completion of water main grids shall continue to be provided where possible so that lengths of 6-inch pipe on the long side of the block will not exceed 600 feet.
- S-4.2.b. Maintain current standards defined in the Fire Code and City Standards for the spacing of fire hydrants. In general, these standards call for 500-foot spacing in residential areas and 300-foot spacing in commercial and industrial areas.
- S-5.1.a. Retain existing agricultural land uses and discourage residential land use designations within the Merced Regional Airport Land Use Compatibility Zones A and B1 as defined in the Merced County Airport Land Use Compatibility Plan. Restrict densities within other Zones per Table 2A of the Merced County Airport Land Use Compatibility Plan.

Certified Unified Program Agency (CUPA)

The California Environmental Protection Agency designates specific local agencies as Certified Unified Program Agencies (CUPA), typically at the county level. The San Joaquin County Department of Environmental Health is the CUPA designated for San Joaquin County. The San Joaquin County Department of Environmental Health is responsible for the implementation of statewide programs within its jurisdiction, including: Underground storage of hazardous substances (USTs), Hazardous Materials Business Plan (HMP) requirements, California Accidental Release Prevention (Cal-ARP) program, etc. Implementation of these programs involves permitting, inspecting, providing education/guidance, investigations, and enforcement.

City of Merced Local Hazard Mitigation Plan

The City of Merced developed the Merced Hazard Mitigation Plan (MHMP) (effective March 2015) in an effort to reduce future loss of life and property resulting from disasters. The MHMP is a tool for decision-makers to direct mitigation activities and resources. The MHMP was also developed to allow the City to be eligible for federal disaster assistance funds, as well as earning points from the National Flood Insurance Program's Community Rating System to lower flood insurance premiums communitywide. Through the implementation of the Plan's nine recommended strategies, the City of Merced can strive to become disaster-resistant through hazard mitigation.

Merced County Office of Emergency Services

The Merced Office of Emergency Services (OES) provides preparedness before, and coordination direction during, large-scale emergencies and disasters. OES coordinates with partner agencies including the six incorporated cities within the county, special districts, and key private agencies in providing planning, response, recovery, and mitigation activities as a result of disaster related incidents.

Merced County Multi-Jurisdictional Hazard Mitigation Plan

The Merced County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is a multi-jurisdictional plan that geographically covers everything within Merced County's jurisdictional boundaries and guides hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. The primary purpose of the Merced County MJHMP update is to reduce or eliminate long-term risk to people and property from natural hazards and their effects on the Merced County planning area. Information in the MJHMP will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to the community and its property owners by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption.

Unincorporated Merced County and the following jurisdictions participated in the 2021 update planning process:

- Merced County
- City of Atwater

- City of Dos Palos
- City of Gustine
- City of Livingston
- City of Los Banos
- City of Merced

The cities of Dos Palos and Gustine are new participating jurisdictions as part of the 2021 MJHMP update process, and this is their first hazard mitigation plan. As noted above, the City of Merced also prepared a stand-alone LHMP in 2015 and is now participating in the MJHMP update process.

Merced County Emergency Operations Plan

The County adopted its most recent version of its Medical – Health Emergency Operations Plan (EOP) in December 2017. In order to respond efficiently to disasters, the Merced County Department of Public Health has updated the Medical – Health EOP. The plan is designed to assist the Department of Public Health and other medical and health personnel throughout the County of Merced to plan for, respond to and recover from a natural disaster or human-caused event. Periodically, the plan is tested and updated. The Plan addresses management of large scale events which overwhelm the normal day-to-day response capabilities. It specifically includes all divisions of the Department of Public Health and integrates activities with those of other Merced County departments and health care providers in the community. Where privately owned or noncounty agencies are involved, those agencies are part of the on-going planning process.

Merced County Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plan (ALUCP) for Merced County was last updated in June 2012. The ALUCP contains the individual Compatibility Plan for each of the five public-use airports in Merced County: Castle Airport, Gustine Municipal Airport, Los Banos Municipal Airport, Merced Regional Airport, and Turlock Municipal Airport. As adopted by the Merced County Airport Land Use Commission (ALUC), the basic function of the Compatibility Plan is to promote compatibility between each airport and the land uses which surround them to the extent that these areas have not already been devoted to incompatible uses. The ALUCP accomplishes this function through establishment of a set of compatibility criteria applicable to new development around the airport. The Compatibility Plan serves as a tool for use by the ALUC in fulfilling its duty to review airport and adjacent land use development proposals.

3.9.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact from hazards and hazardous materials if it will:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

METHODOLOGY AND ASSUMPTIONS

De Novo Planning Group conducted a search of various agency databases for the proposed project site and known contaminated sites in the vicinity. This information was used to determine if construction activities associated with the proposed project could encounter known contamination. The analysis also considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from development of the project and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. The project proposes predominantly residential uses and would be limited by zoning to those uses that use minimal amounts of hazardous materials. Compliance with applicable federal, State, and local health and safety laws and regulations by residents and workers within the project site is assumed in this analysis, and local and State agencies would be expected to continue to enforce applicable requirements to the extent that they do so now.

IMPACTS AND MITIGATION MEASURES

Impact 3.9-1: Implementation of the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less than Significant)

Generally, the exposure of persons to hazardous materials could occur in the following manners: 1) improper handling or use of hazardous materials or hazardous wastes during construction or operation of future development, particularly by untrained personnel; 2) an accident during transport; 3) environmentally unsound disposal methods; or 4) fire, explosion or other emergencies. The severity of potential effects varies with the activity conducted, the concentration and type of hazardous material or wastes present, and the proximity of sensitive receptors.

SHORT-TERM CONSTRUCTION IMPACTS

Construction activities would occur in phases through the development of the proposed Project. Construction activities associated with development of the proposed Project may involve the routine transport, use, or disposal of hazardous materials, such as paints, sealants, lubricants, solvents, adhesives, cleaners, or petroleum-based fuels or hydraulic fluid used for construction equipment. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for hazards associated with the transport and use of hazardous materials. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and federal law. These activities would also be short-term and would cease upon completion of construction.

The use, storage, transport, and disposal of construction-related hazardous materials would be required to conform to existing laws and regulations. Compliance with applicable laws and regulations governing the use, storage, transportation, and disposal of hazardous materials would ensure all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts. For example, all spills or leakage of petroleum products during construction activities are required to be immediately contained, the hazardous material identified, and the material remediated in compliance with applicable State and local regulations for the cleanup and disposal of that contaminant. All contaminated waste would be required to be collected and disposed of at an appropriately licensed disposal or treatment facility. As such, impacts in this regard would be ***less than significant***.

LONG-TERM OPERATIONAL IMPACTS

Implementation of the Project would include the construction and associated operation of up to 700 multi-family and/or student housing residential units with approximately 18,000 square feet (sf) of amenity buildings (recreational center), approximately 30,000 sf of commercial/retail, and an approximately 75,000-sf hotel with up to 200 guest rooms. The operational phase of the Project would occur after construction is completed and residents move in and employees begin work within the structures on a day-to-day basis. The Project does not propose uses that would involve the use or storage of hazardous substances other than limited quantities of hazardous materials such as solvents, fertilizers, pesticides, and other materials used for regular household maintenance of buildings and landscaping. The quantities of these materials would not typically be at an amount that would pose a significant hazard to the public or the environment. While the risk of exposure to hazardous materials cannot be eliminated, measures can be implemented to reduce risk to acceptable levels.

The use, storage, transport, and disposal of hazardous materials would be governed by existing regulations of several agencies, including the DTSC, EPA, DOT, Cal OSHA, the Merced County Environmental Health Department, and the Merced Fire Department. Compliance with applicable laws and regulations governing the use, storage, transportation, and disposal of hazardous materials would ensure all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts. Therefore, long-term operation of the

proposed Project is not anticipated to result in substantial hazards to the public or the environment arising from the routine use, storage, transport, and disposal of hazardous materials; impacts in this regard would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required

Impact 3.9-2: Implementation of the proposed Project, with mitigation, 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. (Less Than Significant With Mitigation)

SHORT-TERM CONSTRUCTION IMPACTS

Construction activities associated with the proposed Project could release hazardous materials into the environment through reasonably foreseeable upset and accident conditions. As discussed above in Impact 3.9-1, potentially hazardous materials with the potential of accidental release may be used during future construction activities associated with Project implementation, including substances such as paints, sealants, lubricants, solvents, adhesives, cleaners, or petroleum-based fuels or hydraulic fluid used for construction equipment. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials utilized during construction. These activities would also be short-term and would cease upon completion of construction. Compliance with existing regulatory requirements would ensure construction workers and the general public are not exposed to significant risks related to hazardous materials during construction activities. Cal OSHA has regulations concerning the use of hazardous materials, including requirements for safety training, exposure warnings, availability of safety equipment, and preparation of emergency action/prevention plans. For example, all spills or leakage of petroleum products during construction activities are required to be immediately contained, the hazardous material identified, and the material remediated in compliance with applicable State and local regulations for the cleanup and disposal of that contaminant. All contaminated waste encountered would be required to be collected and disposed of at an appropriately licensed disposal or treatment facility.

Contractors associated with Project construction activities would be required to comply with Cal EPA's Unified Program; regulated activities would be managed by Merced County Environmental Health Department, the designated CUPA for the City, in accordance with the regulations included in the Unified Program (e.g., hazardous materials release response plans and inventories, California hazardous material management plans and inventories).

Demolition of the existing on-site structures would not be required. However, due to the presence of existing on-site residential structures and the former agricultural uses on the remainder of the site, there exists the possibility that the Project site contains underground well(s) and/or septic system(s). Any on-site well or septic system would be required to be properly destroyed or removed in accordance with State, County, and City standards and regulations.

Like most agricultural and farming operations in the Central Valley, agricultural practices in the area have used agricultural chemicals including pesticides and herbicides as a standard practice. Although no contaminated soils have been identified in the Project area or the vicinity above applicable levels, residual concentrations of pesticides may be present in soil as a result of historic agricultural application and storage. Continuous spraying of crops over many years can potentially result in a residual buildup of pesticides in farm soils. Of highest concern relative to agrichemicals are chlorinated herbicides, organophosphate pesticides, and organochlorine pesticides, such as such as MCPP, Dinoseb, chlordane, DDT, and DDE. Project construction activities would involve land clearing, mass grading, and other ground-disturbing activities that could expose contaminated soils. As such, this is a ***potentially significant*** impact.

LONG-TERM OPERATIONAL IMPACTS

As noted previously, implementation of the Project would include the construction and associated operation of up to700 multi-family and/or student housing residential units with approximately 18,000 sf of amenity buildings (recreational center), approximately 30,000 sf of commercial/retail, and an approximately 75,000-sf hotel with up to 200 guest rooms. The Project does not propose uses that would involve the use or storage of hazardous substances other than limited quantities of hazardous materials such as solvents, fertilizers, pesticides, and other materials used for regular household maintenance of buildings and landscaping. The quantities of these materials would not typically be at an amount that would pose a significant hazard to the public or the environment. While the risk of exposure to hazardous materials cannot be eliminated, measures can be implemented to reduce risk to acceptable levels. Adherence to existing regulations would ensure compliance with safety standards related to the use and storage of hazardous materials, and the safety procedures mandated by applicable federal, State, and local laws and regulations would minimize the potential for upset and accident conditions to occur within the site. Thus, 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 and this impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.9-2a*: Prior to initiation of any ground disturbance activities, evenly distributed soil samples shall be conducted throughout the Project site for analysis of pesticides and heavy metals. The samples shall be submitted for laboratory analysis of pesticides and heavy metals per*

DTSC and EPA protocols. The results of the soil sampling shall be submitted to the City of Merced. If elevated levels of pesticides or heavy metals are detected during the laboratory analysis of the soils, a soil cleanup and remediation plan shall be prepared and implemented prior to the commencement of grading activities.

***Mitigation Measure 3.9-2b**: In the event that hazardous materials are encountered during construction, a Soils Management Plan (SMP) shall be submitted and approved by the Merced County Department of Environmental Health. The SMP shall establish management practices for handling hazardous materials, including fuels, paints, cleaners, solvents, etc., during construction. The approved SMP shall be posted and maintained onsite during construction activities and all construction personnel shall acknowledge that they have reviewed and understand the plan.*

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than Significant.

Mitigation Measure 3.9-2a requires evenly distributed soil samples to be conducted within the Project site for analysis of pesticides and heavy metals prior to initiation of any ground disturbance activities. If elevated levels of pesticides or heavy metals are detected during the laboratory analysis of the soils, the Project applicant would be required to prepare and implement a soil cleanup and remediation plan prior to the commencement of grading activities. Implementation of Mitigation Measure 3.9-2a would ensure that development of the proposed Project on active agricultural land would not result in accidental release of or exposure to hazardous materials.

Mitigation Measure 3.9-2b requires that, in the event that hazardous materials are discovered during Project construction activities, a Soils Management Plan (SMP) would be submitted and approved by the Merced County Environmental Health Department. The SMP would establish management practices for handling hazardous during construction. Such compliance would reduce the potential for accidental release of hazardous materials during construction of the proposed Project. As a result, it would lessen the risk of exposure of construction workers and the public to accidental release of hazardous materials, as well as the demand for incident emergency response.

Compliance with standard construction practices and the existing regulatory requirements, and implementation of Mitigation Measures 3.9-2a and 3.9-2b, would reduce potential impacts of the proposed Project to 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 to a less-than-significant level by ensuring that on-site soils are sampled prior to ground disturbance and that any potentially hazardous materials encountered during construction would be handled appropriately.

Impact 3.9-3: Implementation of the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (No Impact)

There are no schools located within one-quarter mile of the Project site. The only school within one mile of the project site is University of California-Merced. Therefore, ***no impact*** would occur related to emitting hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

No Impact

MITIGATION MEASURE(S)

None Required

Impact 3.9-4: Implementation of the proposed Project would not result in impacts from being included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (No Impact)

The hazards assessment included a site reconnaissance, interviews, historical land use research, and database research. The assessment revealed no evidence of historical or existing Recognized Environmental Conditions in connection with the project site. The project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Implementation of the proposed project would have a ***no impact*** with regards to this environmental issue.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

No Impact

MITIGATION MEASURE(S)

None Required

Impact 3.9-5: The proposed Project would not be 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, resulting in a safety hazard or excessive noise for people residing or working in the Project site (No Impact)

The project site is not located within two miles of a public airport or public use airport. As previously stated, the project site is not located in the Runway Protection Zone, Inner Approach/Departure Zone, Inner Turning Zone, Extended Approach/Departure Area, or Other Flight Areas for the Merced-Castle Airport. Additionally, the project site is not located in the Airport Influence Area, FAA

Height Notification Surface, or Airport Land Use Compatibility Zones for the Merced Regional Airport.

As such, implementation of the proposed Project would have ***no impact*** with regards to this environmental issue.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

No Impact

MITIGATION MEASURE(S)

None Required

Impact 3.9-6: Implementation of the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Less than Significant)

(*Note: The following discussion is associated with potential impacts of the project on emergency response plans and/or evacuation plans. Proposed emergency vehicle access to and from the site is addressed in Section 3.15, Transportation.*)

As noted previously, the County adopted its most recent version of its Medical – Health EOP in December 2017. In order to respond efficiently to disasters, the Merced County Department of Public Health has updated the Medical – Health EOP. The plan is designed to assist the Department of Public Health and other medical and health personnel throughout the County of Merced to plan for, respond to and recover from a natural disaster or human-caused event. Periodically, the plan is tested and updated. The Plan addresses management of large scale events which overwhelm the normal day-to-day response capabilities. It specifically includes all divisions of the Department of Public Health and integrates activities with those of other Merced County departments and health care providers in the community. Where privately owned or noncounty agencies are involved, those agencies are part of the on-going planning process.

Additionally, the Merced County MJHMP aims to reduce or eliminate long-term risk to people and property from natural hazards and their effects on the Merced County planning area. Information in the MJHMP will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future.

Further, the City of Merced developed the MHMP in an effort to reduce future loss of life and property resulting from disasters. The MHMP is a tool for decision-makers to direct mitigation activities and resources. The MHMP was also developed to allow the City to be eligible for federal disaster assistance funds, as well as earning points from the National Flood Insurance Program's Community Rating System to lower flood insurance premiums communitywide. Through the implementation of the Plan's nine recommended strategies, the City of Merced can strive to become disaster-resistant through hazard mitigation.

In Merced County, all major roads are available for evacuation, depending on the location and type of emergency that arises. The project would not interfere with any emergency response plan or emergency evaluation plan, as the project does not include any actions that would impair or physically interfere with the Merced County Medical – Health EOP and Modesto County Multi-Jurisdictional Hazard Mitigation Plan. As previously stated, the proposed project includes up to 700 multi-family and/or student housing residential units with approximately 18,000 sf of amenity buildings (recreational center), approximately 30,000 sf of commercial/retail, and an approximately 75,000-sf hotel with up to 200 guest rooms. The UC Villages Master Plan provides for internal circulation areas and points of access to surrounding roadways, such as Bellevue Road, Lake Road, Mandeville Lane, and Los Olivos Road.

Future uses on the project site will have access to the County resources that establish protocols for safe use, handling and transport of hazardous materials. Construction activities are not expected to result in any unknown significant road closures, traffic detours, or congestion that could hinder the emergency vehicle access or evacuation in the event of an emergency. Furthermore, the specific design and layout of the project would be reviewed by the City's law enforcement and fire personnel to ensure that adequate emergency ingress and egress is provided throughout the site that would not interfere or impair evacuation plans. Therefore, impacts related to the potential for the project to impair implementation of emergency response plans would be ***less than significant*** impact.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required

Impact 3.9-7: The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires (Less than Significant)

As discussed previously, there are no VHFHSZs located in eastern Merced County, east of I-5. The project site is not located in an SRA nor in a FHSZ. Areas to the east of the project site, including areas on the north and east of Lake Yosemite, and grasslands east of the UC Merced campus are in a Moderate FHSZ. As the county's topography rises to the east, the land enters a High FHSZ within an SRA. No areas within or adjacent to the project site are categorized as containing a Very High FHSZ as designated by CAL FIRE.[10]

As discussed in Section 3.17, Wildfire, development of the project would not result in the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death

[10] CAL FIRE, 2024. Office of the State Fire Marshal, Fire Hazard Severity Zones in State Responsibility Area. Map date September 29, 2023, effective April 1, 2024. Available: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones. Accessed June 20, 2024.

involving wildland fires. Development of the project would not substantially impair an adopted emergency response plan or emergency evacuation plan.

Therefore, this impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

Impact 3.9-8: Implementation of the proposed Project, in combination with other cumulative development, would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less than Significant)

Construction activities associated with future development projects may involve the routine transport, use, or disposal of hazardous materials. However, the construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for hazards associated with the transport and use of hazardous materials. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and federal law.

Existing and future uses within the City are likely to use, store, transport, and dispose of hazardous materials. Residential and commercial uses do not typically involve the use or storage of hazardous substances other than limited quantities of hazardous materials such as solvents, fertilizers, pesticides, and other materials used for regular maintenance of buildings and landscaping. The quantities of these materials would not typically be at an amount that would pose a significant hazard to the public or the environment. Industrial uses may involve the use, generation, storage, or transport of larger amounts of hazardous materials. The use, storage, transport, and disposal of hazardous materials would be governed by existing regulations of several agencies, including the DTSC, EPA, DOT, Cal OSHA, and the Solano County CUPA. Adherence to existing regulations would ensure compliance with safety standards related to the use and storage of hazardous materials, and the safety procedures mandated by applicable federal, State, and local laws and regulations, which would ensure that risks involving the routine transportation, use, storage, or disposal of hazardous materials or hazardous wastes would be cumulatively ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

Impact 3.9-9: Implementation of the proposed Project, in combination with other cumulative development, 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. (Less than Significant)

Future development sites within the City and vicinity of the Project site could create a significant hazard to the public or the environment through upset and accident conditions involving the release of hazardous materials into the environment. Construction activities associated with project implementation and cumulative development projects could involve demolition, grading, excavation, and other ground-disturbing activities that could temporarily create a significant hazard to the public or the environment through release of hazardous materials. Future site-specific development would be reviewed at the project-level to determine whether any development sites are listed on a hazardous materials site. Any development activities that may occur on documented hazardous materials sites would be required to undergo remediation and cleanup under the supervision of the regulatory agencies, such as DTSC and the CVRWQCB. Therefore, the cumulative impact of creating a hazard to the public or environment through reasonably foreseeable accident would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

Impact 3.9-10: Implementation of the proposed Project, in combination with other cumulative development, could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment. (Less than Significant)

Future development projects would be evaluated at the project-level to determine whether any development sites are listed on a hazardous materials site. Any development activities occurring on documented hazardous materials sites would be required to undergo remediation and cleanup under the supervision of federal, State, and local regulations, including the DTSC and the CVRWQCB, prior to construction. Therefore, the cumulative impact of locating development on hazardous materials sites would be ***less than significant.***

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

Impact 3.9-11: The proposed Project, in combination with other cumulative development, would not be 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, resulting in a safety hazard or excessive noise for people residing or working in the Project site. (Less than Significant)

Future development projects would be evaluated at the project-level to determine if they are located within an airport land use plan or within two miles of a public or public use airport. Future projects located within the Airport Influence Area of the Merced Airport would be reviewed by the ALUC for consistency with applicable standards established in the Merced Airport Land Use Compatibility Plan on a project-by-project basis. Therefore, the cumulative impact of locating cumulative development in an airport land use plan area would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

Impact 3.9-12: Implementation of the proposed Project, in combination with other cumulative development, would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Future development projects could impair implementation of or physically interfere with an adopted emergency response plan. Construction activities associated with project implementation and cumulative development projects could involve demolition, grading, excavation, and other ground-disturbing activities that could temporarily interfere with emergency response plans or emergency evacuation plans. Future development would be designed, constructed, and maintained in accordance with applicable standards, including vehicular access to ensure that adequate emergency access and evacuation would be maintained. Access for emergency vehicles would be required to be incorporated into project design. Construction activities that may temporarily restrict vehicular traffic would be required to implement appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Future development projects would be required to comply with applicable City codes and regulations pertaining to emergency response and evacuation plans. Prior to construction, proposed site plans would be required to undergo review by the Fire Department to ensure that adequate emergency access would be maintained within the area. During operation of future projects, the City and/or County EOP would

be implemented and emergency response and evacuation would occur dependent upon the emergency situation, consistent with the respective EOPs. Therefore, the cumulative impact to emergency response would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

Impact 3.9-13: Implementation of the proposed Project, in combination with other cumulative development, wound not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. (Less than Significant)

There are no areas designated as moderate, high, or very high FHSZs within the City. Future development projects within the City and vicinity of the Project site are not anticipated to exacerbate fire risks. Therefore, the cumulative impact of exposing future development to significant loss from wildland fires would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required

This section describes the regulatory setting, regional hydrology and water quality impacts that are likely to result from project implementation, and includes measures to reduce potential impacts related to stormwater drainage, flooding and water quality.

No comments were received during the NOP comment period in regard to hydrology and water quality. See Appendix A for comments received on the NOP.

The analysis included in this section is based, in part, on statements, data, and figures provided by the following reference materials:

- City of Merced General Plan and EIR;
- County of Merced 2030 General Plan and EIR;
- Merced Groundwater Subbasin Groundwater Sustainability Plan (revised July 2022);
- Merced Groundwater Subbasin Groundwater Sustainability Plan 2025 Public Draft Report (October 2024); and
- Central Valley Regional Water Quality Control Board's 2019 Water Quality Control Plan.

3.10.1 ENVIRONMENTAL SETTING

REGIONAL HYDROLOGY

The Project area is immediately adjacent to the City of Merced. The City of Merced is situated in the San Joaquin Valley at the base of the Sierra Nevada foothills. This area contains little topographic relief (less than 1% slopes) across the entire City. Elevation in the City ranges from approximately 200 feet above mean sea level (MSL) along the southeastern portions to approximately 150 feet above MSL in the southwestern extent of the City boundary.

Climate

As indicated in the General Plan EIR, the climate of the City of Merced is hot and dry in the summer and cool and humid in the winter. The average daily temperature ranges from 47 to 76 degrees Fahrenheit. Extreme low and high temperatures of 15°F and 111°F are also known to occur. Historical average precipitation is approximately 12" per year, with the rainy season commencing in October and running through April. On average, approximately 80 percent of the annual precipitation occurs between November and March. The hot and dry weather of the summer months usually results in high water demands for landscape irrigation during those months.[1]

Watersheds

A watershed is a region that is bound by a divide that drains to a common watercourse or body of water. Watersheds serve an important biological function, oftentimes supporting an abundance of aquatic and terrestrial wildlife including special status species and anadromous and native local fisheries. Watersheds provide conditions necessary for riparian habitat.

[1] City of Merced, 2010. Merced Vision 2030 General Plan Draft Program Environmental Impact Report. p. 3.8-1.

Watersheds are delineated by the United States Geological Survey (USGS) using a nationwide system based on surface hydrologic features.[2] These hydrologic units are classified into four levels (regions, subregions, accounting units, and cataloging units), with each unit being identified by a unique hydrologic unit code (HUC) based on its level within the hierarchical system. This means that boundaries are defined according to size and topography, with multiple sub-watersheds within larger watersheds. The Project site is located within the northern San Joaquin subbasin and within the Middle San Joaquin–Lower Chowchilla Watershed, which encompasses over 2,256,168 acres and stretches across California. This watershed includes nine major streams and rivers. These include Bear Creek, Burns Creek, Chowchilla River, Deadmans Creek, Fresno River, Los Banos Creek, Mariposa Creek, Owens Creek, and the San Joaquin River.[3] The Project site is located within the Fahrens Creek Subwatershed (**Figure 3.10-1**).

In addition to the natural drainage features, the Project site is bound by the Yosemite Lateral to the west. This Merced Irrigation District (MID) canal transected by numerous man-made channels which are part of MID's extensive system of irrigation canals, levees, and ditches. The most significant is the main canal which was constructed in 1886 and interrupts flows from the upper reaches of Ellendale Creek, Parkinson Creek, and Fahrens Creek water systems. The main canal ultimately conveys a portion of these flows to Lake Yosemite, located east of the plan area.

In terms of flooding, more than half of the Merced SUDP/SOI, is located within a 100-year flood plain, as shown on the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA). 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.

SURFACE WATER AND FLOOD CONTROL FACILITIES

The Project site consists of approximately 37.2 acres located on the southwest corner of the Bellevue Road and Lake Road intersection in unincorporated Merced County, northeast of the City of Merced's limits. The Project site is bounded by existing Bellevue Road, ranchette parcels, vacant land, the Merced Irrigation District (MID) Yosemite Lateral and the future University Vista Project to the north, Lake Road and the University of California, Merced (UC Merced) parking lot (Bellevue Lot) to the east; open vacant land parcels designated Mixed Use and Low Density to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west.

The City of Merced does not currently have any surface water supplies and its water system relies solely on local groundwater pumped from the Merced Subbasin aquifer using groundwater extraction wells.[4] In the future, the City plans to transfer and exchange surface water with MID for irrigation. To accomplish this, the City will need to construct a surface water treatment plant to treat the surface water from MID. The Project site is located within the northern San Joaquin subbasin

[2] United States Geological Survey (USGS), 2024. *Hydrologic Unit Maps: What are Hydrologic Units?* Available: https://water.usgs.gov/GIS/huc.html. Accessed November 7, 2024.

[3] Merced County, 2023. Focused Subsequent Environmental Impact Report for the UCP Update and VST Specific Plan. April. p 3.5-6.

[4] West Yost, 2024. UC Villages Water Supply Assessment. Pg 17.

and within the Middle San Joaquin–Lower Chowchilla Watershed, as identified by the USGS.[5] The City of Merced's *Storm Drain Master Plan*, completed in 2002, has divided the Merced planning area into eleven (11) primary local watersheds, local Watersheds A through K.[6] The proposed Project is within the boundaries of Watershed B.[7] Watershed B is approximately 2 square miles in area and drains into Cottonwood Creek. This watershed is bounded by Bellevue Road on the north, Sells Lateral Canal on the east, Yosemite Avenue on the south and G Street on the west. Watershed B also consists primarily of agricultural land uses, with some single-family residential subdivisions south of Cottonwood Creek. Only the residential area is served by existing storm drainage systems, which include storm drains, underground storage detention pipes and pump stations.

Drainage

The City of Merced has a number of drainage facilities within the City's planning area to serve urban development and to provide a drainage network that ultimately drains to a suitable outfall. The City of Merced also operates and maintains several detention ponds, underground storage pipes and pump stations. Existing drainage facilities in the study area generally consist of underground storm drain systems, detention ponds, underground storage pipes, pump stations and open channels. The City has three major storm drain outfall systems.

The City of Merced has three major storm drain outfall systems that serve the area south of Bear Creek, the West Avenue storm drain trunk line which flows into Hartley Slough, the Auto Center Drive storm drain system that discharges into Bear Creek and the G Street storm drain which flows southward from Bear Creek into the Zentner Lateral (MID Canal) near Cone Avenue. There are numerous smaller storm drain systems serving smaller developed areas within local sub-basins that drain into Bear Creek, Black Rascal Creek, Fahrens Creek, Parkinson Creek and Cottonwood Creek.

The majority of the existing storm drain systems do not have capacity to convey the 10-year discharges that contribute to them. The storm drain systems within the downtown area (South of Bear Creek) have an average capacity roughly between the 2-year and 5-year storms and remaining existing storm drain systems have an average capacity generally ranging between the 5-year and 10-year storms.

The Project site is within the area served by the City of Merced's North Merced Sewer Master Plan. Currently a 21-inch sewer main exists in Bellevue Road serving UC Merced which is tributary to the G Street sewer trunk line. Flow analysis for the City of Merced shows that there is excess capacity in the G Street trunk line which would service the UC Villages project.

Due to the hydrologic soil group rating for the Project site, only moderate percolation of stormwater occurs onsite. This would limit the ability to capture stormwater on site, and a pump station would be necessary to remove excess water from the site. All stormwater generated by development of the site would be handled by a "cascading" basin system, which would interconnect the proposed

5 United States Geological Survey (USGS), 2024. *Hydrologic Unit Maps: What are Hydrologic Units?* Available: https://water.usgs.gov/GIS/huc.html. Accessed November 7, 2024.

6 City of Merced, 2002. *City of Merced Storm Drain Master Plan*. Pg 1.

7 City of Merced, 2002. *City of Merced Storm Drain Master Plan*. Pg 6.

basins throughout the site. Prior to entering the basin system, the stormwater would be treated through a combination of treatment devices including but not limited to drainage swales, small bioretention basins, inlet filters, interceptions trees, permeable concrete pavers, stormwater planters, and rain gardens. If necessary, underground storage and treatment can be utilized to assist with any additional treatment or storage.

There are four planned detention basins located throughout the site, with the lowest basin being located at the natural low point of the Project site in the southeast corner. These basins would be designed as detention basins with a non-interruptible outlet draining to the nearby Yosemite Lateral, owned, and maintained by the Merced Irrigation District. An agreement with the Merced irrigation District to discharge into the lateral would be necessary.

Surface Water Quality

Surface water quality is affected by point source and non-point source pollutants. Point source pollutants are those emitted at a specific point, such as a pipe, white non-point source pollutants are typically generated by surface runoff from diffuse sources, such as streets, paved areas, agricultural lands, or landscaped areas. Point source pollutants are controlled with pollutant discharge regulations or Waste Discharge Requirements (WDRs). Non-point source pollutants are more difficult to monitor and control although they are important contributors to surface water quality in urban areas.

Stormwater runoff pollutants vary based on land use, topography, the amount of impervious surface, and the amount of frequency of rainfall and irrigation practices. Runoff in developed areas typically contains oil, grease, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from agricultural and landscaped areas. Surface water pollution is also caused by erosion. Excessive and improperly managed grading, vegetation removal, and agricultural practices can lead to increased erosion of exposed earth and sedimentation of watercourses during rainy periods. The highest pollutant concentrations usually occur at the beginning of the wet season during the “first flush.”

As stated in the City of Merced Water Supply Assessment, there is currently no surface water supply utilized by the City of Merced. Water quality in the City of Merced is governed by the Central Valley RWQCB, which sets water quality standards in the Basin Plan. The Basin Plan identified beneficial uses for surface water and groundwater and establishes water quality objectives to attain those beneficial uses.

Water quality in the City is governed by the Central Valley RWQCB, which sets water quality standards in the Basin Plan. The Basin Plan identifies beneficial uses for surface water and groundwater and establishes water quality objectives to attain those beneficial uses.

303(d) Impaired Water Bodies: Section 303(d) of the federal Clean Water Act requires the State to identify waters that do not meet water quality standards or objectives and thus, are considered "impaired." Once listed, Section 303(d) mandates prioritization and development of a Total

Maximum Daily Load (TMDL). The TMDL is a tool that establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for the States to establish water quality-based controls. The purpose of TMDLs is to ensure that beneficial uses are restored and that water quality objectives are achieved.

According to the California State Water Resources Control Board (SWRCB) 303(d) list, there are multiple water bodies in Merced County. Category 5 water bodies are defined as those where State pollution standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants present within the waterbody. The Category 5 waterbodies in Merced County are listed below:

- Agatha Canal
- Black Rascal
- Canal Creek
- Deadman Creek
- Deep Slough
- Duck Slough
- Highline Canal
- Ingalsbe Slough
- Los Banos Creek
- Los Banos Reservoir
- Lower Merced River
- Miles Creek
- North Mud Slough
- Mustang Creek
- Newman Wasteway
- O'Neil Forebay
- Salt Slough
- San Joaquin River
- San Luis Canal
- San Luis Reservoir
- Santa Fe Canal
- TID Lateral 7
- TID Lower Stevenson Canal
- Turner Slough

This list of impaired water bodies encompasses all waterbodies identified by the SWRCB in Merced County, not only those that are identified as being within the limits of the City of Merced. Common pollutants seen throughout the county include metals (mercury, boron, arsenic, and others), pesticides (linuron, bifenthrin, diazinon, and others), pathogens, toxic organics, unsafe levels of salinity, total dissolved solids, unsafe levels of identified nutrients, and other identified toxicity indicators.

GROUNDWATER RESOURCES

Groundwater Supply

The City of Merced pumps its groundwater from the Merced Subbasin which is one of the nine subbasins located in the San Joaquin River Hydrologic Basin (**Figure 3.10-2**). The San Joaquin Groundwater Basin is located within the San Joaquin River Hydrologic Region, which itself is a part of the geomorphic province of California's Central Valley. The Merced Subbasin was classified as a high-priority basin in the Sustainable Groundwater Management Act (SGMA) 2019 Basin Prioritization.[8] Three groundwater sustainability agencies (GSAs) were formed to manage the Merced Subbasin: the Merced Irrigation-Urban GSA (MIUGSA), the Merced Subbasin GSA, and the Turner Island Waster District GSA. The City of Merced is a member of MIUGSA. All three GSAs collaborated on the Merced Subbasin groundwater sustainability plan (GPS), which was adopted by the MIUGSA in December 2019. It was subsequently updated in July 2022 to address comments and recommendations from DWR.

The entirety of the City's well system functions by pumping from the Merced Subbasin, the primary aquifer underlying the City and covers a surface area of approximately 491,000 acres (767 square miles). The City of Merced pumped 20,076 acre-feet per year (afy) in 2020, with the average annual volume pumped over between 2016-2020 was approximately 19,000 afy.

Groundwater from the Merced Subbasin accounted for 100 percent of the City's potable water supply in 2020 and will continue to be the primary source of potable water for the foreseeable future. The City's well system consists of 20 groundwater production wells with local water treatment facilities at the wells. Combined, these wells have a total capacity of 54,400 gallons per minute (gpm), or approximately 87,000 afy.[9]

The Merced Subbasin contains three principal aquifers from which the City's groundwater supply is derived:

1. 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.
2. The 'Below Corcoran Principal Aquifer' includes all aquifer units that exist below the Corcoran Clay Aquitard and contains small to large hydraulic conductivities and yields for irrigation, and some domestic and municipal uses.
3. The 'outside Corcoran Principal Aquifer' includes all aquifers that exist outside of the eastern lateral extent of the Corcoran Clay Aquitard and is connected laterally to the other two principal aquifers. Its major uses include irrigation, domestic, and municipal uses.

The groundwater aquifers from which the City obtains its water are not adjudicated, and because of this there are no defined legal pumping rights for the City and therefore are no legal constraints on

[8] West Yost, 2024. *City of Merced UC Villages Water Supply Assessment*. November 2024. Page 18.
[9] West Yost, 2024. *City of Merced UC Villages Water Supply Assessment*. November 2024. Page 17-18.

groundwater pumping. However, the Merced Subbasin is a high priority basin and critically over-drafted. Therefore, the City of Merced and other members of the MIUGSA are implementing measures from its GSP to sustainably manage the groundwater basin, including allocation of the estimated sustainable yield of the basin and increasing recharge. The City intends to pursue groundwater recharge projects as part of implementation of the GSP to improve the long-term water supply reliability of the subbasin for the City.

RECYCLED WATER SUPPLY

The City's wastewater is treated at the Merced Wastewater Treatment Facility (WWTF), which treats approximately 12 million gallons per day (mgd) and produces an effluent that meets disinfected tertiary recycled water standards. This means the effluent could potentially be used for agricultural irrigation, landscape irrigation, industrial reuse, and other applicable recycled water use. However, recycled water from the WWTF is not used as a source of supply within the City's service area, owing to its remote location. Instead, its effluent water is discharged to Hartley Slough and the Merced Wildlife Management Area. The effluent is also used to irrigate crops grown in land application areas located outside of the City's service area. It is unlikely that recycled water will be used within the City's service area in the foreseeable future, due to the high cost associated with construction the necessary infrastructure to bring recycled water to customers. Therefore, the City's future water demands, including those associated with the proposed Project, are assumed to be supplied by potable water only.

FLOODING AND INUNDATION

FEMA Floodplain Mapping

The Federal Emergency Management Agency (FEMA) maps flood potential across the United States. FEMA mapping provides important guidance in planning for flooding events and regulating development within identified flood hazard areas. FEMA's National Flood Insurance Program (NFIP) is intended to encourage State and local governments to adopt responsible floodplain management programs and flood measures. As part of the program, the NFIP defines floodplain and floodway boundaries that are shown on Flood Insurance Rate Maps (FIRMs). **Figure 3.10-3** shows that the Project site is not located within either a 100- or 500-year flood zone, as determined by FEMA.

Dam Inundation

Any dam poses a potential risk of failure, which would threaten to inundate areas below the dam. Dam failure is generally a result of structural instability caused by improper design or construction, instability resulting from seismic shaking, or overtopping and erosion of the dam. As shown in **Figure 3.10-4** the Project site is not within a dam inundation area. The closest dam inundation area is north of Bellevue Road, flowing southeast from the Yosemite Lake Dam.

Tsunami

A tsunami is a series of waves in a water body caused by the displacement of a large volume of water, generally in an ocean or a large lake due to earthquakes, volcanic eruptions, and other

underwater explosions. The Project site is located approximately 80 miles inland of the Pacific Ocean and is not within a region that experiences tsunamis.

3.10.2 REGULATORY SETTING

FEDERAL

Federal Clean Water Act

The Clean Water Act (CWA), initially passed in 1972, regulates the discharge of pollutants into watersheds throughout the nation. Section 402(p) of the CWA establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. Section 402(p) requires that stormwater associated with industrial activity that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by an NPDES permit.

The CWA establishes the basic structure for regulating the discharges of pollutants into the waters of the United States and gives the Environmental Protection Agency (EPA) the authority to implement pollution control programs. The statute's goal is to regulate all discharges into the nation's waters and to restore, maintain, and preserve the integrity of those waters. The CWA sets water quality standards for all contaminants in surface waters and mandates permits for wastewater and stormwater discharges.

The CWA also requires states to establish site-specific water quality standards for navigable bodies of water and regulates other activities that affect water quality, such as dredging and the filling of wetlands. The following CWA sections assist in ensuring water quality for the water of the United States:

- CWA Section 208 requires the use of best management practices (BMPs) to control the discharge of pollutants in stormwater during construction;
- CWA Section 303(d) requires the creation of a list of impaired water bodies by states, territories, and authorized tribes; evaluation of lawful activities that may impact impaired water bodies; and preparation of plans to improve the quality of these water bodies. CWA Section 303(d) also establishes Total Maximum Daily Loads (TMDLs), which is the maximum amount of a pollutant that a water body can receive and still safely meet water quality standard; and,
- CWA Section 404 authorizes the U.S. Army Corps of Engineers to require permits that will discharge dredge or fill materials into waters in the United States, including wetlands.

In California, the EPA has designated the State Water Resources Control Board (SWRCB) and its nine RWQCBs with the authority to identify beneficial uses and adopt applicable water quality objectives.

The SWRCB is responsible for implementing the CWA and does so through issuing NPDES permits to cities and counties through regional water quality control boards. Federal regulations allow two permitting options for storm water discharges (individual permits and general permits).

National Pollutant Discharge Elimination System (NPDES)

NPDES permits are required for discharges to navigable waters of the United States, which includes any discharge to surface waters, including lakes, rivers, streams, bays, oceans, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. NPDES permits are issued under the Federal CWA, Title IV, Permits and Licenses, Section 402 (33 USC 466 *et seq*.).

The RWQCB issues these permits in lieu of direct issuance by the EPA, subject to review and approval by the EPA Regional Administrator (EPA Region 9). The terms of these NPDES permits implement pertinent provisions of the CWA and implementing regulations, including pre-treatment, sludge management, effluent limitations for specific industries, and anti-degradation. In general, the discharge of pollutants is to be eliminated or reduced as much as practicable so as to achieve the CWA's goal of "fishable and swimmable" navigable (surface) waters. Technically, all NPDES permits issued by the RWQCB are also Waste Discharge Requirements issued under the authority of the CWA.

These NPDES permits regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. NPDES permits are issued for five years or less, and are therefore to be updated regularly. Individual projects in the City that disturb more than one acre would be required to obtain NPDES coverage under the California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit). The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing BMPs the discharger would use to prevent and retain storm water runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

A Phase II Small Municipal Separate Storm Sewer (MS4) General Permit was adopted by the SWRCB on February 5, 2013 (Water Quality Order No. 2013-0001-DWQ, NPDES NO. CAS000004, as amended).

Federal Emergency Management Agency

FEMA operates the National Flood Insurance Program (NFIP). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year. Communities are occasionally audited by the California Department of Water Resources to ensure the proper implementation of FEMA floodplain management regulations.

National Flood Insurance Program

Per the National Flood Insurance Act of 1968, the National Flood Insurance Program (NFIP) has three fundamental purposes: Better indemnify individuals for flood losses through insurance; Reduce

future flood damages through State and community floodplain management regulations; and Reduce Federal expenditures for disaster assistance and flood control. While the Act provided for subsidized flood insurance for existing structures, the provision of flood insurance by FEMA became contingent on the adoption of floodplain regulations at the local level.

Flood Disaster Protection Act

The Flood Disaster Protection Act (FDPA) of 1973 was a response to the shortcomings of the NFIP, which were experienced during the flood season of 1972. The FDPA prohibited federal assistance, including acquisition, construction, and financial assistance, within delineated floodplains in non-participating NFIP communities. Furthermore, all federal agencies and/or federally insured and federally regulated lenders must require flood insurance for all acquisitions or developments in designated Special Flood Hazard Areas (SFHAs) in communities that participate in the NFIP.

Improvements, construction, and developments within SFHAs are generally subject to the following standards:

- All new construction and substantial improvements of residential buildings must have the lowest floor (including basement) elevated to or above the base flood elevation (BFE);
- All new construction and substantial improvements of non-residential buildings must either have the lowest floor (including basement) elevated to or above the BFE or dry-floodproofed to the BFE;
- Buildings can be elevated to or above the BFE using fill, or they can be elevated on extended foundation walls or other enclosure walls, on piles, or on columns; and,
- Extended foundation or other enclosure walls must be designed and constructed to withstand hydrostatic pressure and be constructed with flood-resistant materials and contain openings that will permit the automatic entry and exit of floodwaters. Any enclosed area below the BFE can only be used for the parking of vehicles, building access, or storage.

Reclamation Safety of Dams Act, National Dam Safety Act, and Federal Guidelines for Dam Safety

The Bureau of Reclamation's Dam Safety Program was officially implemented in 1978 with passage of the Reclamation Safety of Dams Act. The Act authorizes the Secretary of the Interior to construct, restore, operate, and maintain new or modified features at existing federal Reclamation dams for safety purposes. The program focuses on evaluating and implementing actions to resolve safety concerns at Reclamation dams. The National Dam Safety Act, reauthorized in 2014, aims to reduce risks to life and property arising from dam failure. The US Secretary of the Army is required to maintain a database of all dams in the United States, including inspection details and jurisdiction, and the Act establishes funding and authority for safety oversight and staff safety training. The Interagency Committee on Dam Safety (ICODS) prepared and approved federal guidelines for dam safety risk management and emergency action planning, which requires federally owned dam operators to conduct risk assessments and risk reduction measures.

STATE

California Department of Health Services

The Department of Health Services, Division of Drinking Water and Environmental Management, oversees the Drinking Water Program. The Drinking Water Program regulates public water systems and certifies drinking water treatment and distribution operators. It provides support for small water systems and for improving their technical, managerial, and financial capacity. It provides subsidized funding for water system improvements under the State Revolving Fund and Proposition 50 programs. The Drinking Water Program also oversees water recycling projects, permits water treatment devices, supports and promotes water system security, and oversees the Drinking Water Treatment and Research Fund for methyl tert-butyl ether (MTBE) and other oxygenates.

California Water Code

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Division 7 of the California Water Code) (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and each of the RWQCBs power to protect water quality and is the primary vehicle for implementation of California's responsibilities under the Federal CWA. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a Water Quality Control Plan (Basin Plan) for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Assembly Bill 70

Assembly Bill (AB) 70 provides that a city or county may be required to contribute its fair and reasonable share of the property damage caused by a flood to the extent that it has increased the State's exposure to liability for property damage by unreasonably approving, as defined, new development in a previously undeveloped area, as defined, that is protected by a State flood control project, unless the city or county meets specified requirements.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) established a framework for sustainable, local groundwater management. SGMA requires groundwater-dependent regions to halt overdraft and bring basins into balanced levels of pumping and recharge. With passage of the SGMA, the DWR launched the Sustainable Groundwater Management Program to implement the law and provide ongoing support to local agencies around the State. The SGMA:

- Establishes a definition of "sustainable groundwater management;"
- Requires that a Groundwater Sustainability Plan be adopted for the most important groundwater basins in California;
- Establishes a timetable for adoption of Groundwater Sustainability Plans;
- Empowers local agencies to manage basins sustainably;
- Establishes basic requirements for Groundwater Sustainability Plans; and,
- Provides for a limited State role.

REGIONAL AND LOCAL

Merced Groundwater Subbasin Groundwater Sustainability Plan

As a designated medium priority subbasin, local agencies are required to submit and implement a Groundwater Sustainability Plan (GSP), pursuant to the Sustainable Groundwater Management Act (SGMA). The Merced Groundwater Subbasin GSP guides sustainable management of the Merced Subbasin and achieves compliance with the SGMA, It provides a detailed roadmap to achieve the sustainability goal and avoid significant and unreasonable adverse effects on six sustainability indicators, including: chronic lowering of groundwater levels; reduction of groundwater storage; seawater intrusion; water quality degradation; land subsidence; and depletion of interconnected surface water.

Merced Irrigation District

Merced Irrigation District owns, operates and maintains the New Exchequer and McSwain dams, reservoirs, and hydroelectric facilities. These are MID's primary water storage facilities on the Merced River. They are located in the foothills on the western slope of the Sierra Nevada mountain range, approximately 23 miles northeast of Merced. MID's boundaries encompass 164,000 gross acres. Of that, 132,000 acres are irrigable. Of that, approximately 100,000 acres receive water from MID. The total distribution system of MID spans 862 miles. It is comprised of natural waterways, unlined and lined canals, sloughs and pipelines. MID also maintains 215 wells in support of its conjunctive management activities for groundwater and surface water. MID's irrigation distribution system supports local flood control by routing foothill-stream runoff away from populated areas.[10]

Merced Irrigation-Urban Groundwater Sustainability Agency

The Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA) is the special district, formed in 2017, to management the groundwater resources serving the City of Merced.[11] It is one of three GSAs formed to manage the Merced Subbasin through the joint creation of the Merced Subbasin Groundwater Sustainability Plan (MSGSA).

[10] Merced Irrigation District, 2024. *About Us*. About Merced Irrigation District in Merced County CA.

[11] Merced Irrigation-Urban Groundwater Sustainability Agency, 2024. *About Us*. About — Merced Irrigation-Urban Groundwater Sustainability Agency.

Merced Groundwater Subbasin Groundwater Sustainability Plan

The purpose of the Merced Groundwater Subbasin Groundwater Sustainability Plan (MGSGSP) is to bring the Merced Groundwater Basin (Merced Subbasin or Subbasin), a critically over-drafted basin, into sustainable groundwater management by 2040. The County of Merced, and water districts and cities within the Merced Subbasin formed three GSAs in accordance with the Sustainable Groundwater Management Act (SGMA): The Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), the Merced Subbasin Groundwater Sustainability Agency (MSGSA), and the Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1). These three GSAs coordinated efforts to develop this GSP for the Subbasin to guide sustainable management of the groundwater resources therein.

Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan contains the following goals and policies that are relevant to hydrology and water quality:

CHAPTER 5 – PUBLIC SERVICES AND FACILITIES GOALS, POLICIES, AND IMPLEMENTING ACTIONS

Goal Area P-3: Water

Policy P-3.1. Ensure that adequate water supple can be provided within the City's service area, concurrent with service expansion and population growth.

Implementing Actions:

3.1.a. Pursue innovative programs to reduce the demand for potable ("drinkable") water.
3.1.b. Update the City's Water Master Plan and Urban Water Management Plan as needed.
3.1.c. Review the current water system maintenance program and coordinate planned water main replacements with the updated Water Master Plan.
3.1.d. Continue to work with MID and the County of Merced to ensure that adequate water supply and distribution facilities can be developed to meet the growth of the Merced metropolitan area.
3.1.e. Continue to support policies and programs which prohibit the use of private wells and water systems within the City limits.
3.1.f. Plan and design water facilities to efficiently serve the City's urban area.
3.1.g. The City shall not extend water service outside its incorporated limits, except under limited circumstances.
3.1.h. The City will convert flat-rate water services to water meters in compliance with the California State Water Code Section 527.

Policy P-3.2. In Cooperation with the County and the Merced Irrigation District Work to Stabilize the Region's Aquifer.

Implementing Actions:

3.2.a. Work closely with the State and County agencies in exploring innovative technology and procedures for water conservation and recycling.
3.2.b. Work cooperatively with MID to preserve and enhance its surface water delivery system.
3.2.c. Explore the use of MID water resources for applications that do not require treated water to reduce demand on the regional groundwater supplies and reduce costs of water treatment.
3.2.d. Cooperate with MID and the County in the development of groundwater recharge facilities.
3.2.e. Obtain, purchase or preserve rights to open space such as transitioning agriculture lands for proposed major treatment plants, ground water recharge and storage facilities.

Goal Area P-4: Wastewater

Policy P-4.1. Provide Adequate Wastewater Collection, Treatment and Disposal Capacity for Existing and Projected Future Needs.

Implementing Actions:

4.1.a. Maintain and enhance the existing wastewater system to increase the lifetime of the system.
4.1.b. Develop and maintain wastewater master plans to serve future Merced urban expansion.
4.1.c. Coordinate wastewater planning activities with the County.
4.1.d. Prohibit the extension of wastewater service outside of City limits, except in unique circumstances.

Policy P-4.2. Consider the Use of Reclaimed Water to Reduce Non-Potable Water Demands Whenever Practical.

Implementing Actions:

4.2.a. Consider the development of reclaimed water systems, including pipelines, pump stations and storage ponds.
4.2.b. Consider conducting a reclaimed water market study to identify potential users.
4.2.c. Consider preparing a plan for the use of reclaimed water which evaluates the facilities and costs required to serve potential users, determines required capacities of facilities, and presents an implementation plan.

Goal Area P-5: Storm Drainage and Flood Control

Policy P-5.1. Provide Effective Storm Drainage Facilities For Future Development.

Implementing Actions:

5.1.a. Continue to implement, the City's Storm Water Master Plan and the Storm Water Management Plan and its control measures.
5.1.b. Work with the MID and the County to update the City's Storm Water Master Plan to account for changes in expected storm drainage runoff due to expanded land uses within the Merced area.
5.1.c. Continue to require all development to comply with the Storm Water Master Plan and any subsequent updates.
5.1.d. Installation or design of facilities necessary to provide services to development projects will be based on the full build-out scenario.

Policy P-5.2. Integrate Drainage Facilities With Bike Paths, Sidewalks, Recreation Facilities, Agricultural Activities, Groundwater Recharge, and Landscaping.

Implementing Actions:

5.2.a. Provide drainage channels in transportation or canal easement areas to the extent feasible.
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.

CHAPTER 7 – OPEN SPACE, CONSERVATION, & RECREATION

Goal Area OS-1: Open Space for the Preservation of Natural Resources

Policy OS-1.5. Preserve and Enhance Water Quality.

Implementing Actions:

3.1.a. Utilize storm water retention basins and other "Best Management Practices" to improve the quality of storm water discharged into the region's natural surface water system.
3.1.b. Monitor known sources of groundwater contamination within the City and its future expansion area.
3.1.c. Monitor ground water in areas in and around the City using septic system wastewater disposal systems.

Goal Area OS-5: Conservation of Resources

Policy OS-5.1. Promote Water Conservation Throughout the Planning Area.

Implementing Actions:

5.1.a. Continue implementation and enforcement of the City's Water Shortage Regulations (MMC 15.42.010-100).

5.1.b. Continue implementation of the Water Efficient Landscaping and Irrigation Ordinance (MMC 17.60.010-070) and subsequent updates.

5.1.c. Provide leadership in conserving urban water resources.

5.1.d. Encourage public water conservation efforts.

City of Merced Bellevue Community Plan

The City of Merced Bellevue Community Plan contains the following policies that are relevant to hydrology and water quality:

OPEN SPACE, CONSERVATION, AND RECREATION

Goal Area OS-4: Open Space for Conservation of Resources

Policy OS-4.1. All new City facilities in the BCP plan area should be designed, equipped and operated to conserve water at a higher level than current practice.

Led by the City's Public Works Department, in coordination with the Development Services Department, Recreation and Parks Department, and others as appropriate, a comprehensive action plan to implement this policy should be developed. As an initial step, the targeted level of water conservation should be set by the City Council. The action plan would include all City facilities, including but not limited to all park types, public rights-of-way, and City owned or leased buildings. The City should involve local industry representatives, other public agencies, local schools, colleges and universities, and the general public in the development of the action plan. Existing guidelines and codes related to water use, for example, the list of appropriate street trees, should be considered and updated to emphasize the need to conserve water. This work could be funded and supported through grants and local partnerships.

PUBLIC SERVICE AND FACILITIES

Goal Area P-3: Water

Policy P-3.1. Examine the value and feasibility of using a variety of multi-purpose storm-water capture features compared with the traditional curb-and-gutter system.

In lieu of current practice of capturing and transporting water immediately into basins, a multi-use distributed system of features can offer multiple benefits to the City and residents. Along with encouraging the capture and use of rainwater on private properties, the siting of street planters, curb extensions, and green strips in the medians can provide cost-effective peak flood reduction, filter pollutants, be a source of groundwater recharge, improve pedestrian safety, beautify neighborhoods, help alleviate the urban "heat-island" effect, and conserve the City's potable water source. This alternate system could blend well with the rural character of the plan's residential neighborhoods.

Policy P-3.2. Initiate a program to irrigate public parks with MID surface water supplies.

Large portions of the BCP park and open space network is planned to be located adjacent to MID surface waters, that can be used for landscape irrigation, thereby reserving clean groundwater for potable uses.

Policy P-3.3. Coordinate with the Merced Irrigation District (MID) to design and operate laterals as sites for recharge, storm-water management and recreational open space corridors while protecting its primary function as conveyance of water to agricultural pursuits.

Several MID laterals trace through the BCP conveying Merced River surface water in the spring and summer (May to October) to agricultural fields both inside and out of the BCP planning area. To the east of the BCP planning area is UCM including its canal-based open space features, the Lake Road bike-path, future bikeways within and around UC Merced, and Yosemite Lake Regional Park. The planning area is void of any notable creek that can connect Merced to these features. The MID laterals in the BCP provide a unique opportunity to link these features and address a range of community needs including groundwater recharge, storm-water management and recreational open space corridors. A collaborative effort between the City, Merced County and MID should be initiated to create a long-tem multiple-use strategy for the future use of the MID laterals.

Goal Area P-4: Wastewater

Policy P-4.1. Coordinate wastewater planning activities with UCM and Merced County.

Include the Bellevue Community Plan, the University Community Plan and UCM's Long-Range Development Plan, as well as other development plans within the City's Sphere of Influence in any update to the City's wastewater planning activities. Such studies should include an assessment of potential strategies to minimize groundwater contamination from septic tank systems in Rural Residential areas.

Policy P-4.2. Encourage innovative distributed reclaimed water improvements for buildings.

Private on-site systems should be encouraged provided that water quality issues can be adequately addressed. These systems may involve the collection of rainwater, the use of gray-water, or other similar reclaimed technologies. For example, buildings can incorporate wastewater reuse systems, encouraging on site water recycling for cooling systems and landscaping needs.

Goal Area P-5: Storm Drainage and Flood Control

Policy P-5.1. Craft a Storm-water Master Plan that emphasizes multiple use objectives of the community.

Assure that storm-water flow from and through the BCP is addressed on a regional scale, taking into consideration the important opportunities and constraints of the Lake Yosemite Reservoir. The plan will need to identify conveyance channels and stormwater basins,

whether inside or outside the BCP, in anticipation of future flood waters and need to divert water from urbanized areas, including UC Merced. As part of this assessment, the plan should include methods to create a multi-use distributed system of features (in lieu of the simple curb and gutter system). Such features can include the capture and use of rainwater on private properties, the siting of street planters, curb extensions, and green strips in street medians. These features can provide cost-effective peak-flood reduction, filter pollutants, be a source of groundwater recharge, improve pedestrian safety, beautify neighborhoods, help alleviate the urban "heat-island" effect, and conserve the City's potable water source.

Policy P-5.2. Policy P-5.2: Examine the value and feasibility of using a variety of multi-purpose storm-water capture features compared with the traditional curb-and-gutter system.

In lieu of current practice of capturing and transporting water immediately into basins, a multi-use distributed system of features can offer multiple benefits to the City and residents. Along with encouraging the capture and use of rainwater on private properties, the siting of street planters, curb extensions, and green strips in the medians can provide cost-effective peak flood reduction, filter pollutants, be a source of groundwater recharge, improve pedestrian safety, beautify neighborhoods, help alleviate the urban "heat-island" effect, and conserve the City's potable water source. This alternate system could blend well with the rural character of the plan's residential neighborhoods.

City of Merced Municipal Code

Title 17 – Buildings and Construction

Chapter 17.48 – Flood Damage Prevention

Merced Municipal Code Chapter 17.48, *Flood Damage Prevention*, contains the City's floodplain management ordinance, which addresses regulations and standards in order to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions within the City of Merced.

Title 18 – Subdivisions

Chapter 18.32.040 – Drainage Facilities

Drainage facilities shall be installed as deemed necessary by the city engineer to provide for the removal of surface water. Drainage facilities shall be of a character and design approved by the city engineer and in accordance with the requirements of the standard specifications referred to in Section 18.32.010, in order to insure proper grading and erosion control including the prevention of sedimentation or damage to off-site property.

Chapter 18.32.070 – Sewage Disposal

Sanitary sewer facilities connecting with the existing city system shall be installed to serve each lot. Sewers shall be installed to grades, location, design and sizes approved by the city engineer in accordance with the provisions of applicable laws of the city.

Chapter 18.32.080 – Water

Water mains connecting with the existing city system shall be installed to serve each lot. Water mains shall be installed to grades, location, design and sizes approved by the city engineer.

3.10.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- 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 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;
    - 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
    - impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and/or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

METHODOLOGY AND ASSUMPTIONS

This analysis focuses on issues related to surface hydrology, flood hazards, groundwater supply, and surface and groundwater quality.

IMPACTS AND MITIGATION

Impact 3.10-1: Implementation of the proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (Less than Significant)

Short-Term Construction Water Quality Impacts: Development associated with the proposed Project would involve grading, excavation, removal of vegetation cover, and activities associated

with construction activities that could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion impacts that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas.

Each phase of Project construction disturbing one acre of more of soil would be required to obtain coverage under the Construction General Permit. The permit requires development and implementation of a SWPPP and monitoring plan, which must include erosion-control and sediment-control BMPs that would meet or exceed measures required by the Construction General Permit to control stormwater quality degradation due to potential construction-related pollutants. Further, Project construction would be required to implement construction site control BMPs in compliance with the City's NPDES Permit (MS4). Project construction activities would also be subject to the City's grading control ordinance and storm water control ordinance, which requires compliance with minimum BMPs to reduce the discharge of pollutants. Therefore, the proposed Project would not violate any water quality standards or waste discharge requirements, nor would it otherwise substantially degrade surface water or groundwater quality. Implementation of BMPs during construction activities and compliance with the existing regulatory requirements would reduce potential impacts in this regard to a level that is ***less than significant***.

Long-Term Operational Water Quality Impacts: The long-term operations of the proposed Project could result in impacts to surface water quality from urban stormwater runoff. The proposed Project would result in new impervious areas associated with streets, driveways, parking lots, and buildings. Normal activities in these developed areas include the use of various automotive petroleum products and household hazardous materials, including cleansers, paints, fertilizers, and pesticides. Within urban areas, these pollutants are generally referred to as non-point source pollutants. While there are some non-point source pollutants from the Project site already existing due to road and agricultural runoff, the proposed development could increase potential pollutants relative to existing conditions. The pollutant levels would vary based on factors such as time between storm events, volume of storm event, type of land uses, and density of people. In addition, uses associated with the proposed development may involve the use, generation, storage, or transport of hazardous materials with the potential for accidental release.

Water Quality Impacts from Discharges to 303(d) Listed Water Bodies: Section 303(d) of the federal Clean Water Act requires States to identify waters that do not meet water quality standards or objectives and thus, are considered "impaired." However, the project area does not directly discharge to any 303(d) listed water bodies. Therefore, the proposed Project would not be expected to further impair any 303(d)-listed water body.

A guiding stormwater management principle for projects in the city is that they not result in new impacts to properties downstream or upstream. Potential impacts include considerations of both stormwater quantity and quality. With regard to stormwater quality, the Project would be designed to conform with current City of Merced standard requirements.

Due to the hydrologic soil group rating for the Project site, only moderate percolation of stormwater occurs onsite. This would limit the ability to capture stormwater on site, and a pump station would

be necessary to remove excess water from the site. The Project design includes the use of stormwater quality features that will minimize non-point source pollution and long-term urban runoff impacts.

All stormwater generated by development of the site would be handled by a "cascading" basin system, which would interconnect the proposed basins throughout the site. Prior to entering the basin system, the stormwater would be treated through a combination of treatment devices including, but not limited to drainage swales, small bioretention basins, inlet filters, interception trees, permeable concrete pavers, stormwater planters, and rain gardens. If necessary, underground storage and treatment can be utilized to assist with any additional treatment or storage.

There are four planned detention basins located throughout the site, with the lowest basin being located at the natural low point of the Project site in the southeast corner. These basins would be designed as detention basins with a non-interruptible outlet draining to the nearby Yosemite Lateral, owned and maintained by the Merced Irrigation District. The proposed Project would be required to establish an agreement with the Merced Irrigation District to discharge into the lateral.

These stormwater quality features are intended to treat runoff close to the source. Through implementation of these design features, water quality would be protected, and the impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-2: Implementation of the proposed Project would not 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)

Groundwater Supplies: The entirety of the City's well system functions by pumping from the Merced Subbasin, the primary aquifer underlying the City and covers a surface area of approximately 491,000 acres (767 square miles). The City of Merced pumped 20,076 acre-feet per year (afy) in 2020, with the average annual volume pumped over between 2016-2020 was approximately 19,000 afy. Groundwater from the Merced Subbasin accounted for 100 percent (100%) of the City's potable water supply in 2020 and will continue to be the primary source of potable water for the foreseeable future. The City's well system consists of 20 groundwater production wells with local water treatment facilities at the wells. Combined, these wells have a total capacity of 54,400 gallons per minute (gpm), or approximately 87,000afy.[12]

[12] West Yost, 2024. *City of Merced UC Villages Water Supply Assessment*. November 2024. Page 17-18.

The proposed Project is projected to produce a total water demand of approximately 230.8 afy from all proposed land uses. The most water-intensive uses would be the multi-family residential homes. Comparing the overall water demand for the City of Merced in 2020 to projected water demand in 2040, including the water needs of the proposed Project, shows a total water demand of approximately 31,825 afy, a 59 percent (59%) increase.[13] When this increase is evaluated based on the current capacity of the 20 groundwater production wells in the Merced Subbasin (approximately 87,000 afy), there is substantial capacity to accommodate the projected growth and expansion caused by the proposed Project.

Thus, the Project would not substantially decrease groundwater supplies that would impede sustainable groundwater management of the basin. As such, implementation of the proposed Project would result in a ***less than significant*** impact relative to water supplies.

Groundwater Recharge: The proposed Project would result in new impervious surfaces within the Project site with the potential to reduce rainwater infiltration and groundwater recharge to the Merced Subbasin, such as roads, pavement, and sidewalks. The new impervious surfaces that would be built on the Project site could reduce groundwater infiltration capacity compared to the existing conditions. However, the proposed Project includes pervious areas such as landscaping and would allow for safe runoff of water to recharge groundwater systems. On-site flows would be conveyed to the proposed retention basin, which would allow for infiltration at a similar rate as the Project site already infiltrates.

Therefore, potential impacts to groundwater recharge such that the project may impede sustainable groundwater management of the basin are not anticipated. As such, implementation of the proposed Project would have a ***less than significant*** impact relative to groundwater recharge.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-3: Implementation of the proposed Project would not 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 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; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage

[13] West Yost, 2024. *City of Merced UC Villages Water Supply Assessment*. November 2024. Page 15.

systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. (Less than Significant)

The Project site is located within the northern San Joaquin subbasin and within the Middle San Joaquin–Lower Chowchilla Watershed, which encompasses over 2,256,168 acres and stretches across California. This watershed includes nine major streams and rivers. These include Bear Creek, Burns Creek, Chowchilla River, Deadmans Creek, Fresno River, Los Banos Creek, Mariposa Creek, Owens Creek, and the San Joaquin River.[14] The Project site is located within the Fahrens Creek Subwatershed.

In addition to the natural drainage features, the Project site is bound by the Yosemite Lateral to the west. This Merced Irrigation District (MID) canal transected by numerous man-made channels which are part of MID's extensive system of irrigation canals, levees, and ditches. The most significant is the main canal which was constructed in 1886 and interrupts flows from the upper reaches of Ellendale Creek, Parkinson Creek, and Fahrens Creek water systems. The main canal ultimately conveys a portion of these flows to Lake Yosemite, located east of the Project site.

The development of the proposed Project, when complete, would result in new impervious surfaces and thus could result in an incremental reduction in the amount of natural soil surfaces available for the infiltration of rainfall and runoff, thereby generating additional runoff during storm events. Additional runoff could contribute to the flood potential of natural stream channels or contribute runoff that could exceed the capacity of the City's drainage system. However, the Project site is not located within a FEMA-designated flood zone, reducing the overall risk of flooding.

If the proposed Project is developed, the on-site impervious area would increase, leading to faster and increased levels of runoff. However, the increased rate of runoff would be attenuated using new on-site drainage improvements and drainage systems throughout the landscaped areas on the Project site. In general, runoff from the Project site would be routed through a network of proposed bio-treatment basins, proposed storm drain systems, and the proposed retention basin to the adjacent existing connection points.

In addition to the water quality treatment measures, the project proposes to handle the expected increase in the site's post-project peak discharge relative to pre-project conditions, resulting in no net increase of peak runoff. The proposed Project would not substantially alter the existing drainage pattern of the site or area, in a manner that would result in substantial erosion or siltation, result in flooding, or exceed the capacity of the existing or planned stormwater drainage systems. Therefore, this is a ***less-than-significant*** impact.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

[14] Merced County, 2023. Focused Subsequent Environmental Impact Report for the UCP Update and VST Specific Plan. April. p 3.5-6.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-4: Implementation of the proposed Project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. (Less than Significant)

The Project site is not located within a FEMA designated flood hazard zone. As shown in Figure 3.10-3, the entire site is located outside of any flood hazard zone and is therefore ***less than significant***. The Project site is also not within a dam inundation zone, as shown in Figure 3.10-4. The nearest dam inundation zone is southeast of Yosemite Lake Dam, which is directly north of the Project site. However, given the regulations provided in the Safety of Dams Act, the ongoing monitoring performed by the Bureau of Reclamation, and the location of the Project site relative to the nearest dam inundation zone, the risk of loss, injury, or death to people or structures from dam failure is considered ***less than significant***.

Compliance with existing regulations would ensure that implementation of the proposed Project would have a ***less than significant*** impact associated with the release of pollutants due to project inundation.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-5: Implementation of the proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (Less than Significant)

As described above, the Merced Groundwater Subbasin Groundwater Sustainability Plan is maintained by three GSAs in accordance with the Sustainable Groundwater Management Act (SGMA): The Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), the Merced Subbasin Groundwater Sustainability Agency (MSGSA), and the Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1).

When permittees and projects comply with the provisions of applicable NPDES permits and water quality permitting, they are consistent with the applicable groundwater management plan. Through compliance and implementation of existing regulations, implementation of the proposed Project would not conflict with or obstruct a water quality control plan. Therefore, impacts in this regard would be ***less than significant***.

As described above, in compliance with SGMA, the MIUGSA, the MSGSA, and TIWD GSA-1 developed a GSP and submits an annual report to the DWR detailing groundwater conditions for the Subbasin and GSP implementation status for the prior year. The Merced Groundwater Subbasin Groundwater Sustainability Plan guides sustainable management of the Subbasin and achieves compliance with SGMA. The proposed Project would be subject to compliance with the GSP. Therefore, the project would not conflict with implementation of a sustainable groundwater management plan and impacts in this regard would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

CUMULATIVE IMPACTS

Related projects in the City may have the potential to interact with the proposed Project to the extent that a significant cumulative effect relative to hydrologic characteristics may occur.

Impact 3.10-6: Implementation of the proposed Project, in combination with other cumulative development, would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (Less than Significant)

Cumulative development would increase the amount of impervious surfaces in the city limits, which could affect stormwater runoff water quality. Individual projects would be required to provide stormwater collection and discharge facilities such that water quality is not adversely affected. Future facilities and projects would be subject to the State Water Resources Control Board Requirements (SWRCB), City of Merced regulations; the Merced Groundwater Subbasin Groundwater Sustainability Plan, Phase II, National Pollutant Discharge Elimination System (NPDES) Permit Requirements; NPDES-MS4 Permit Requirements; and LID Guidelines.

Stormwater quality standards imposed and monitored by the Environmental Protection Agency (EPA) and the SWRCB through the NPDES permit require treatment of stormwater runoff prior to its release into drainage features. Therefore, the cumulative impact to stormwater systems would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-7: Implementation of the proposed Project, in combination with other cumulative development, would not 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)

The entirety of the City's well system functions by pumping from the Merced Subbasin, the primary aquifer underlying the City and covers a surface area of approximately 491,000 acres (767 square miles). The City of Merced pumped 20,076 acre-feet per year (afy) in 2020, with the average annual volume pumped over between 2016-2020 was approximately 19,000afy. Groundwater from the Merced Subbasin accounted for 100 percent (100%) of the City's potable water supply in 2020 and will continue to be the primary source of potable water for the foreseeable future. The City's well system consists of 20 groundwater production wells with local water treatment facilities at the wells. Combined, these wells have a total capacity of 54,400 gallons per minute (gpm), or approximately 87,000afy.[15]

Comparing the overall water demand for the City of Merced in 2020 to projected water demand in 2040, including the water needs of the proposed Project, shows a total water demand of approximately 31,825 afy, a 59 percent (59%) increase.[16] When this increase is evaluated based on the current capacity of the 20 groundwater production wells in the Merced Subbasin (approximately 87,000afy), there is substantial capacity to accommodate the projected growth and expansion of the entire City of Merced including the growth caused by the proposed Project. Therefore, the cumulative impact on groundwater would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-8: Implementation of the proposed Project, in combination with other cumulative development, would not 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 flooding on- or offsite; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide

[15] West Yost, 2024. *City of Merced UC Villages Water Supply Assessment*. November 2024. Page 17-18.
[16] West Yost, 2024. *City of Merced UC Villages Water Supply Assessment*. November 2024. Page 15.

substantial additional sources of polluted runoff; or impede or redirect flood flows. (Less than Significant)

Cumulative development would increase the amount of impervious surfaces in the city limits, which could increase peak stormwater runoff rates and volumes. Individual projects would be required to provide stormwater collection and discharge facilities such that downstream peak flows do not exceed existing conditions. Future facilities and projects would be subject to the State Water Resources Control Board Requirements (SWRCB), City of Merced regulations; Phase II, National Pollutant Discharge Elimination System (NPDES) Permit Requirements; NPDES-MS4 Permit Requirements; and LID Guidelines.

Stormwater quality standards imposed and monitored by the Environmental Protection Agency (EPA) and the SWRCB through the NPDES permit require treatment of stormwater runoff prior to its release into drainage features. Therefore, the cumulative impact to stormwater systems would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.10-9: Implementation of the proposed Project, in combination with other cumulative development, would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. (Less than Significant)

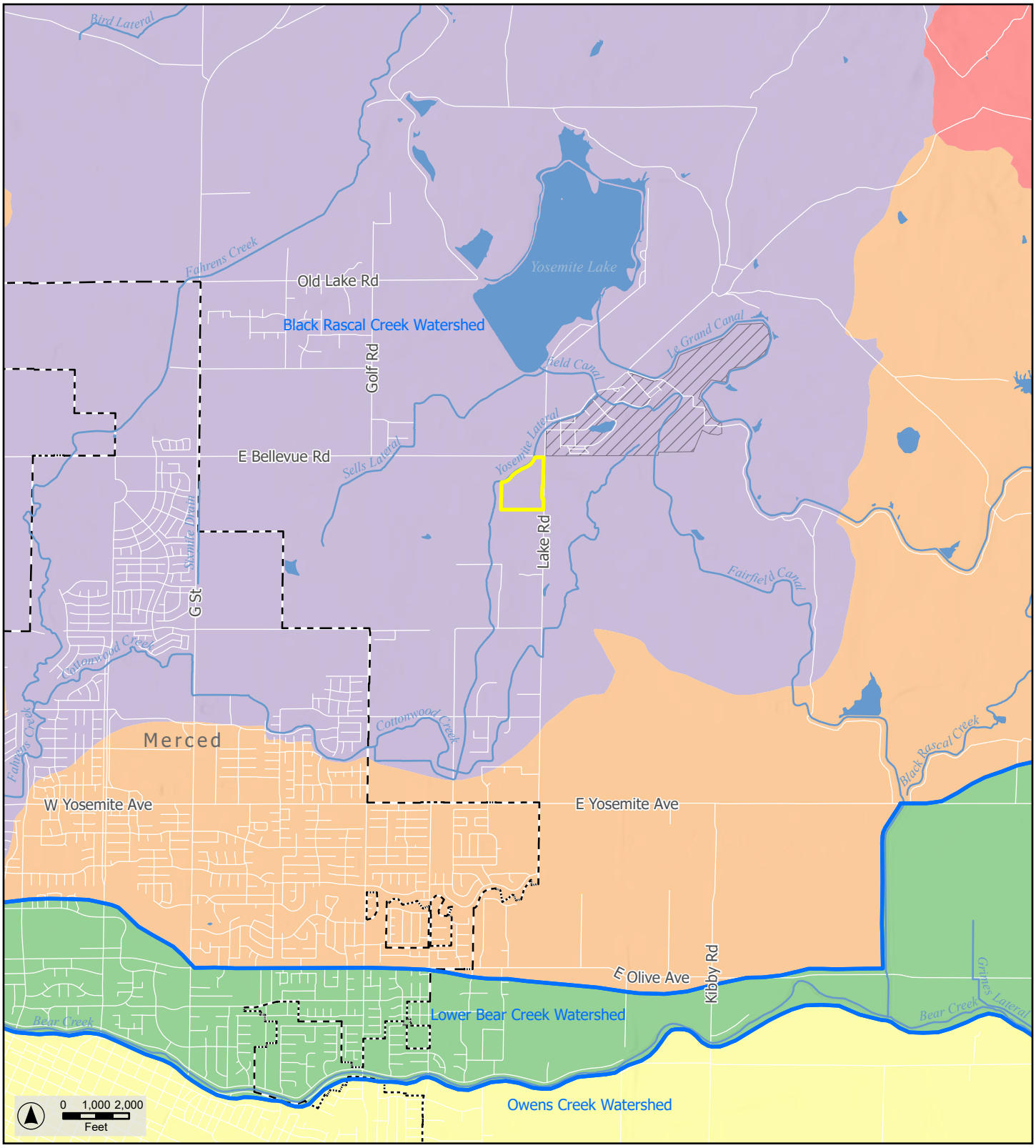
There are portions of the City of Merced that are within both 100- and 500-year floodways. Future development throughout the City would be subject to existing State, and local regulation to ensure protections and mitigation measures against potential risk from flood hazards. The City's inland location does not make it prone to effects from tsunamis or seiches. Therefore, cumulative development would not risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones, and the cumulative impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.



Legend

- Project Boundary
- City of Merced
- University_lands
- Major River or Creek
- Watershed Boundary (USGS HU-10)

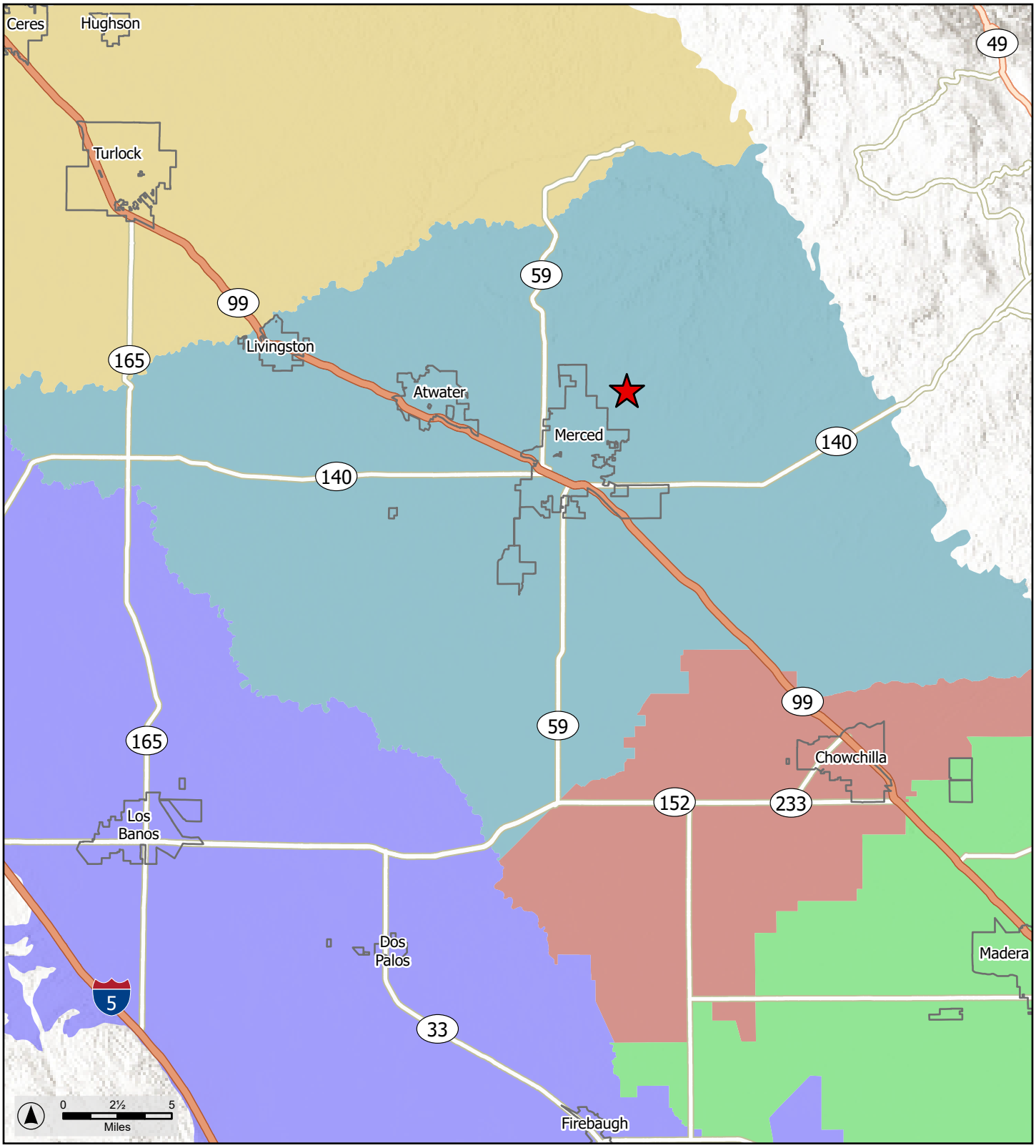
Subwatershed (USGS HU-12)

- Bear Creek
- Fahrens Creek
- Lower Black Rascal Creek
- Lower Owens Creek
- Upper Black Rascal Creek

UC VILLAGES

Figure 3.10-1. Principal Watersheds

Sources: USGS National Hydrography Dataset; USGS Watershed Boundary Dataset; California State Geoportal; USGS Roads Database; Merced County GIS. Map date: July 10, 2024.



Legend

- Project Location
- Incorporated Area

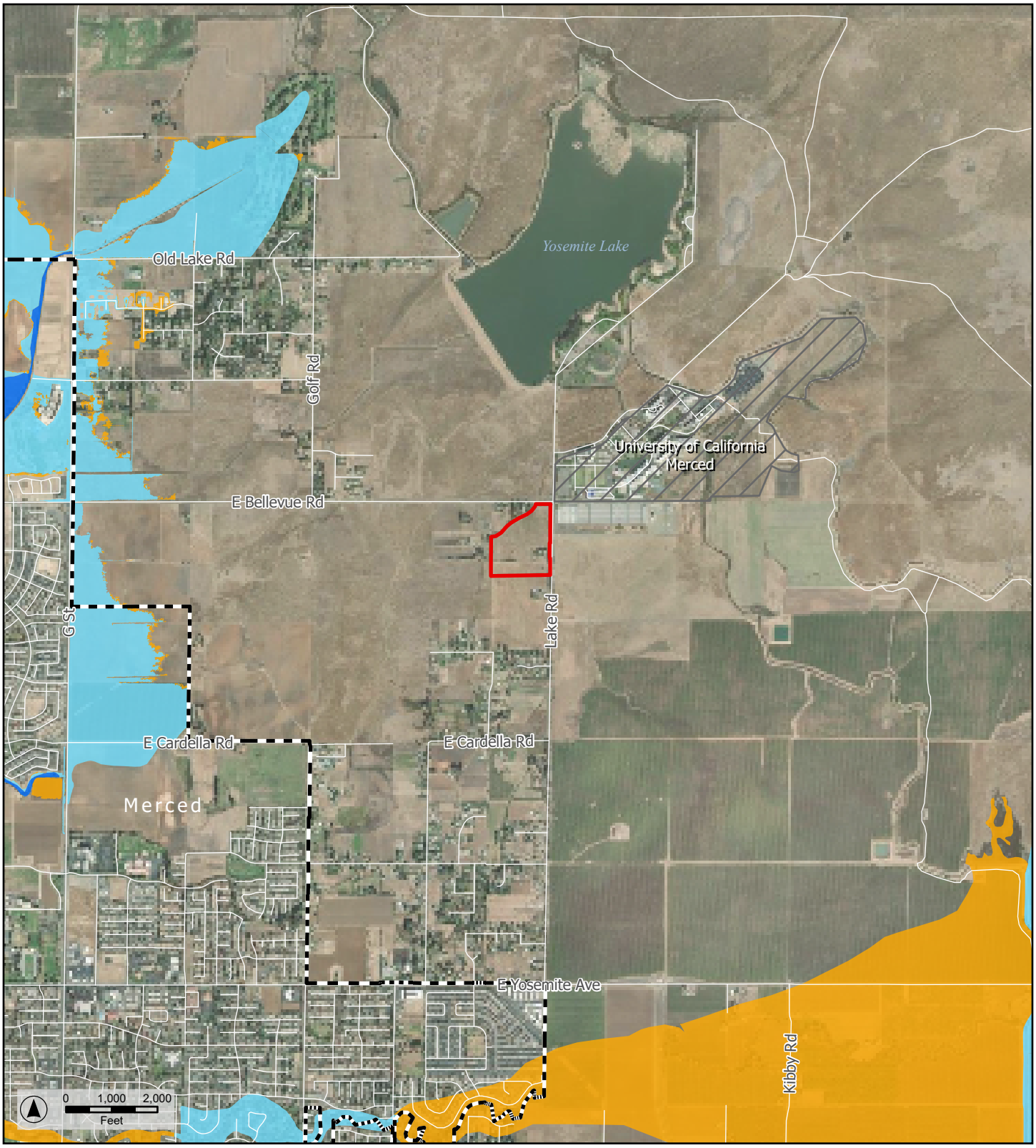
Groundwater Basin - Sub-basin

- San Joaquin Valley - Chowchilla
- San Joaquin Valley - Delta-Mendota
- San Joaquin Valley - Madera
- San Joaquin Valley - Merced
- San Joaquin Valley - Turlock

UC VILLAGES

Figure 3.10-2. Groundwater Basins

Sources: California State Geoportal; USGS Roads Database; DWR Groundwater Basins; Map date: November 11, 2024.



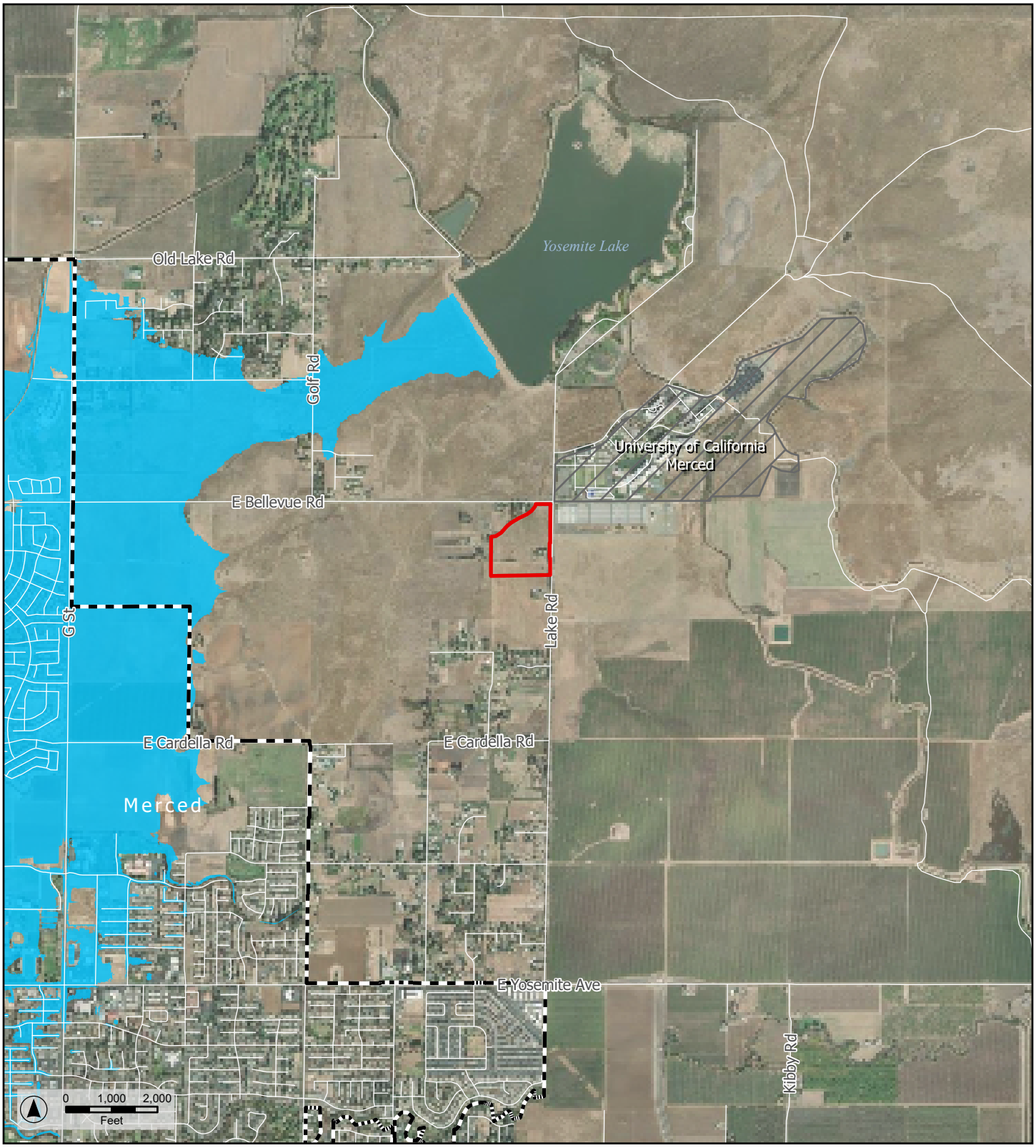
Legend

- Project Boundary
- University Lands
- City of Merced
- Regulatory Floodway
- 100-year Flood Zone
- 500-year Flood Zone
- unshaded Area of Minimal Flood Hazard

UC VILLAGES

Figure 3.10-3. FEMA Flood Insurance Rate Map

Sources: FEMA Map Service Center, National Flood Hazard Layer, Merced County,11-29-2021; California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date July 10, 2024.



Legend

- Project Boundary
- University Lands
- City of Merced
- Yosemite Lake Dam Failure Inundation Area

UC VILLAGES

Figure 3.10-4. Dam Failure Inundation Areas

Sources: DWR Department of Dam Safety, Approved Dam Inundation Boundaries 6/29/2024 ; California State Geoportal; USGS Roads Database; Merced County GIS; MAXAR Imagery 11/23/2023; Map date July 10, 2024.

The purpose of this EIR section is to identify the existing land use conditions on the proposed Project site and the surrounding areas, analyze the project's compatibility with existing land uses, and analyze the project's consistency with relevant planning documents and policies.

Information in this section is based on information provided by the project applicant, site surveys, ground and aerial photographs, and the following reference documents:

- City of Merced Vision 2030 General Plan (City of Merced, January 2012);
- Draft Environmental Impact Report for the City of Merced 2030 General Plan (City of Merced, August 2010);
- Bellevue Corridor Community Plan (City of Merced, April 2015); and
- City of Merced Municipal Code (City of Merced, current through Ordinance No. 2558, passed December 18, 2023).

During the NOP comment period for the EIR, there were no comments received regarding this topic (see Appendix A).

3.11.1 ENVIRONMENTAL SETTING

PROJECT SITE

The City of Merced is located in the Central Valley region of Northern California, along the Highway 99 freeway corridor in Merced County, with the cities of Atwater located approximately nine miles to the north and Chowchilla located approximately 20 miles to the south, as shown in Figure 2-1.

The UC Villages project site is in unincorporated Merced County, to the northeast of the City of Merced's city limits. The site is located at the southwestern corner of the Bellevue Road and Lake Road intersection, shown in Figure 2-2. The project site is within the Bellevue Corridor Community Plan (BCCP) area, as shown on Figure 2-3 and is anticipated to be annexed by the City of Merced per California State Assembly Bill 3312 (AB 3312), described below. AB 3312 posits that any land along Bellevue Road is available to apply for annexation, however, only after annexation of the University of California, Merced (UC Merced) to be incorporated into the City of Merced, which was completed in August 2024. As such, both the existing County designations for both land use and zoning, and the City's designations for land use and zoning outlined in both the 2030 General Plan and the BCCP will be appropriately considered.

The project site is bounded by Bellevue Road, ranchette parcels, vacant lands, the Merced Irrigation District (MID) Yosemite Lateral canal, and the future University Vista Project to the north; Lake Road and the UC Merced parking lot (Bellevue Lot) to the east; open vacant land parcels to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west. To the northwest there are four single-family homes located at APNs 060-590-010, -009, -008, and -020, with -021 being a vacant lot. To the southeast there is another single-family home located at APN 060-590-026.

EXISTING LAND USES

The Project site land use designation in the Merced County General Plan is listed under the "City Planning Area-Merced" as Agricultural-Residential (A-R). This land use designation provides for single-family

dwellings on large lots in a semi-rural environment. While commonly applied to County designated "Rural Centers", this designation can also be applied to the edge of urban areas, acting as a buffer between urban and rural land uses. The minimum lot or parcel size for A-R designations is one-third of an acre. There is no minimum number of dwelling units per gross acre but there is a maximum of 0.33 dwelling units per gross acre. The County of Merced 2030 General Plan designates the land to the south, north, and west of the Project site with the same classification under the "City Planning Area-Merced" with the same designation of Agricultural-Residential.

The Project site is designated by the City of Merced Vision 2030 General Plan as Rural-Residential (RR). This land use designation is intended to support single-family homes on large lots in a lower-density, semi-rural environment. These land uses provide a buffer between agricultural land and other environmentally sensitive and resource areas. Older RR areas were originally designated adjacent to urbans areas within the City, as well as at the boundaries of the City's Specific Urban Development Plan (SUDP) and the previous sphere of influence boundary (SOI) both defined in the City of Merced 2012 General Plan. The density within RR areas is one dwelling unit per gross acre, with up to three dwelling units per gross acre if public sewer/water utilities are available. The City of Merced does not consider these land use designations to be an efficient use of land and does not propose any new RR designations.

The City of Merced Vision 2030 General Plan and the Bellevue Corridor Community Plan describe the desired development for this area as having a "Mixed-Use TOD Character." This description highlights the need for community-oriented development that can help support the transportation, housing, and commercial needs of, primarily, the students of UC Merced, as well as residents of the City of Merced and Merced County.

The area to the south, west, and north of the Project site is designated by the City of Merced Vision 2030 General Plan as Rural-Residential (RR), while the land to the east is designated General Agriculture (A-1), and the land on the northeast corner of the site is designated Exclusive Agriculture (A-2). The land uses in the R-R areas to the west and north of the Project site are vacant lots that are majority grasslands, with smaller neighborhoods of single-family homes such as those along Golf Road. The R-R area to the south is more suburban in character with neighborhoods of single-family homes along East Cardella Road and Dunn Road. The area designated A-2 to the northeast of the Project site is the UC Merced main campus. The dominant land use in A-1 to the east of the Project site, just south of the UC Merced Bellevue Lot is agricultural land and currently in development by the Virginia Smith Trust.

PROPOSED LAND USES

The proposed land uses at this project site are Commercial and Residential, as shown on the Conceptual Site Plan (see Figure 2-8). The Commercial area of the Project is located on the northeast corner of the site, at the corner of Lake Road and Bellevue Road. This area will specifically be designated as Retail/Commercial and Hotel/Commercial with approximately 105,000 sf of retail and commercial uses and a potential for 75,000 sf hotel with 200 guest rooms. It is anticipated that the Commercial area would include neighborhood serving commercial businesses, such as restaurants, retail stores, banks, and other commercial uses typically associated with a mixed-use retail/commercial center.

The residential nature of the proposed Project intends to take advantage of the site's proximity to UC Merced and develop high-quality off-campus housing to serve the local student population. While not strictly intended to cater to students, the design of the Project will reflect the character associated with student living. The recreational space will include various amenities including cornhole, bocce ball, pickleball, bike repair stations, and a recreational pool. The proposed land uses for the Project site seek to capitalize on the existing features that have influenced the land use goals laid out in both the City of Merced 2030 Vision General Plan and the BCCP including: proximity to UC Merced and associated compatibility needs; anticipated job-based land uses attracted by a university climate; the regional attributes of Bellevue Road as part of the Merced Loop Road; and, the community-wide transit corridor linking UC Merced to Downtown and beyond.

EXISTING ZONING

The County of Merced 2030 General Plan designates the Project site as Rural Residential (R-R) zoning. Chapter 18.12 of the County of Merced Municipal Code describes the purpose and intent behind the R-R designation as providing areas for rural residential development, hobby farming, and limited animal raising operations that have less than a full range of urban services. This zone is typically intended to act as a buffer between denser urban communities and agricultural operations or other environmentally sensitive areas. R-R parcel density limits allow for one to three dwelling units per acre as per the County of Merced General Plan. Parcels with this zoning designation will typically have single-family homes on large lots and may often accommodate small scale farming operations.

The Project site has currently not been zoned by the City of Merced pending approval of annexation. As the City's guiding document regarding this Project's site property, the Bellevue Corridor Community Plan recognizes the existing County zoning designation of Rural Residential (R-R) and the County's desire to limit the expansion of R-R zoning to new properties. As such, the Project site is proposed to be pre-zoned as "Planned-Development (P-D)" to accommodate and forward the goals of both the County of Merced's 2030 General Plan and the City of Merced's Vision 2030 General Plan. 10

PROPOSED ZONING

The Project site has currently not been zoned by the City of Merced as it is a part of the Bellevue Corridor Community Plan intended to be annexed by the City. It is proposed to be pre-zoned as Planned Development (P-D), as shown in Figure 2-7. Planned development zoning is a category utilized by the City of Merced to designate unique and specific development areas that can accommodate a variety of uses that will carry out the objectives and goals of the General Plan. This Project site will utilize P-D zoning to provide various commercial uses in the form or retail, hotel, and other community serving businesses, as well as a residential development intended to primarily serve the needs of the student population of UC Merced.

Chapter 20.20.020 of the City of Merced's Municipal Code provides the framework for development under the designation of P-D zoning. This zoning designation is intended to deviate from standards and regulations applicable in other zoning districts in Merced, promoting creativity in building design and flexibility in different land uses. These deviations are intended to serve specific needs of unique areas of

Merced while remaining consistent with the goals and objectives outlined in the City of Merved Vision 2030 General Plan. The minimum project size for P-D zoning districts is three acres.

3.11.2 REGULATORY SETTING

STATE

Government Code

California Government Code Section 65300 *et seq.*, establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a jurisdiction and of any land outside its boundaries that, in the jurisdiction's judgement, bears relation to its planning. The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the jurisdiction's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

The State Zoning Law (California Government Code Section 65800 *et seq*.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific district, are required to be consistent with the general plan and any applicable specific plans. When amendments to the general plan are made, corresponding changes in the zoning ordinance may be required within a reasonable time to ensure the land uses designated in the general plan would also be allowable by the zoning ordinance (Government Code, Section 65860, subd. [c]).

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 establishes procedures for local governments for changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. The Act provides LAFCo's with numerous powers, those of primary concern are the power to act on local agency boundary changes and to adopt spheres of influence for local agencies. In regard to approving an annexation, the LAFCo in question will consider the following factors:

- Population and population density; land area and land use; per capita assessed valuation; topography, natural boundaries, and drainage basins; proximity to other populated areas; and the likelihood of significant growth in the area and in adjacent incorporated and unincorporated areas during the next ten years.
- The need for organized community services; the present cost and adequacy of governmental services and controls in the area; probable future needs for those services and controls; and the probable effect of the pro-posed incorporation, formation, annexation, exclusion and of

alternative courses of action on the cost and adequacy of services and controls in the area and adjacent areas.

- The effect of the proposed action and of alternative actions on adjacent areas, on mutual social and economic interests, and on the local government structure of the county.
- The conformity of both the proposal and its anticipated effects with both the adopted commission policies on providing planned, orderly, and efficient patterns of urban development, and the policies and priorities set forth in Government Code section 56377.
- The effect of the proposal on maintaining the physical and economic integrity of agricultural lands, as defined by Government Code section 56016.
- The definiteness and certainty of the boundaries of the territory, nonconformance of proposed boundaries with lines of assessment or ownership, creation of islands or corridors of unincorporated territory, and other similar matters affecting the proposed boundaries.
- Consistency with city or county general and specific plans.
- The sphere of influence of any local agency that may be applicable to the proposal being reviewed.
- The comments of any affected local agency.
- The ability of the newly formed or receiving entity to provide the services that are the subject of the application to the area, including the sufficiency of revenues for those services following the proposed boundary change.
- Timely availability of water supplies adequate for projected needs as specified in Government Code section 65352.5.
- The extent to which the proposal will affect a city or cities and the county in achieving their respective fair shares of the regional housing needs, as determined by the appropriate council of governments consistent with Housing Element laws.
- Any information or comments from lawmakers.
- Any information relating to existing land use designations.

Generally, the Cortese-Knox-Hertzberg Act requires that territory under review for annexation be contiguous to the city at the time of application and review of the proposal. This intends to avoid the creation of islands or exclaves under a city's jurisdiction. The Act also requires that each LAFCo develops a sphere of influence of the city and a special district within the county relative to said city. Defined by the Act, a sphere of influence is understood to be a plan for the probable physical boundaries and service area of the local agency, as determined by the commission.

Assembly Bill 3312

California State Assembly Bill 3312 (AB 3312) would add section 56748 (described below) to the California Government Code, passed in September of 2020. The bill builds off regulatory powers granted to LAFCos by the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. Within this power was the authority to receive, review, and approve requests for changes to the boundaries or organizations of cities, including annexations and. Generally, the Cortese-Knox-Hertzberg Act requires that land be contiguous to the existing border of the city at the time of annexation.

Assembly Bill 3312 grants the City of Merced the authorization to annex the main campus of the University of California, Merced, as well as any road strip to the City of Merced, as defined. AB 3312 does require that the other conditions of the Cortese-Knox-Hertzberg Act are met, notwithstanding the requirement that the territory intended to be annexed is contiguous to the City of Merced. The bill also prohibits the commission from approving a subsequent annexation of a road strip or territory pursuant to these provisions unless the territory proposed to be annexed is contiguous to the property of the main campus of UC Merced and the abovementioned road strip.

SECTION 1. Section 56748 is added to the California Government Code, to read:

(a) As used in this section:

(1) "Affected territory" means the main campus of the University of California, Merced and a road strip proposed for annexation to the City of Merced.

(2) "Main campus of the University of California, Merced" means the area within the boundaries of the campus of the University of California, Merced, as described in the University of California, Merced 2020 Long-Range Development Plan dated March 2020, and comprising of no more than 1,026 acres.

(3) "Road strip" means the streets, highways, or roads that connect the territory of the property to be annexed to the annexing city.

(b) Notwithstanding Section 56741, unincorporated territory of property comprising the main campus of the University of California, Merced, together with the road strip, may be annexed to a city pursuant to this division, upon approval of the commission, if the following conditions are met:

(1) The affected territory is within the sphere of influence of the annexing city, as adopted by the commission.

(2) The affected territory lies within an unincorporated area within the County of Merced.

(c) The commission shall not approve any subsequent annexation of a road strip unless the territory proposed to be annexed is contiguous to the property comprising the main campus of the University of California, Merced or the boundaries of the City of Merced as I existed on January 1, 2021.

(d) This section applies only to the City of Merced.

SECTION 2. The Legislature finds and declares that a special statute is necessary and that a general statute cannot be made applicable within the meaning of Section 16 of Article IV of the California Constitution because of the unique circumstances relating to the property comprising the University of California, Merced, campus located in unincorporated territory within the County of Merced.

LOCAL

Bellevue Corridor Community Plan (BCP)

The Bellevue Community Plan study area is located outside but adjacent to the Merced City limits, and within the City's planned growth area, otherwise known as the Specific Urban Development Plan (SUDP) and Sphere of Influence (SOI). The BCP encourages a mix of land uses, whether in a multi-story building or spread horizontally throughout a project or neighborhood. To overcome potential conflicts between adjacent uses and their occupants, the BCP advances several proven strategies and includes provisions for urban form, design, and performance standards, and incorporates a master planning process.

The proposed Project is within the Mixed-Use Transit Oriented Development (TOD) place type. The Mixed-use TOD is the most intense urban environment anticipated in the BCP. By placing a TOD directly next to the UC Merced campus, it will serve a variety of needs for students, professors, other UC employees, and campus visitors. Mixed-Use TOD development is characterized by a mix of uses, generally in equal proportion, ranging from multi-family residential to community retail to office, and small to moderate scale R&D, with some elements of entertainment and assembly. Buildings generally range between 3 and 5 stories in height, are set close to the street with shallow front yards at residential or office ground floors and shopfronts set right on the sidewalk for retail and entertainment uses.

Further, the Mixed-Use TOD is envisioned to be a regional node with a walkable design and high density, high quality development within a 10-minute walk of a transit station and a wide mixture of uses in close proximity. The transit station should be a prominent feature and the pedestrian is the top priority. Developments should be designed to support feeder transit systems and easy use of other non-auto modes of transit.

Residential densities are envisioned to be 12-36 du/ac, with non-residential uses at an intensity of 0.35-0.75 FAR.

Goal Area CC-1: Residential & Neighborhood Design

> **Policy CC-1.1:** Follow Table 9 [of the BCP] as a guide to prepare and assess future zoning regulations, master plans, or specific plans within the BCP.
>
> **Policy CC-1.4:** Encourage multi-family development to occur within ¼ mile of the Mandeville Transit Corridor.
>
> **Policy CC-1.5:** Provide opportunities for the development of housing types to meet the special needs of students and others attracted to a University environment.

Goal Area CC-3: Urban Growth and Design

> **Policy CC-3.1:** Create a mixed-use, transit ready corridor along Mandeville Lane.
>
> **Policy CC-3.2:** Balance the ability to permit a range of land uses with the need to emphasize particular types in specific areas of the BCP.

Goal Area UE-1: A Compact Urban Form/Efficient Urban Expansion

Policy UE-1.2: Promote high residential densities along the Mandeville Transit Corridor within the Bellevue Community Plan.

Goal Area UE-2: Joint Planning Efforts

Policy UE-2.1: Seek to form a collaborative approach to planning and implementing future growth near UC Merced.

Policy UE-2.2: In conjunction with the collaborative approach above, assess annexation options, and where appropriate, consistent with these efforts, encourage annexation of lands between the City and UC Merced.

Goal Area UE-3: Timing, Density and Location of New Growth

Policy UE-3.2: In the context of Implementing Action UE-1.3.a of the Merced Vision 2030 General Plan, growth adjacent to or in close proximity to UC Merced is considered one that is contiguous to an existing urban area.

Policy UE-3.3: Support efforts that permit campus serving housing, office and commercial development adjacent to UC Merced.

Policy UE-3.4: Annexation proposals in the BCP shall be accompanied by a phasing plan.

Merced County Local Agency Formation Commission (LAFCo)

Urban growth and expansion, under California State Law, is subject to a local review body called the Merced County Local Agency Formation Commission (LAFCo). LAFCo, comprised of City and County elected officials, must review and approve all municipal boundary revisions (including annexations). Merced County LAFCo adopted a set of Local LAFCo Goals, Objectives, and Policies to address local concerns and priorities regarding annexations and the preservation of agricultural land.

B. SPHERE OF INFLUENCE POLICIES

Objective II. C: Create an urban land use pattern in unincorporated communities that provides adequate areas for growth while ensuring the efficient delivery of services.

Policy 6: A City's sphere of influence boundary should be large enough to accommodate approximately 20 years of projected growth as well as territory that represents special communities of interest for the district.

Policy 7: LAFCO will recognize areas outside the sphere of influence boundary that reflect unique coordinated planning areas agreed to between the urban service district, City and/or County which are designated "area of interest", "joint planning area" or similar designation as identified in the City and/or County General Plans.

Objective II. B: The future urbanization of a City is reviewed comprehensively at the sphere of influence amendment stage rather than during the review of individual annexation requests.

Policy 5: The following criteria will be applied to cities requesting a sphere of influence amendment which is included in their General Plans and Policies that address both the Cortese/Knox/Hertzberg Act and Merced County LAFCO policies:

a. Does the General Plan identify the City's desired sphere of influence boundary and all planned land uses in the expanded sphere?

b. Does the City's General Plan contain policy regarding the phasing of future annexations which is consistent with the policies of Merced County LAFCO and the Cortese/Knox/Hertzberg Act?

c. Are there local policies regarding the timing of conversion of agricultural and other open space lands and the avoidance of conversion of prime soils?

d. Does the City's General Plan demonstrate the present and probable need for public facilities and community services (including the sequence, timing and probable cost of providing such services) within the proposed sphere of influence boundary?

e. Does the City's General Plan identify the existence of any social or economic communities of interest within the planning area, such as the relationship between any adjacent or nearby cities or special districts which provide urban services, which may affect the boundaries or the proposed sphere of influence?

Implementation: Cities that address the above referenced criteria/issues in their General Plans will have their sphere of influence amendment proposals scrutinized more thoroughly by LAFCO. The Commission shall adopt findings for each of the criteria indicating conformance with State and local LAFCO policy. Upon approval of the sphere boundary, LAFCO's review of future annexations within this boundary will be limited to the appropriateness and efficiency of the boundary, conformance with the City's General Plan including relevant phasing policies, and public service availability.

C. CITY AND URBAN SERVICE DISTRICT ANNEXATION POLICIES

Objective III. A: City annexations reflect a planned, logical and orderly progression of urban expansion and promote efficient delivery of urban services.

Policy 1: Annexation Boundaries should form a logical and efficient urban development pattern.

Implementation: Utilize the following criteria in the review of annexation requests:

a. The proposed annexation boundary is appropriate in relation to existing city boundaries.

b. Avoid the creation of islands, corridors, peninsulas or other undesirable boundary characteristics that lead to service inefficiencies and potential land use conflicts.

c. Proximity of the annexation to existing developed or developing areas within the City. Annexations shall be contiguous with existing city boundaries unless it can be demonstrated to be orderly, logical or appropriate under special circumstances.

d. Evaluate any alternatives to the annexation which would be more consistent with orderly growth, open space protection and public service efficiency goals of LAFCO.

e. The existence of any social or economic communities of interest within the proposed annexation territory including the relationship between any adjacent or nearby cities or special districts which provide urban services that may affect the territory.

f. The use of natural or physical features (such as canals or roads) as annexation boundaries is encouraged over use of property lines. All annexation requests that do not conform to existing lines of assessment or property lines, shall be justified by the proponent.

Policy 2: Annexation proposals should be consistent with and implement City General Plan and Sphere of Influence Policies:

Implementation: Utilize the following criteria in the review of annexation requests:

a. Consistency of the proposal with City General Plan policy including planned land use designation, densities and other land use and development policy.

b. Consistency with planned phasing of growth and improvements as defined in the City's General Plan and/or Sphere of Influence Report.

c. Consistency with adopted open space and conservation policies of the City.

Policy 3: All territory proposed for annexation shall be prezoned by the City, and no changes in General Plan designations or prezoning are permitted within two years following annexation, consistent with the Cortese-Knox-Hertzberg Act of 2000.

Policy 4: Public services shall be available to all annexed land in an efficient and orderly manner.

Policy 5: Promote a balance of housing for persons and families of all income levels.

Implementation: Utilize the following criteria in the review of annexation requests:

a. The extent to which the proposal will assist the receiving entity in achieving its fair share of the regional housing needs as determined by the Merced County Associate of Governments.

Policy 6: Analysis of agricultural or open space impacts from an annexation will be minimized when the Commission can make a finding that these resources were fully addressed during

establishment of the City's Sphere of Influence and the annexation is consistent with any related sphere policy to protect these resources.

Policy 7: Utilize considerations consistent with the Cortese-Knox-Hertzberg Act of 2000 when evaluating agricultural and open space impacts on an individual annexation level.

Implementation:

a. 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.

b. If the annexation involves the conversion of prime agricultural land or identified valuable open space land, consider alternatives to the annexation that avoid or reduce the impacts.

c. If annexation will result in urban development adjacent to existing agricultural lands, consider measures to minimize potential conflicts such as land use transitions or buffers and "right to farm" notification to future residents.

Policy 8: In the case of large comprehensive development proposals, annexation should be phased whenever feasible. The Commission may approve annexation of all the subject territory if it finds the territory is likely to be developed within a reasonable period of time and if the Cit has adopted a phasing plan for the territory and policies for ensuring adequate facilities will be available once development occurs. Adoption of a specific plan for the territory by the City would be the most desirable means to ensure LADCO policies are satisfied.

City of Merced Municipal Code

The City of Merced Municipal Code provides the legal and legislative framework for all municipal operations and actions within the City. Title 20 of the Municipal Code establishes the regulations and standards for each zoning designation to be applied throughout the City of Merced. Chapter 20.20.020 – Planned Development (P-D) Zoning Districts outlines the standards and requirements for the Planned Development special zoning district to be applied in the City of Merced. P-D zoned areas are intended to promote creativity in land use and address issues or concerns unique to different communities throughout the City of Merced. These zoning districts allow for flexible land uses, including mixed use, commercial, and residential development so long as projects remain consistent with, and further the objectives of, the City of Merced Vision 2030 General Plan.

TITLE 20 – ZONING. CHAPTER 20.20.020 – PLANNED DEVELOPMENT (P-D) ZONING DISTRICTS.

A. Purpose. The purpose of the planned development (P-D) zoning districts 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 for public benefit for residents, employees, and visitors to Merced.
B. Types of PD Zoning Districts. There are two (2) types of planned development zoning districts: The planned development (P-D) zoning district and the residential planned development (RP-D) zoning district. The RP-D zoning district is identical to the P-D zoning district except that only residential land uses are permitted in the RP-D zoning district and a larger project size is required for the P-D zoning district.
C. Permitted Land Uses. In all planned development zoning districts, permitted land uses shall 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, and except that in the RP-D zoning district, only residential land uses shall be permitted.
D. Minimum Project Size. Minimum project size in the planned development zoning districts shall be as follows:
    1. Planned Development (P-D) zoning district: Three (3) acres minimum.
    2. Residential Planned Development (RP-D) zoning district: Ten thousand (10,000) square feet minimum.
    3. Planned development projects located within the area shown in Figure 20.20-1 shall be exempt from these minimum projects size requirements.

Merced County Code of Ordinances

TITLE 18: ZONING CODE: 18.60.080 HOUSING, ADDITIONAL RESIDENTIAL UNITS

The County of Merced's Municipal Code provides the legal and legislative framework for operations and actions throughout the jurisdiction. Title 18: Zoning Code establishes the regulations and standards for each zoning designation to be applied throughout the County.

Chapter 18.60.080 Housing, Additional Residential Units establishes regulations to be applied to the Rural-Residential (R-R) zoning designation, as well as all agricultural zoning designations. Within Chapter 18.60.080 is Section 2-G which outlines regulations for the County's "Right-to-Farm" ordinance. It is enforced by the County through notification of prospective residents of new development near agricultural areas that there may be inconveniences and discomfort associated with normal farming activities and that established agricultural operations will not legally be considered a nuisance.

Chapter 10.12.010 Purpose of Residential Zones establishes various residential zones to be applied throughout the County. These zoning codes are broadly intended to promote a suitable environment for single-family and muti-family living and allow for community-oriented uses such as schools, churches, and

public parks. These land uses are also intended to be compatible with the adjacent land uses. This chapter outlines the requirements for the establishment of Rural Residential (R-R) zones. The purpose of these zones is to provide adequate accommodation for rural residential development, hobby farming, limited agricultural use including animal raising operations, and less than a full range of urban services. These zones utilize the Very Low Density Residential (VLDR) land use designation in the County of Merced 2030 General Plan.

A. Purpose. The purpose of this section is to regulate additional residential unit(s) allowed in the R-R and all agricultural zones, where parcels are not connected to public water and sewer services and are served with wells and on-site septic systems.

B. Standards. In R-R and agricultural zones where allowed, additional residential unit(s) shall be subject to all the requirements of this Zoning Code and the following standards:

1. Requirements for the R-R Zone.

a. No more than one additional residential unit shall be allowed per parcel.

b. The additional residence may be either a conventional or manufactured dwelling.

c. Conventional or manufactured dwellings shall be placed on permanent foundations.

d. The additional residential unit shall not exceed one story.

e. The additional residential unit may be attached or detached to the primary residential dwelling.

f. County Division of Environmental Health approval is required to determine compliance with Local Agency Management Plan (LAMP).

2. Requirements for Agricultural Zones.

a. Allowed Dwelling Type and Location. Additional residential units may be conventional or manufactured dwelling.

b. An additional residential unit may be allowed on parcels six acres or larger. Exceptions may be made subject to the following standards:

1. A maximum of one additional residential unit may be allowed on a parcel less than six acres is all of the following criteria is met:

a. Approval for a well and on-site septic system is obtained from the County Division of Environmental Health;

b. The parcel is not developed with an additional residential unit; and

c. The property owner is the occupant of the existing or proposed permanent single-family dwelling on the same parcel.

2. Additional residences may be allowed on parcels served with public water and sewer services, subject to the provisions of Chapter **18.62** (Accessory Dwelling Units).

c. Unit Size.

1. The size of a detached additional residential unit shall not exceed 1,200 square feet.

2. The size of an attached additional residential unit shall not exceed 30% of the floor area of the existing or proposed permanent single-family dwelling.

d. Principal Occupant Requirements for Agricultural Zones. The principal occupants of the additional residential units shall either be:

1. Bona fide farmers or qualified agricultural workers; or

2. members of the owner's immediate family, when the property owner is the occupant of a permanent single-family residence presently existing on the same parcel.

e. Environmental Health Approval. The applicant shall obtain approval from the County Division of Environmental Health indicating the proposed installation of any wells and on-site septic systems complies with County regulations.

f. Annual Monitoring Permit. Each additional residential unit(s) shall be subject to a yearly occupancy monitoring permit with the regulations administered by the Department.

g. Deed Restriction. The property owner shall sign and record the following documents prior to the issuance of the Building Permit:

1. An affidavit provided by the Department attesting to the qualifications of the occupant; and

2. A right-to-farm certificate to notify subsequent occupants of the inconveniences of farming operations and the priority to which the County places on these operations.

TITLE 18: ZONING CODE: 18.12.010 PURPOSE OF RESIDENTIAL ZONES

A. The purpose of this chapter is to achieve the following:

1. Provide a range of residential zones with appropriate site location criteria and high-quality development standards subject to Community Plans.

2. Promote a suitable environment for single-and multi-family living and allow community-oriented uses (i.e., schools, churches, parks, and playgrounds).

3. Ensure compatibility of residential zones with adjacent land uses.

B. The purpose of the individual residential uses and the way they are applied are as follows:

1. R-R Rural Residential Zone. The purpose of the R-R Rural Residential Zone is to provide a full range of urban services and reserve appropriately located areas for single-family living with low population densities consistent with sound standards of public health, welfare, and safety. It is the intent of this zone to protect the residential characteristics of an area and to promote a suitable environment for family life. This zone implements the Very Low Density Residential (VLDR), and Low Density Residential (LDR) land use designations in the General Plan.

City of Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan contains several policies that apply to land use impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Land Use, Urban Expansion, and Housing sections are designed to guide land use changes and decision making as development occurs in accordance with the Merced Vision 2030 General Plan.

LAND USE (AMENDED 2015)

Goal Area L-1: Residential & Neighborhood Development

Policy L-1.1 Promote balanced development which provides hobs, services and housing

Implementing Action 1.1.a Promote mixed use development combining compatible employment, service and residential elements.

Policy L-1.2 Encourage a diversity of building types, ownership, prices, designs, and site plans for residential areas throughout the City.

Implementing Action 1.2.a Encourage higher=density residential developments within walking distance (approx. ¼ mile) of commercial centers.

Policy L-1.6 Continue to pursue quality single-family and higher density residential development.

Policy L-1.7 Encourage the location of multi-family developments on sites with good access to transportation, shopping, employment centers, and services.

Implementing Action 1.7.a Designate areas adjoining arterial streets, major transportation routes and commercial areas for multi-family development.

Implementing Action 1.7.b Use the Urban Village Concept to promote higher density residential development adjacent to commercial services and transit.

Policy L-1.8 Create livable and identifiable residential neighborhoods.

Goal Area L-2: Economic and Business Development

Policy L-2.1 Encourage further development of appropriate commercial and industrial uses throughout the City.

Implementing Action 2.1.a Designate adequate amounts of commercial and industrial land to serve the City's employment needs through 2030 and beyond.

Policy L-2.6 Provide neighborhood commercial centers in proportion to residential development in the City.

Implementing Action 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 Action 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.

Implementing Action 2.7.e Commercial developments shall be designed to encourage pedestrian, bicycle, and transit access.

Goal Area L-3: Urban Growth and Design

Policy L-3.1 Create land use patterns that will encourage people to walk, bicycle, or use public transit for an increased number of their daily trips.

Implementing Action 3.1.a Encourage pedestrian or transit-friendly designs at suitable locations.

Implementing Action 3.1.e Encourage mixed-use developments that provide commercial services such as day care centers, restaurants, banks, and stores near employment centers.

Policy L-3.3 Promote site designs that encourage walking, cycling, and transit use.

Implementing Action 3.3.a Encourage project designs which increase the convenience, safety and comfort of people using transit, walking or cycling.

Policy L-3.6 Require community plans for large new development areas within the City's SUDP/SOI prior to development.

Implementing Action 3.6.a Require the development of Community Plans for large-scale new developments within the City's SUDP/SOI prior to development.

Implementing Action 3.6.b Make use of guiding principles in developing Community Plans.

URBAN EXPANSION (AMENDED 2015)

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

Implementing Action 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.

Implementing Action 1.1.b Limit development and development related impacts on agricultural lands along the City's urban fringe.

Implementing Action 1.1.f Work with Merced County and the other cities in the County to develop a County-wide agricultural land preservation policy.

Policy UE-1.2 Foster compact and efficient development patterns to maintain a compact urban form.

Implementing Action 1.2b 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 Control the annexation, timing, density, and location of new land uses within the City's urban expansion boundaries.

Implementing Action 1.3a 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.

Implementing Action 1.3c The City shall encourage phasing of new development.

Policy UE-1.4 Continue joint planning efforts on the UC Merced and University Community plans.

Implementing Action 1.4a Incorporate the UC Merced campus area as part of the City's SUDP/Shere of Influence and begin planning for the eventual annexation of the campus.

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 UE-1.6 Consider expansion of the City's SUDP/SOI boundary for areas within the Area of Interest when certain conditions are met.

HOUSING (AMENDED 2016)

Goal Area H-1: New Affordable Housing Construction

Policy H-1.1 Support increased densities in residential areas

Implementing Action 1.1a Evaluate for multi-family housing development

Implementing Action 1.1c Encourage mixed-use development

Policy H-1.7 Support housing to meet special needs

Implementing Action 1.7.b Promote and Develop Housing to Meet Special Needs

County of Merced 2030 General Plan

The County of Merced 2030 General Plan contains several policies that apply to land use impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Land Use, Urban Expansion, and Housing sections are designed to guide land use changes and decision making as development occurs in accordance with the County's 2030 General Plan.

ECONOMIC DEVELOPMENT ELEMENT

Goal ED-1 Support and promote growth and diversification of the County's economy.

LAND USE ELEMENT

Goal LU-1 Create a countywide land use pattern that enhances the integrity of both urban and rural areas by focusing urban growth towards existing or suitably located new communities.

Goal LU-5.C Provide adequate, efficient, and high quality residential development that accommodates the housing needs of all income groups expected to reside in Merced County.

Goal LU-5.D Maintain economic vitality and promote the development of commercial uses within Urban Communities that are compatible with surrounding land uses and meet the present and future needs of County residents, workers, and visitors.

Goal LU-5.F Provide for the establishment of new Urban Communities in order to accommodate future growth in the unincorporated parts of Merced County that are located off productive agricultural alnd or the valley floor.

3.11.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact on land use and planning if it would:

- Physically divide an established community; or
- 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.

METHODOLOGY AND ASSUMPTIONS

The Environmental Setting and Regulatory Sections were created through information from the City of Merced Vision 2030 General Plan, the City of Merced Municipal Code, the Bellevue Corridor Community Plan, the Merced County Local Agency Formation Commission, the County of Merced 2030 General Plan, the County of Mered Code of Ordinances, California Government Code, the Cortese-Knox Hertzberg Local Government Reorganization Act of 2000, and California State Assembly Bill 3312.

Impacts related to land use planning resulting from the proposed Project are discussed below. The impact analysis is based off the existing land use characteristics established by the City of Merced Vision 2030 General Plan, the County of Merced 2030 General Plan, and the Bellevue Corridor Community Plan.

Impacts resulting from the development of the proposed Project are identified and analyzed based on objectives measures of environmental impact, conflict with existing land use plans, relevant regulations adopted by local jurisdictions, and physical changes to existing community boundaries or impacts resulting from inconsistent land uses. Impacts relating to land use planning are assessed using significance criteria established by the California Environmental Quality Act of 1970 (CEQA).

IMPACTS AND MITIGATION

Impact 3.11-1 The proposed Project would not result in the physical division of an established community. (Less than Significant)

The City of Merced Vision 2030 General Plan outlines different neighborhoods and communities designated through adopted specific and community plans. The currently adopted specific and community plans are: the Fahrens Park Specific Plan, the Campus North Specific Plan, the Northeast Yosemite Specific Plan, the Bellevue Ranch Master Development Plan, the Fahrens Creek Specific Plan, and the South Merced Community Plan. Described in the General Plan are five proposed Community Plan Areas: the University Community Plan, the Bellevue Community Plan (now adopted), South Thornton (or "Five Bridges") Community Plan, the South Mission Community Plan, and the Yosemite Lakes Community Plan.

The site for this proposed Project would not result in physical division of an established community or neighborhood as it would be constructed within the boundaries of the Bellevue Corridor Community Plan (BCCP). The proposed Project would develop five parcels which are currently vacant (APNs 060-590-016, -017, -019, -025, -026, and 060-020-016), while development would not occur on APN 060-590-026 as this parcel is currently occupied by a single-family dwelling. All six parcels would be annexed to the City.

The surrounding parcels have a similar character to those of the site with four single-family homes to the northwest at APNs 060-590-010, -009, -008, and -020 with -021 being a vacant lot. To the southeast there is another single-family home located at APN 060-590-026.

The existing land use character is typical of the Rural-Residential (R-R) designation outlined in the Merced County General Plan. Within this designation is the stated lack of services and commercial businesses that are often seen in urban or suburban areas of the City. While the Project site is within the sphere of influence of the City, it has yet to receive a zoning designation, with authority of the area being dictated by the BCCP which highlights desired development to be of "Mixed-Use TOD Character."

Given that there is no existing mixed-use development in the surrounding area, nor is there any commercial development, the proposed Project would enhance the existing surrounding community by providing services and amenities currently lacking in the area, with specific consideration paid to the UC Merced population. The lack of existing services in the area demonstrates a need that this project seeks to provide while remaining consistent with the City of Merced 2030 Vision General Plan, the Bellevue Corridor Community Plan, and the County of Merced 2030 General Plan.

Development of this Project would not result in the physical division of established communities and is therefore ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.11-2 The proposed Project would not conflict with an existing land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

The Bellevue Corridor Community Plan encompasses the entire Project site. Project developments within this Plan area are guided by this plan through community development goals that define land use characteristics that are desired to support the City of Merced's 2030 General Plan, as well as serve unique, local needs.

This proposed Project would support the goals of both the BCCP and the City of Merced Vision 2030 General Plan by providing transit-oriented, mixed-use development along the designated "Transit to U.C." transit corridor, a currently underutilized area of the City's sphere of influence. The BCCP describes the desired development for this area as having a "Mixed-Use TOD Character". This description highlights the need for additional community-oriented land uses that can help support the needs of residents in this area, specifically the student population at UC Merced. Such desired land uses are community-oriented businesses such as restaurants, commercial retail stores, banks, and other commercial uses typically associated with a mixed-use retail/commercial center. The proposed project intends to provide such land uses to support the enhancement of the area while furthering the goals for urban expansion and housing outlined in the City of Merced Vision 2030 General Plan: Policy UE-1.1, Policy UE-1.2, Policy UE-1.3, Policy UE-1.4, Policy UE-1.5, Policy UE-1.6, Policy H-1.1, Policy H-1.7.

The abovementioned policies express a desire by the City of Merced for increased mixed-use development in areas of the City currently underserved and lacking in the uses that would be provided by the UC Villages proposed development. Particularly regarding the population in and around UC Merced, the need for transportation, housing, and commercial needs, primarily of students, as well as residents of Merced and Merced County.

While the proposed Project site is within the City of Merced's Bellevue Corridor Community Plan with expectation of annexation by the City, it is currently under the jurisdiction of Merced County. The Merced County 2030 General Plan outlines goals for both economic growth and land use changes with proposed projects that would be supported by the UC Villages development. This Project would further Goals Ed-1 by providing additional mixed-use development to an area currently zoned as Rural-Residential (R-R). Areas with this zoning designation are stated to lack the services and amenities typical of traditional urban or suburban areas, highlighting a need for additional support through an expansion and diversification of the local economic opportunities and offerings. The UC Villages proposed developments seeks to support this and support this goal.

The Merced County 2030 General Plan also outlines land use goals that will be furthered by the UC Villages proposed development. Goal LU-1, Goal LU-5.C, Goal LU-5.D, and Goal LU-5.f highlight the desire to both expand the commercial and residential capacity of the area while still maintaining the unique community characteristics of Merced County. Within Goal LU-1 and GoalLU-5.F specifically is the need to enhance the integrity of urban and rural areas by focusing new urban growth towards suitably located new communities and accommodating future growth in currently unincorporated areas. The proximity of this project to UC Merced capitalizes on the needs of students and those associated with the university to provide commercial amenities and residential offerings that are currently not provided by existing land uses. Both the commercial proposals for community-oriented retail and high-capacity hotel development would support the needs of a university environment that often see increased volumes of visitors, as well as a desire for commercial businesses within a walking distance of the university.

Development of this Project would not conflict with an existing land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and therefore ***less than significant*.**

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

The cumulative context for the land use and planning considerations in Merced County.

Impact 3.11-3 The proposed Project, in combination with cumulative development, would not physically divide an established community. (Less than Significant)

Cumulative development throughout the City of Merced, its sphere of influence, and Merced County is guided by the City of Merced vision 2030 General Plan, the County of Merced 2030 General Plan, and numerous specific plans and community plans each created to build upon the unique land use characteristics of their respective planning areas. The potential for projects to physically divide

communities are often project specific but are guided by the adoption of the General Plan and the creation of community plans to inform the needs of the municipality and the residents of those areas.

To be approved for development projects must conform to the existing land uses and zoning regulations dictated by the General Plan. Within the community plans developed for specific areas of the City of Merced are land use and zoning regulations that provide guidelines for the design and characteristics of new development. These community plans ensure that there is limited physical divisions of established communities so long as proposed developments conform to the land use standards in these community plans. These community plans additionally ensure that there is limited encroachment on other municipalities, and unincorporated communities by prioritizing infill development and projects that conform to urban expansion guidelines. Proposed projects that do not conform to these physical boundaries would either be denied approval for development or may be granted a special use permit that outlines exceptions to the pre-established land use standards. The broader potential development throughout the City of Merced, if consistent with the General Plan and community plans, would have a have a limited impact on the existing boundaries and character of established communities.

Therefore, cumulative development would not divide established communities, and the cumulative impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

Impact 3.11-4 The proposed Project, in combination with cumulative development, would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

Cumulative development throughout the City of Merced and its sphere of influence would conform to existing land use patterns, density limits, and development standards outlined in both the City of Merced Vision 2030 General Plan and the City of Merced Zoning Code. Much of the new growth the City of Merced expects is guided by urban growth and expansion standards outlined in the General Plan, and adopted community plans: the University Community Plan, the Bellevue Community Plan, the South Thornton (or "Five Bridges") Community Plan, the South Mission Community Plan, and the Yosemite Lakes Community Plan. The plans have outlined specific land use and design standards for new development in the associated locations that have been created to keep projects consistent with the City of Merced General Plan. Future proposals that are not consistent with the adopted community development plans and/or the General Plan will potentially be denied approval for development. There is potential for projects to be granted a special use permit which is protected by the General Plan.

Cumulative land use impacts, such as potential conflicts with existing land use plans, policies, and other regulations adopted by the City and County of Merced for the purpose of avoiding or mitigation an

environmental effect are generally project specific. Individual projects, to receive approval, would need to demonstrate consistency with the appropriate community plan and the General Plan more broadly. Therefore, cumulative development would not conflict with an applicable land use plan, policy, or regulation, and the impact would be ***less than significant***.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None required.

This section provides a general description of the existing noise sources in the Project site, a discussion of the regulatory setting, and identifies potential noise impacts associated with new development in the City of Merced. Project impacts are evaluated relative to applicable noise level criteria and to the existing ambient noise environment. Mitigation measures have been identified for potentially significant noise-related impacts.

During the NOP comment period, four letters were received, but none of them were in regard to noise. Appendix A includes the comment letters received on the NOP.

This section relies on the following sources:

- City of Merced General Plan and EIR;
- County of Merced 2030 General Plan and EIR;
- Caltrans *Traffic Noise Analysis Protocol* (May 2011);
- Caltrans *Technical Noise Supplement, Traffic Noise Analysis Protocol* (September 2013); and
- *FHWA Roadway Construction Noise Model User's Guide*.

3.12.1 ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60-dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (Leq), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptor, Ldn, and shows very good correlation with community response to noise.

The day/night average level (DNL or Ldn) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 3.12-1 lists several examples of the noise levels associated with common situations. Appendix G provides a summary of acoustical terms used in this report.

TABLE 3.12-1: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	NOISE LEVEL (DBA)	COMMON INDOOR ACTIVITIES
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

SOURCE: CALTRANS, TECHNICAL NOISE SUPPLEMENT, TRAFFIC NOISE ANALYSIS PROTOCOL. SEPTEMBER, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regards to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE AND VIBRATION ENVIRONMENTS

Existing Noise Receptors

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the Project site, sensitive land uses include existing single-family residential uses to the north, west, and south of the Project site.

Existing General Ambient Noise Levels

The existing noise environment in the Project area is primarily defined by traffic on Bellevue Road and North Lake Road. To quantify the existing ambient noise environment in the Project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at two locations on the Project site. In addition, a short-term noise level measurement was taken on the Project site. Noise measurement locations are shown on **Figure 3.12-1**. A summary of the noise level measurement survey results is provided in **Table 3.12-2**. Appendix G contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 820 and 831 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 3.12-2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

LOCATION	DATE	L_{DN}	DAYTIME L_{EQ}	DAYTIME L_{50}	DAYTIME L_{MAX}	NIGHTTIME L_{EQ}	NIGHTTIME L_{50}	NIGHTTIME L_{MAX}
LT-1: 400 ft from Lake Road	4/2/24	54	50	48	63	47	45	62
LT-2: 50 ft from Bellevue Road	4/2/24	69	61	55	78	64	60	84
ST-1: 550 ft from Bellevue Road	4/1/24	N/A	47	47	59	N/A	N/A	N/A

Notes:

- *All values shown in dBA*
- *Daytime hours: 7:00 a.m. to 10:00 p.m.*
- *Nighttime Hours: 10:00 p.m. to 7:00 a.m.*

SOURCE: SAXELBY ACOUSTICS, 2024.

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

Off-Site Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing and Cumulative noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to

vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer (TJKM 2024), truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing and Cumulative conditions which would result from the Project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers or may be located at distances which vary from the assumed calculation distance.

Table 3.12-3 and **Table 3.12-4** summarize the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the Project area. Appendix G provides the complete inputs and results of the FHWA traffic modeling.

TABLE 3.12-3: PREDICTED TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

ROADWAY	SEGMENT	EXISTING NO PROJECT, LDN	EXISTING + PROJECT, LDN	CHANGE, DBA
Bellevue Road	West of Lake Rd.	59.4	59.9	0.5
Bellevue Road	East of Gold Rd.	69.3	69.9	0.6
Bellevue Road	West of Golf Rd.	61.3	61.9	0.6
Golf Street	South of Bellevue Rd.	43.4	43.4	0.0
G Street	North of Bellevue Rd.	57.8	57.8	0.0
Bellevue Road	West of G St.	57.5	58.1	0.6
Bellevue Road	East of G St.	59.0	59.6	0.6
G Street	South of Bellevue Rd.	65.7	65.8	0.1
Cardella Road	West of G St.	57.9	58.1	0.2
G Street	South of Cardella Rd.	58.7	58.7	0.0
Yosemite Avenue	West of G St.	67.1	67.1	0.0
Yosemite Avenue	East of G St.	67.3	67.9	0.6
G Street	South of Yosemite Ave.	61.1	61.3	0.2
G Street	South of Olive Ave.	61.0	61.0	0.0
Olive Street	East of G St.	64.2	64.2	0.0
Olive Street	West of G St.	59.5	59.5	0.0
Cardella Road	East of Lake Rd.	47.4	47.4	0.0
Lake Road	South of Cardella Rd.	60.8	61.7	0.9
Lake Road	South of Yosemite Ave.	38.7	38.7	0.0
Yosemite Avenue	East of Lake Rd.	53.4	53.8	0.4

ROADWAY	SEGMENT	EXISTING NO PROJECT, LDN	EXISTING + PROJECT, LDN	CHANGE, DBA
Yosemite Avenue	West of Lake Rd.	63.6	64.1	0.5
Yosemite Avenue	East of Campus Parkway	56.3	56.3	0.0
Campus Parkway	South of Yosemite Ave.	64.0	64.5	0.5
Olive Avenue	East of Campus Parkway	46.2	46.2	0.0
Olive Avenue	West of Campus Parkway	52.1	52.1	0.0
Campus Parkway	South of Olive Ave.	58.6	58.9	0.3

SOURCE: SAXELBY ACOUSTICS, 2024.

TABLE 3.12-4: CUMULATIVE TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

ROADWAY	SEGMENT	CUMULATIVE NO PROJECT, LDN	CUMULATIVE + PROJECT, LDN	CHANGE, DBA
Bellevue Road	West of Lake Rd.	60.8	61.1	0.3
Bellevue Road	East of Gold Rd.	70.7	71.1	0.4
Bellevue Road	West of Golf Rd.	62.7	63.2	0.5
Golf Street	South of Bellevue Rd.	44.8	44.8	0.0
G Street	North of Bellevue Rd.	59.2	59.2	0.0
Bellevue Road	West of G St.	58.9	59.3	0.4
Bellevue Road	East of G St.	60.4	60.8	0.4
G Street	South of Bellevue Rd.	67.1	67.2	0.1
Cardella Road	West of G St.	59.2	59.4	0.2
G Street	South of Cardella Rd.	60.0	60.0	0.0
Yosemite Avenue	West of G St.	68.4	68.5	0.1
Yosemite Avenue	East of G St.	69.0	69.2	0.2
G Street	South of Yosemite Ave.	62.5	62.6	0.1
G Street	South of Olive Ave.	62.3	62.4	0.1
Olive Street	East of G St.	65.5	65.5	0.0
Olive Street	West of G St.	60.8	60.9	0.1
Cardella Road	East of Lake Rd.	48.7	48.7	0.0
Lake Road	South of Cardella Rd.	62.2	62.9	0.7
Lake Road	South of Yosemite Ave.	40.1	40.1	0.0
Yosemite Avenue	East of Lake Rd.	54.8	55.0	0.2
Yosemite Avenue	West of Lake Rd.	65.0	65.4	0.4
Yosemite Avenue	East of Campus Parkway	57.7	57.7	0.0
Campus Parkway	South of Yosemite Ave.	65.4	65.8	0.4
Olive Avenue	East of Campus Parkway	47.5	47.5	0.0
Olive Avenue	West of Campus Parkway	53.4	53.4	0.0
Campus Parkway	South of Olive Ave.	59.9	60.2	0.3

SOURCE: SAXELBY ACOUSTICS, 2024.

Based upon the data shown in Table 3.12-3 and Table 3.12-4, the proposed Project is predicted to result in an increase in a maximum traffic noise level increase of 0.9 dBA.

EVALUATION OF FUTURE TRANSPORTATION NOISE ON PROJECT SITE

Saxelby Acoustics used the SoundPLAN noise model to calculate traffic noise levels at the proposed residential uses due to traffic on Bellevue Road and North Lake Road. Inputs to the SoundPLAN noise model include topography, existing structures, roadway elevations, and the proposed building pad elevations. It was estimated that existing noise levels would increase by +1 dBA based upon an assumed 1% per year increase in traffic volumes on Bellevue Road and North Lake Road. The results of this analysis are shown graphically on **Figure 3.12-2**.

EVALUATION OF PROJECT OPERATIONAL NOISE ON EXISTING SENSITIVE RECEPTORS

Project site traffic circulation and residential HVAC noise are considered to be the primary noise sources for this project. The following is a list of assumptions used for the noise modeling. The data used is based upon a combination of manufacturer's provided data and Saxelby Acoustics data from similar operations.

On-Site Circulation: The project is projected to generate 4,716 daily trips with 414 trips in the evening peak hour (TJKM 2024). Saxelby Acoustics assumed that 1-2 of these trips could be heavy trucks. Parking lot movements are predicted to generate a sound exposure level (SEL) of 71 dBA SEL at 50 feet for cars and 85 dBA SEL at 50 feet for trucks. Saxelby Acoustics data.

HVAC: Assumes a single three-ton HVAC unit for each residential unit. The units were assumed to have a sound level rating of 70 dBA. Manufacturer's data.

Saxelby Acoustics used the SoundPLAN noise prediction model. Inputs to the model included sound power levels for the proposed amenities, existing and proposed buildings, terrain type, and locations of sensitive receptors. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). ISO 9613 is the most commonly used method for calculating exterior noise propagation. **Figure 3.12-3** shows the noise level contours resulting from operation of the Project.

CONSTRUCTION NOISE ENVIRONMENT

During the construction of the proposed Project, noise from construction activities would temporarily add to the noise environment in the Project vicinity. As shown in **Table 3.12-5**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 3.12-5: CONSTRUCTION EQUIPMENT NOISE

TYPE OF EQUIPMENT	MAXIMUM LEVEL, DBA AT 50 FEET
Auger Drill Rig	84
Backhoe	78
Compactor	83

TYPE OF EQUIPMENT	MAXIMUM LEVEL, DBA AT 50 FEET
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

SOURCE: ROADWAY CONSTRUCTION NOISE MODEL USER'S GUIDE. FEDERAL HIGHWAY ADMINISTRATION. FHWA-HEP-05-054. JANUARY 2006.

CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed Project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 3.12-6** shows the typical vibration levels produced by construction equipment.

TABLE 3.12-6: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

TYPE OF EQUIPMENT	PEAK PARTICLE VELOCITY AT 25 FEET (INCHES/SECOND)	PEAK PARTICLE VELOCITY AT 50 FEET (INCHES/SECOND)	PEAK PARTICLE VELOCITY AT 100 FEET (INCHES/SECOND)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/Drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

SOURCE: TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT GUIDELINES. FEDERAL TRANSIT ADMINISTRATION. MAY 2006.

3.12.2 REGULATORY SETTING

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed in more detail under the Thresholds of Significance section.

LOCAL

Merced County General Plan

The Merced County General Plan contains a number of policies that apply to noise impacts in conjunction with ultimate build-out of the County in accordance with the General Plan. The specific policies listed below contained in the Health and Safety Element are designed to ensure that noise impacts are minimized as development occurs in accordance with the Merced County General Plan. The County noise standards are included here as the proposed project has the potential to affect existing noise sensitive receptors which are located adjacent to the project, and will remain within the County after the project annexation occurs.

HEALTH AND SAFETY

Policy HS-7.1: Noise Standards for New Land Uses (RDR). Require new development projects to meet the standards shown in [General Plan] Table HS-1 [**Table 3.12-7**] and [General Plan] Table HS-2 [**Table 3.12-8**], at the property line of the proposed use, through either project design or other noise mitigation techniques. Residential areas are not significantly impacted by excessive exterior noise levels.

TABLE 3.12-7: NOISE STANDARDS FOR NEW USES AFFECTED BY TRAFFIC, RAILROAD, AND AIRPORT NOISE (GENERAL PLAN TABLE HS-1)

NEW LAND USE	SENSITIVE[1] OUTDOOR AREA (L_{DN})	SENSITIVE[2] INDOOR AREA (L_{DN})	NOTES
All Residential	65	45	3
Transient Lodging	65	45	3, 4
Hospitals & Nursing Homes	65	45	3, 4, 5
Theaters & Auditoriums	--	35	4
Churches, Meeting Halls, Schools, Libraries, etc.	65	40	4
Office Buildings	65	45	4
Commercial Buildings	--	50	4
Playgrounds, Parks, etc.	70	--	
Industry	65	50	4

Notes:

1. *Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.*
2. *Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.*
3. *Railroad warning horn usage shall not be included in the computation of Ldn.*
4. *Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses.*
5. *Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.*

TABLE 3.12-8: NON-TRANSPORTATION NOISE STANDARDS MEDIAN (L_{50}) / MAXIMUM (L_{MAX})[1] (GENERAL PLAN TABLE HS-2)

OUTDOOR AREA[2]			INTERIOR[3]	NOTES
NEW LAND USE	DAYTIME	NIGHTTIME	SENSITIVE INDOOR AREA (L_{DN})	
All Residential	55/75	50/70	45	
Transient Lodging	55/75	--	45	4
Hospitals & Nursing Homes	55/75	--	45	5, 6
Theaters & Auditoriums	--	--	35	6
Churches, Meeting Halls, Schools, Libraries, etc.	55/75	--	40	6
Office Buildings	60/75	--	45	6
Commercial Buildings	55/75	--	50	6
Playgrounds, Parks, etc.	65/75	--	--	6
Industry	60/80	--	50	6

Notes:

1. *These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.*
2. *Sensitive Outdoor Areas includes primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.*
3. *Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.*
4. *Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.*
5. *Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.*
6. *The outdoor activity areas of these uses (if any) are not typically used during nighttime hours.*
7. *Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.*

Policy HS-7.5: Noise Generating Activities (RDR). Limit noise generating activities, such as construction, to hours of normal business operation.

Policy HS-7.6: Multi-Family Residential Noise Analysis (RDR). Require noise analyses be prepared for proposed multi-family, town homes, mixed-use, condominiums, or other residential projects where floor ceiling assemblies or partywalls shall be common to different owners/occupants to assure compliance with the State of California Noise Insulation Standards.

Policy HS-7.8: Project Design (RDR). Require land use projects to comply with adopted noise and vibration standards through proper site and building design, such as building orientation, setbacks, natural barriers (e.g., earthen berms, vegetation), and building construction practices. Only consider the use of soundwalls after all design-related noise mitigation measures have been evaluated or integrated into the project or found infeasible.

Policy HS-7.12: New Project Noise Mitigation Requirements (RDR). Require new projects to include appropriate noise mitigation measures to reduce noise levels in compliance with the [General Plan] Table

HS-2 standards within sensitive areas. If a project includes the creation of new non-transportation noise sources, require the noise generation of those sources to be mitigated so they do not exceed the interior and exterior noise level standards of [General Plan] Table HS-2 at existing noise-sensitive areas in the project vicinity. However, if a noise-generating use is proposed adjacent to lands zoned for residential uses, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the standards shown in [General Plan] Table HS-2 at the property line of the generating use in anticipation of the future residential development.

Merced County Municipal Code – 18.40.050 Noise

E. Elevated Noise Level During Construction. During construction, the noise level may be temporarily elevated. To minimize the impact, all construction in or adjacent to urban areas shall comply with the following procedures for noise control:

1. Construction hours shall be limited to the daytime hours between 7:00 a.m. and 6:00 p.m. daily;
2. Operating or permitting the operation of any tools or equipment used in construction, drilling, earthmoving, excavating, or demolition work between 6:00 p.m. and 7:00 a.m. on a weekday or at any time on a weekend day, or legal holiday, except for emergency work, or when the sound level exceeds any applicable relative or absolute limit specified in MCC Section 10.60.030 is prohibited; and
3. All construction equipment shall be properly muffled and maintained.

City of Merced Vision 2030 General Plan

The Merced Vision 2030 General Plan contains a number of policies that apply to noise impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Noise Element are designed to ensure that noise impacts are minimized as development occurs in accordance with the Merced Vision 2030 General Plan.

NOISE

Policy N-1.2 Reduce surface vehicle noise.

> **Implementing Action 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 [General Plan] Table N-3 [**Table 3.12-9**], unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in [General Plan] Table N-3.

Policy N-1.3 Reduce equipment noise levels.

> **Implementing Action 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 Action 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 a maximum becomes a hindrance to development needed or typical for an area.
- For Railroad operations the standard shall be 65 dB Ldn/CNEL or less for exterior noise level 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 [General Plan] Table N-3.

Policy N-1.5 Coordinate planning efforts so that noise-sensitive land uses are not located near major noise sources.

Implementing Action 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 [General Plan] Table N-1 [**Table 3.12-10**] 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 [General Plan] Table N-1.

Implementing Action 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 [General Plan] Table N-1 as measured immediately within the property line of lands designated for noise-sensitive uses.

Implementing Action 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 source.

Implementing Action 1.5.d Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of [General Plan] Table N-1, or the maximum interior noise level criterion, at existing or planned noise-sensitive uses, an acoustical analysis, at the discretion of the Director of Development Services, may be required as part of the environmental review process so that noise mitigation may be included in the project design. The general requirements for the content of an acoustical analysis are given by [General Plan] Table N-2.

Implementing Action 1.5.e Create a master noise contours map to be used in the review and approval process for development proposals.

Implementing Action 1.5.f As feasible, require noise barriers and/or increased setbacks between heavy circulation corridors and noise-sensitive land uses.

Policy N-1.6 Mitigate all significant noise impacts as a condition of project approval for sensitive land uses.

Implementing Action 1.6.a Where noise mitigation measures are required to achieve the standards of [General Plan] Tables N-1 and N-3, the emphasis of such measures should be placed upon site planning and 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.

TABLE 3.12-9: MAXIMUM ALLOWABLE NOISE EXPOSURE, TRANSPORTATION NOISE SOURCES (GENERAL PLAN TABLE N-3)

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[3]	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	--	--

Notes:

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.*

TABLE 3.12-10: EXTERIOR NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION NOISE SOURCES (GENERAL PLAN TABLE N-1)

NOISE LEVEL DESCRIPTOR	DAYTIME (7 AM TO 10 PM)	NIGHTTIME (10 PM TO 7 AM)
Hourly Leq, dB	55	45

Notes:

Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises (e.g., humming sounds, outdoor speaker systems). These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

The City can impose noise level standards that are more restrictive than those specified above based upon determination of existing low ambient noise levels.

City of Merced Noise Ordinance

The City of Merced has not created a noise ordinance independent from the standards set forth in the General Plan.

CRITERIA FOR ACCEPTABLE VIBRATION

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 3.12-11**, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 3.12-11 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 3.12-11: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

PEAK PARTICLE VELOCITY		HUMAN REACTION	EFFECT ON BUILDINGS
MM/SECOND	IN/SECOND		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

SOURCE: TRANSPORTATION RELATED EARTHBORNE VIBRATIONS. CALTRANS. TAV-02-01-R9601. FEBRUARY 20, 2002.

3.12.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the Project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant noise impact if it would:

- Generate 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;
- Generate excessive groundborne vibration or groundborne noise levels; or
- 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.

The proposed Project is not located within two miles of a public or private airport or airstrip. Therefore, the Project would not expose people residing or working in the Project area to excessive noise levels and there would be ***no impact***. This issue is not discussed further in the EIR.

METHODOLOGY AND ASSUMPTIONS

Although the proposed Project site will be annexed to the City of Merced, the sensitive receptors located closest to the Project site would remain in the County. Therefore, the impact analysis properly reflects the potential noise effect the proposed Project could have on those receptors located in the county. Therefore, Merced County noise thresholds were applied to the analysis for adjacent sensitive receptors which will remain within the County.

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The California Environmental Quality Act (CEQA) guidelines define a significant impact of a project if it "increases substantially the ambient noise levels for adjoining areas." Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the Project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions. **Table 3.12-12** is based upon recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}.

TABLE 3.12-12: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level Without Project, L_{dn}	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

SOURCE: FEDERAL INTERAGENCY COMMITTEE ON NOISE (FICON).

Based on the Table 3.12-12 data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn}, or 3 dB or more where existing noise levels are between 60 to 65 dB L_{dn}. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB L_{dn}. The

rationale for the Table 3.12-12 criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

Temporary Construction Noise Impacts

With temporary noise impacts (construction), identification of "substantial increases" depends upon the duration of the impact, the temporal daily nature of the impact, and the absolute change in decibel levels. Per the County of Merced Municipal Code, construction activities operating between 6:00 p.m. and 7:00 a.m. daily.

Both the City and County have not adopted any formal standard for evaluating temporary construction noise which occurs within allowable hours. For short-term noise associated with Project construction, Saxelby Acoustics recommends use of the Caltrans increase criteria of 12 dBA,[1] applied to existing residential receptors in the Project vicinity. This level of increase is approximately equivalent to a doubling of sound energy and has been the standard of significance for Caltrans projects at the state level for many years. Application of this standard to construction activities is considered reasonable considering the temporary nature of construction activities.

IMPACTS AND MITIGATION

Impact 3.12-1: The proposed Project would generate 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. (Less Than Significant With Mitigation)

TRAFFIC NOISE INCREASES AT OFF-SITE RECEPTORS

The FICON guidelines specify criteria to determine the significance of traffic noise impacts. Where existing traffic noise levels are greater than 65 dB L_{dn}, a +1.5 dB L_{dn} increase in roadway noise levels will be considered significant. According to Table 3.12-3 and Table 3.12-4, the maximum increase in traffic noise at the nearest sensitive receptor is predicted to be 0.9 dBA. Therefore, impacts resulting from increased traffic noise would be considered ***less than significant***.

OPERATIONAL NOISE AT EXISTING SENSITIVE RECEPTORS

As shown on Figure 3.12-3, the Project is predicted to expose nearby residences to noise levels up to 44 dBA, L_{50} during both daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) hours. The predicted project noise levels would meet the Merced County General Plan noise standard for non-transportation noise sources of 50 dBA, $L_{50.}$

It should be noted that maximum noise levels generated by the residential HVAC units and on-site vehicle circulation are predicted to be 20 dBA, or less, than the median (L_{50}) values. Merced County's maximum

[1] California Department of Transportation (Caltrans), 2020. Traffic Noise Analysis Protocol For New Highway Construction, Reconstruction, and Retrofit Barrier Projects. April.

(L_{max}) nighttime noise level standard is 70 dBA L_{max}, which is 20 dBA higher than the L_{50} standard. Therefore, where median noise levels are in compliance with the L_{50} standards, maximum noise levels will also meet the County's standards. Based upon the predicted median noise levels of 44 dBA, the maximum noise levels will be 64 dBA and comply with the County maximum standards. This is a ***less-than-significant impact***.

ANALYSIS OF SIGNIFICANCE OF LONG-TERM PROJECT-RELATED NOISE INCREASES

The Merced County and the City of Merced General Plans do not establish significance thresholds for increases in stationary noise sources. In the absence of a specific threshold, Saxelby Acoustics utilizes the FICON criteria to assess increases in ambient noise environment.

At the residences near the proposed Project, the average daytime ambient noise level was measured to be 50 dBA L_{eq} (LT-1) based upon the ambient noise level survey. An increase of +5.0 dBA or greater would constitute a significant increase. The resulting sum of ambient noise (50 dBA L_{eq}) plus project generated noise (44 dBA L_{50}) would be 50 dBA L_{eq}. This would represent an increase of 0.0 dBA over ambient, which is less than the +5 dBA increase criterion. Therefore, this is a ***less-than-significant impact***.

CONSTRUCTION NOISE

During the construction phases of the Project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in Table 3.12-5**,** activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet. Construction activities would also be temporary in nature and are anticipated to occur during normal daytime working hours. The Merced County Municipal Code exempts construction noise from the noise ordinance between the hours of 7:00 a.m. and 6:00 p.m. daily.

Caltrans defines a significant increase due to noise as an increase of 12 dBA over existing ambient noise levels; Saxelby Acoustics used this criterion to evaluate increases due to construction noise associated with the Project. As shown in Table 3.12-5, construction equipment is predicted to generate noise levels of up to 90 dBA L_{max} at 50 feet. Construction noise is evaluated as occurring at the center of the site to represent average noise levels generated over the duration of construction across the Project site. The nearest residential uses are located approximately 500 feet as measured from the center of the Project site. At this distance, maximum construction noise levels would be up to 70 dBA. The average daytime maximum noise level in the vicinity of the sensitive receptors was measured to be 58-78 dBA. Therefore, on average, project construction would not cause an increase of greater than 12 dBA over existing ambient noise levels.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration and would occur during daytime hours.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise could result in sleep interference at existing noise-sensitive land uses in

the vicinity of the construction. Therefore, conservatively, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered ***potentially significant***.

ANALYSIS OF SIGNIFICANCE OF LONG-TERM PROJECT-RELATED NOISE INCREASES

The Merced County and City of Merced General Plans do not establish a significance threshold for increases in stationary noise sources. In the absence of a specific threshold, Saxelby Acoustics utilized the FICON criteria to assess increases in ambient noise environment.

At the residences near the proposed Project, the average daytime ambient noise level was measured to be 50 dBA L_{eq} (LT-1) based upon the ambient noise level survey. An increase of +5.0 dBA or greater would constitute a significant increase. The resulting sum of ambient noise (45 dBA L_{50}) plus project generated noise (44 dBA L_{50}) would be 48 dBA L_{50}. This would represent an increase of 3.0 dBA over ambient, which is less than the +5 dBA increase criterion. Therefore, this is a ***less-than-significant impact***.

Transportation Noise on Project Site (Non-CEQA Issue)

EXTERIOR TRANSPORTATION NOISE

Compliance with City's standards on new noise-sensitive receptors is not a CEQA consideration. However, this information is provided here so that a determination can be made regarding the ability of the proposed Project to meet the requirements of the City of Merced for exterior and interior noise levels at new sensitive uses proposed under the Project.

As shown on Figure 3.12-2, several of the proposed outdoor activity areas are predicted to be exposed to exterior transportation noise levels up to approximately 58 dBA L_{dn}. This would not exceed the 60 dBA L_{dn} limit for outdoor areas established by the City of Merced for residential uses. Therefore, no additional noise control measures would be required.

INTERIOR TRANSPORTATION NOISE

Modern building construction methods typically yield an exterior-to-interior noise level reduction of 25 dBA.[2] Therefore, where exterior noise levels are 70 dBA L_{dn}, or less, no additional interior noise control measures are typically required. For this project, exterior noise levels are predicted to be up to 61 dBA L_{dn} at the fifth story of the buildings closest to North Lake Road. This would result in interior noise levels of up to 36 dBA L_{dn} at the fifth story receivers based on typical building construction. This meets the City of Merced standard which requires that interior noise levels do not exceed 45 dB L_{dn} for residential uses. Therefore, no additional noise control measures are required to reduce interior noise to acceptable levels.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

[2] Assuming standard construction with a minimum STC rating of 29 for exterior window assemblies.

MITIGATION MEASURE(S)

Mitigation Measure 3.12-1: *Prior to approval of grading and/or building permits, the City shall establish the following as conditions of approval for any permit that results in the use of construction equipment:*

- *Construction shall be limited to the hours between 7:00 a.m. and 6:00 p.m.*
- *All construction equipment powered by internal combustion engines shall be properly muffled and maintained.*
- *Quiet construction equipment, particularly air compressors, are to be selected whenever possible.*
- *All stationary noise-generating construction equipment such as generators or air compressors are to be located as far as is practical from existing residences. In addition, the Project contractor shall place such stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the Project site.*
- *Unnecessary idling of internal combustion engines is prohibited.*
- *The construction contractor shall, to the maximum extent practical, locate on-site equipment staging areas to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the Project site during all project construction activities.*

SIGNIFICANCE AFTER MITIGATION

Less Than Significant

Implementation of Mitigation Measure 3.12-1 would help to reduce construction-generated noise levels at nearby sensitive receptors, even though construction noise is exempt between 7:00 a.m. and 6:00 p.m. With mitigation, this impact would be considered ***less than significant***.

Impact 3.2-2: Implementation of the proposed Project would not generate excessive groundborne vibration or groundborne noise levels. (Less than Significant)

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

Data in Table 3.12-6 indicates that construction vibration levels anticipated for the Project are less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located farther than 26 feet from typical construction activities. At distances greater than 26 feet construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours. This is a ***less-than-significant impact***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

CUMULATIVE IMPACTS

The cumulative context for noise impacts consists of the existing and future noise sources that could affect the Project site or surrounding uses.

Vibration is a localized, site-specific impact and is inherently not cumulative in nature. Therefore, there would be ***no impact*** for cumulative vibration, and the issue is not further addressed.

Impact 3.12-3 Implementation of the proposed Project, combined with cumulative development, could expose existing noise-sensitive land uses to increased noise. (Less than Significant)

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways and on-site activities resulting from the operation of the proposed Project. Table 3.12-4 shows cumulative traffic noise levels with and without the proposed Project.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise could result in sleep interference at existing noise-sensitive land uses in the vicinity of the construction if construction activities were to occur outside the normal daytime hours. The cumulative noise would be fairly small and would not be substantial in a future noise environment.

The proposed Project, when considered alongside all past, present, and probable future projects, would not be expected to cause any significant cumulative construction noise impacts. The proposed Project would not have cumulatively considerable impacts associated with construction noise. Cumulative traffic noise levels would not be expected to cause significant traffic noise impacts. Therefore, the cumulative impact of noise on sensitive receptors would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

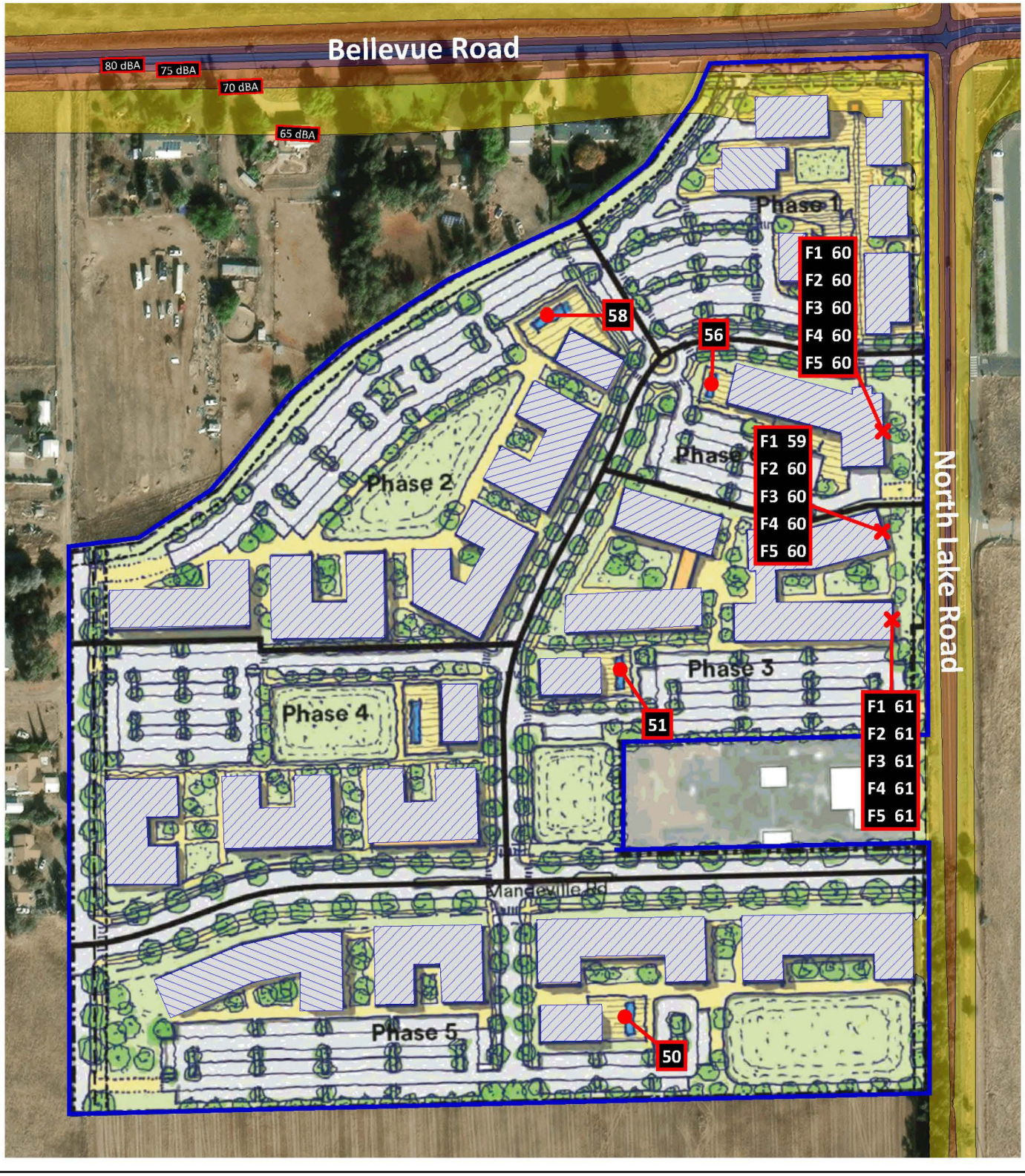
Legend

- Project Boundary
- Noise Measurement Site - Long Term
- Noise Measurement Site - Short Term

UC VILLAGES

Figure 3.12-1. Noise Measurement Sites

Sources: Saxelby Acoustics, 7/30/2024; MAXAR Imagery 11/23/2023. Map date August 14, 2024.



Legend

- Project Boundary
- Project Building

Noise Level, dB(A)

- >65 - 70
- >70 - 75
- >75 - 80
- >80

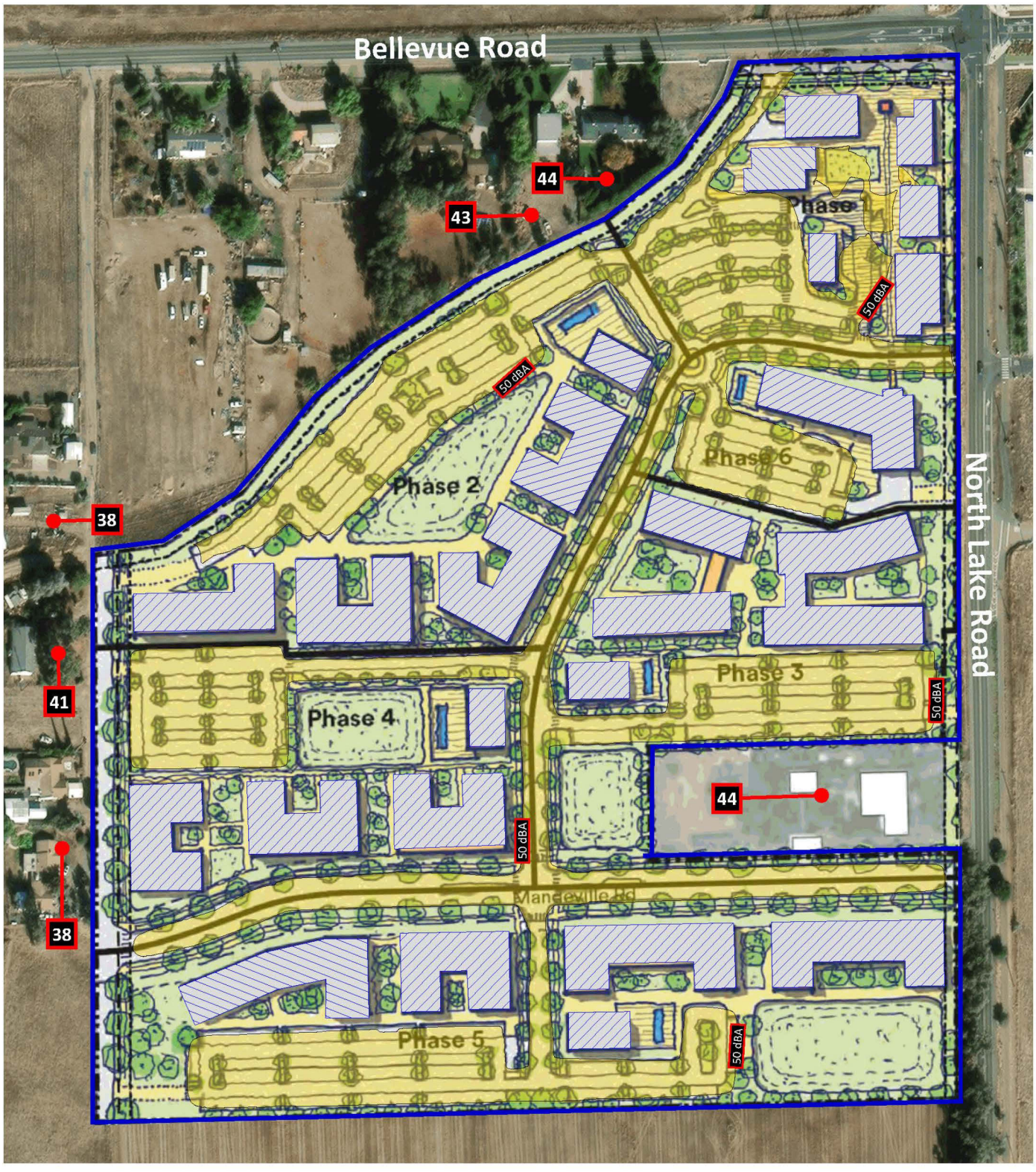
Sources: Saxelby Acoustics, 7/30/2024. Map date August 14, 2024.

UC VILLAGES

Figure 3.12-2. Future Transportation Noise Contours
Ldn, dB(A)

0 100 200
Feet

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm



Legend

- Project Boundary
- Project Building

Noise Level, dB(A)

- >65 - 70
- >70 - 75
- >75 - 80
- >80

Sources: Saxelby Acoustics, 7/30/2024. Map date August 14, 2024.

UC VILLAGES

Figure 3.12-3. Non-Transportation Noise Contours
L50, dB(A)

0 100 200
Feet

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

The purpose of this EIR section is to analyze and disclose the anticipated growth in population that would result from project implementation, analyze the project's consistency with relevant planning documents and policies related to population, housing, and employment.

During the NOP comment period for this EIR, there were no comments received relating to this topic area.

The analysis included in this section was developed based on project-specific construction and operational features, and data provided by the following reference materials:

- City of Merced Vision 2030 General Plan, 2012;
- Draft Environmental Impact Report for the City of Merced Vision 2030 General Plan, 2010;
- City of Merced Bellevue Corridor Community Plan, 2015;
- Merced County Association of Governments (MCAG) Final Regional Housing Needa Allocation (RHNA) Plan, 2022;
- MCAG Final Regional Transportation Plan Sustainable Communities Strategy for Merced County, 2022;
- US Census Data, United States Census Bureau, 2021;
- California Department of Finance; and
- California Department of Housing and Community Development, Regional Housing Needs Assessment.

3.13.1 ENVIRONMENTAL SETTING

POPULATION TRENDS

Table 3.13.1 summarizes the population growth for the City of Merced from the years 1990-2024, utilizing information provided by the California Department of Finance (DOF). As shown, the City of Merced has grown from a population of 56,155 in the year 1990 to a population of 91,837 in the year 2024. Growth from 1990-2000 was substantial (13.40%) with a larger increase between 2000-2010 (23.90%). Post-2010, the City has seen a much smaller rate of population growth but has remained relatively consistent, with the largest increases occurring in the years 2020 (3%) and 2022 (4.5%).

TABLE 3.13-1: POPULATION GROWTH - MERCED

YEAR	POPULATION	ANNUAL AVERAGE CHANGE
1990	56,155	-
2000	63,667	13.40%
2010	78,860	23.90%
2012	79,976	1.40%
2014	80,286	0.40%
2016	81,461	1.50%
2018	82,427	1.20%
2020	84,884	3.00%
2022	88,684	4.50%
2023	90,120	1.60%
2024	91,837	1.90%

SOURCE: CALIFORNIA DEPARTMENT OF FINANCE E-4 ESTIMATES (1990-2000), (2000-2010), (2010-2020), (2024).

HOUSING

Housing Stock

Table 3.13.2 summarizes the housing unit growth for the City of Merced from the years 1990-2024, utilizing information provided by the California Department of Finance (DOF). As shown, the City of Merced has grown from a housing stock of 62,969 in the year 1990 to 91,837 in the year 2024. Growth from 1990-2000 was relatively low (1.11%) compared to the substantial increase from 2000-2010 (23.86%). Post-2010, the City has seen a much smaller rate of population growth but has remained relatively consistent, with the largest increases occurring in the year 2022 (4.48%). The growth in housing stock in Merced closely resembles the growth in population for each corresponding timeframe. The only exception is the disparity between population and housing stock growth from 1990-2000.

TABLE 3.13-2: HOUSING UNIT GROWTH - MERCED

YEAR	HOUSING UNITS	ANNUAL AVERAGE CHANGE
1990	62,969	-
2000	63,667	1.11%
2010	78,860	23.86%
2012	79,976	1.42%
2014	80,286	0.39%
2016	81,461	1.46%
2018	82,427	1.19%
2020	84,884	2.98%
2022	88,684	4.48%
2023	90,120	1.62%
2024	91,837	1.91%

SOURCE: CALIFORNIA DEPARTMENT OF FINANCE E-8 ESTIMATES (1990-2000), (2000-2010), (2010-2020), E-5 ESTIMATE (2024).

Persons Per Dwelling Unit

The current average of persons residing in a dwelling unit in the City of Merced is 3.01.[1] Between the years 1990-2024, the average number of persons in a dwelling unit has remained relatively consistent with the changes between decades not being statistically significant.[2]

EMPLOYMENT

Two types of employment data are described below: total jobs within the community, and employed residents. The data for employment figures was provided by the United States Census Bureau through the American Community Survey using 5-Year estimates. The number of employed residents for both the City of Merced and Merced County included all reported persons over the age of 16 who are employed at the time of the survey. Comparison of the two jurisdictions shows that a number of employees in the County reside in the City of Merced, providing an overview of the economic contribution of the City to the County. The most recent data for the US Census Bureau's OnTheMap tool is for the year 2021. For this reason, it is used as a representation of the existing job conditions for the City and County.

Table 3.13-3 shows employment growth in the City and County since 2010, as well as a jobs-to-housing ratio and jobs-to-employed residents' ratio. The jobs-to-housing ratio is used to evaluate whether a community has an adequate number of jobs available to provide employment for residents seeking employment. The jobs-to-housing ratio can be useful in understanding interconnections among housing affordability, traffic flows, congestion, and air quality within a city and larger region. The jobs-to-housing ratio is best analyzed at the sub-regional or regional level due to the tendency of people to commute to jobs outside of their community. A jobs-to-housing ratio of 1.5 considers residents who do not participate in the labor force (e.g., those who are retired, disabled, or students) and indicates that a community has an adequate number of jobs to meet its residents' demand for employment. The jobs-to-employed residents' ratio is the relationship between the number of jobs provided to the number of employed residents within a community. An ideal jobs-to-employed residents' ratio is 1.0, which implies that there is a job in the community for every employable resident. A jobs-to-employed residents' ratio greater than 1.0 indicates that the community provides more jobs than it has employable residents, while a jobs-to-employed residents' ratio of less than 1.0 indicates that a community has fewer jobs than employable residents.

As shown in Table 3.13-3, the City, as of 2021 supports 26,948 jobs and 39,527 employed residents, resulting in a jobs-to-employed residents' ratio of 0.68. This means the City has fewer jobs than employable residents, and that many residents would need to commute outside of the community for employment. The County, as of 2021 has a relatively similar jobs-to-employed residents' ratio (0.59) as the City. The jobs-to-housing ratio suggests that there is not enough housing for the existing labor force in both the City (0.91) and the County (0.83). However, there is a smaller gap between the number of

[1] California Department of Finance, 2024. *E-5 Estimates for Cities, Counties, and the State*. August, 2024.

[2] California Department of Finance, 1990-2000, 2000-2010, 2010-2020. *E-8 Estimates for Cities, Counties, and the State*. August, 2024.

available housing units and jobs within both jurisdictions, meaning that closing this gap is potentially more feasible.

TABLE 3.13-3: JOBS TO HOUSING RATIO – MERCED & MERCED COUNTY

	2010	2015	2020	2021
CITY OF MERCED				
Housing Units	27,446	27,373	28,482	29,639
Jobs	24,689	25,921	27,071	26,948
Employed Residents	33,335	34,741	36,849	39,527
Jobs to Housing Ratio	0.90	0.95	0.95	0.91
Jobs to Employed Ratio	0.74	0.75	0.73	0.68
MERCED COUNTY				
Housing Units	83,698	83,992	87,783	88,727
Jobs	63,130	70,947	74,470	73,320
Employed Residents	110,083	114,918	120,176	124,229
Jobs to Housing Ratio	0.75	0.84	0.85	0.83
Jobs to Employed Ratio	0.57	0.62	0.62	0.59

SOURCE: CALIFORNIA DEPARTMENT OF FINANCE E-8 ESTIMATES (1990-2000), (2000-2010), (2010-2020), E-5 ESTIMATE (2024). UNITED STATES CENSUS BUREAU: ONTHEMAP.

GROWTH PROJECTIONS

Future Housing Needs

California State law (California Government Code Section 65580 *et seq*) requires the California Department of Housing and Community Development (HCD) to project statewide housing needs and allocate the anticipated need to each region in the State. Councils of Governments (COGs), including the Merced County Association of Governments (MCAG), are responsible for developing a Regional Housing Needs Allocation (RHNA) Methodology for allocating the Determination of Need to each city and county-designated-place within Merced County. MCAG's methodology and unit allocation and distribution was approved by the MCAG Governing Board in 2022.

The County of Merced's total housing unit need is 22,620 new housing units for 2023-2032 RHNA cycle, with the majority (41.5%) of the units being "above moderate" income. The full breakdown of Merced County's RHNA allocation is shown in **Table 3.13-4**. MCAG's methodology for allocating housing unit targets to cities within their jurisdiction includes adjusting the baseline allocation for different compounding factors that impact housing need and potential growth, as well as furthering RHNA objectives set by the HCD Department. These adjustment factors included jobs-housing balance, jobs-housing fit, planning for high quality agricultural land, allocating housing need according to the Resilient Merced, and adjusting for below-moderate income households. After including these adjustment factors, the final allocation of housing units for the City of Merced was 10,517 new units for the 2023-2032 RHNA cycle, with the majority (4,394) being above-moderate income housing units.

TABLE 3.13-4: HCD REGIONAL HOUSING NEED DETERMINATION – MERCED COUNTY

INCOME CATEGORY	PERCENT	HOUSING UNIT NEED
Very-Low[1]	24.4%	5,516
Low	16.7%	3,780
Moderate	17.4%	3,930
Above-Moderate	41.5%	9,394
Total	**100%**	**22,620**

1. INCOME CATEGORIES ARE DETERMINED BY THE CALIFORNIA HEALTH AND SAFETY CODE (SECTION 50093, ET. SEQ.)

2. "EXTREMELY LOW" CATEGORY IS INCLUDED IN THE "VERY-LOW" CATEGORY AND CONSTITUTES 13.10%.

SOURCE: MCAG, FINAL REGIONAL HOUSING NEEDS ALLOCATION (RHNA) PLAN: MERCED COUNTY REGION, 2022.

Projections

MCAG plans for regional growth in the Final Regional Housing Needs Allocation Plan by using projection data from the 2018 Regional Transportation Plan (RTP) / Sustainable Community Strategy (SCS)[3]. These projections were calculated for the 2015-2035 timeframe. While the RTP/SCS projects growth in new households at both the county and civil level. The County of Merced is projected to grow with 28,765 new households by 2035. The City of Merced specifically will grow with 11,294 new households (39.6% of the County's total) by 2035[4]. The US Census Bureau states that the average household size in the City of Merced is 3.0 people per household.[5] Using this combined with the potential growth of 11,294 new households, Merced's population could potentially grow to 125,454 residents by 2035.

3.13.2 REGULATORY SETTING

STATE

California Government Code Section 65300

California Government Code 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a jurisdiction and of any land outside its boundaries that, in the jurisdiction's judgement, bears relation to its planning. The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the jurisdiction's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the

3 MCAG, Regional Transportation Plan Sustainable Communities Strategy for Merced County, 2022.
4 MCAG, Final Regional Housing Needs Allocation (RHNA) Plan: Merced County Region, 2022.
5 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.

planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific district, are required to be consistent with the general plan and any applicable specific plans. When amendments to the general plan are made, corresponding changes in the zoning code may be required within a reasonable time to ensure the land uses designated in the general plan would also be allowable by the zoning ordinance (Government Code, Section 65860, subd [c]).

California Senate Bill 375 (SB 375)

Senate Bill (SB 375), adopted in October 2008, calls upon each of California's Metropolitan Planning Organizations (MPOs) to develop an integrated transportation, land use, and housing plan known as a Sustainable Communities Strategy (SCS). This SCS must demonstrate how the region will reduce greenhouse gas emissions through long-range planning. It also requires the Regional Housing Needs Allocation, which anticipates housing need for local jurisdictions, to conform to the SCS, which is an opportunity to advocate for increased access to and distribution of affordable housing across the region.

California Senate Bill 330 (SB 330): The Housing Crisis Act of 2019

The Housing Crisis Act (SB 330) is intended to eliminate some of the most common entitlement impediments to the creation of new housing, including delays in the local permitting process and cities enacting new requirements after an application is complete and undergoing local review. Its provisions expire, however, on January 1, 2025. The discussion below focuses on how the legislation affects housing development projects proposed to cities, as opposed to counties.

As applied to cities, SB 330 does the following:

- Requires that cities complete their review and approval processes for housing development within certain time periods;
- Restricts cities from applying new standards, policies, and laws to a development after a project sponsor submits a complete preliminary application;
- Restricts cities from applying new standards, policies, and laws to a development after a project sponsor submits a complete preliminary application;
- Restricts cities from enacting policies, standards or conditions, such as housing moratoria, that would limit housing development;
- Freezes the ability of cities to downzone property planned or zoned for housing; and
- Prevents cities from changing the residential general plan, specific plan, and zoning designation to "a less intensive use" or to reduce the intensity of the designation below what was allowed on January 1, 2018, except where the city "concurrently changes the development standards, policies, and conditions applicable to other parcels within the jurisdiction to ensure that there is no net loss in residential capacity."

Under SB 330. Cities are prohibited from disapproving housing development projects for very low, low-, or moderate-income households unless they make certain written findings. Under modifications to a statute that predated SB 330 (Government Code Section 65589, subd. [j]), cities are also prohibited from either disapproving a housing project or imposing condition of approval that lower the density for a housing project that complies with the applicable objective general plan, zoning and subdivision standards in effect at the time that the application was deemed complete. An exception exists where the city can find that the housing project would have a "specific, adverse impact" means a significant, quantifiable, direct, and unavoidable impact, based on objective, identified written public health or safety standards, policies, or conditions as they existed on the date the application was deemed complete.

If a proposed housing project is not consistent with or in compliance with local standards, cities must provide the applicants with written documentation identifying and explaining why the proposed project is not in compliance within specified timeframes. SB 330 also clarifies that a project's use of the State Density Bonus Law shall not constitute a valid basis on which to find that a proposed housing project is inconsistent, not in compliance, or not in conformity with objective standards.

Under SB 330, once a project sponsor submits a preliminary application containing all the required information, a city is prohibited from applying new ordinances, policies, and standards to a proposed housing project, subject to certain exceptions.

Department of Housing and Community Development - Regional Housing Needs Assessment (RHNA)

California State law requires that jurisdictions provide their fair share of regional housing needs. The State of California Department of Housing and Community Development (HCD) is mandated to determine the State-wide housing need. In cooperation with HCD, local governments and Councils of Governments (COGs) are charged with deciding of the existing and projected housing needs as a share of the State-wide housing need of their city or region.

The Regional Housing Needs Assessment (RHNA) quantifies the housing need by income group within each jurisdiction during specific planning periods. The RHAN is incorporated into local General Plans. The RHNA allows communities to anticipate growth, so that collectively the region can grow in ways that enhance quality of life, improve access to jobs, promote transportation mobility, and address social equity and fair share housing needs. The 6th Cycle Final RHNA Allocation Plan was adopted by the MCAG Governing Board in 2022.

REGIONAL AND LOCAL

MCAG Final RHNA Plan

State law (California Government Code Section 65580 *et seq.*) requires the California HCD to project statewide housing needs and allocate the anticipated need to each region in the State. COGs, including the Merced County Association of Governments (MCAG), are responsible for developing a Regional Housing Needs Allocation (RHNA) Methodology for allocating the Determination of Need for each city within their jurisdiction. As part of this process, Merced County established a methodology to distribute

needed housing units to the City of Merced. MCAG's methodology and unit allocation and distribution was approved by the MCAG Governing Board in 2022.

City of Merced Vision 2023 General Plan

CHAPTER 2 – URBAN EXPANSION

GOAL AREA UE-1: Urban Expansion

Policy UE-1.2: Foster Compact and Efficient Development Patterns to Maintain a Compact Urban Form.

Implementing Action 1.2.b 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.

Implementing Action 1.2.c Continue to limit the expansion of City utilities to only those areas within the established urban boundary.

Policy UE-1.3: Control the annexation, timing, density, and location of new land uses within the City's urban expansion boundaries.

Implementing Action 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.

Implementing Action 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.

Policy UE-1.4: Continue joint planning efforts on the UC Merced Campus and University Community Plans.

Implementing Action 1.4.a Incorporate the UC Merced campus area as part of the City's SUDP/Sphere of Influence and begin planning for the eventual annexation of the Campus.

CHAPTER 3 – LAND USE

GOAL AREA L-1: Residential & Neighborhood Development

Policy L-1.1 Promote Balanced Development Which Provides, Jobs, Services, and Housing.

Implementing Action 1.1.a Promote mixed use development combining compatible employment, service and residential elements.

Implementing Action 1.1.b Periodically review job growth statistics in the Merced urban area compared to new residential development.

Implementing Action 1.1.c Determine the types of housing opportunities needed for the type of employment opportunities being created in the City.

Policy L-1.2 Encourage a Diversity of Building Types, Ownership, Prices, Designs, and Site Plans For Residential Areas Throughout The City.

Implementing Action 1.2.a Encourage higher-density residential developments within walking distance (approx. 1/4 mile) of commercial centers.

Implementing Action 1.2.d Encourage duplexes on corner lots in low-density residential areas.

Implementing Action 1.2.e Consider density increases for existing residential sites where the necessary conditions exist for higher densities.

Policy L-1.6 Continue to Pursuit Quality Single-Family and Higher Density Residential Development.

Implementing Action 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 Action 1.7.a Designate areas adjoining streets, major transportation routes and commercial areas for multi-family development.

Implementing Action 1.7.b Use the Urban Village Concept to promote higher density residential development adjacent to commercial services and transit.

Policy L-2.1 Encourage Further Development of Appropriate Commercial and Industrial Uses Throughout the City

Implementing Action 2.1.a Designate adequate amounts of commercial and industrial land to serve the City's employment needs through 2030 and beyond.

Implementing Action 2.1.c Continue the City's Economic Development activities.

Implementing Action 2.1.f Promote industrial development that offers full-time, non-seasonal employment.

GOAL AREA L-3: Urban Growth & Design

Policy L-3.1 Create Land Use Patterns That Will Encourage People to Walk, Bicycle, or Use Public Transit For an Increased Number of Their Daily Trips.

Implementing Action 3.1.a Encourage pedestrian or transit-friendly design at suitable locations.

Implementing Action 3.1.c Plan aeras for higher density development within ¼ mile of locations identified as transit hubs and commercial centers.

Policy L-3.6 Require Community Plans for Large New Development Areas within the City's SUDP/SOI Prior to Development.

Implementing Action 3.6.a Require the development of Community Plans for large-scale new developments within the City's SUDP/SOI prior to development.

CHAPTER 9 – HOUSING

GOAL AREA H-1: New Affordable housing Construction

Policy H-1.1 Support Increased Densities in Residential Areas

Implementing Action 1.1.a Evaluate for Multi-Family Housing Development

Implementing Action 1.1.b Promote the use of the Residential Planned Development Zoning Designation

Implementing Action 1.1.c Encourage mixed-use development.

City of Merced Bellevue Corridor Community Plan

GOAL AREA CC-2: Economic and Business Development

Policy CC-2.2: Emphasize commercial development within the plan's Neighborhood Commercial centers.

GOAL AREA UE-1: A Compact Urban Form/Efficient Urban Expansion

Policy UE-1.1 In cooperation with Merced County, seek to designate undeveloped parcels within the RRC as "Urban Reserve," a Merced County General Plan Land Use Designation.

Policy UE-1.2 Promote high residential densities along the Mandeville Transit Corridor within the Bellevue Community Plan.

GOAL AREA UE-2: Joint Planning Efforts

Policy UE-2.2 In conjunction with the collaborative approach above, assess annexation options, and where appropriate, consistent with these efforts, encourage annexation of lands between the City and UC Merced.

GOAL AREA UE-3: Timing, Density and Location of New Growth

Policy UE-3.2 In the context of Implementing Action UE-1.3.a, of the Merced Vision 2030 General Plan growth adjacent to or in close proximity to UC Merced is considered one that is contiguous to an existing urban area.

Policy UE-3.3 Support efforts that permit campus serving housing, office and commercial development adjacent to UC Merced.

Policy UE-3.4 Annexation proposals in the BCP shall be accompanied by a phasing plan.

Policy UE-3.5 Further study of the anticipated need of future populations of the planning area.

City of Merced Municipal Code

The Merced Zoning Ordinance (Title 20) implements the General Plan and provides regulations that address the density, location, and design of new housing units.

The Merced Buildings and Construction Ordinance (Title 17) regulations building and construction standards for residential buildings codes and provides guidance for new housing developments.

The Merced Business Licenses and Regulations Ordinance (Title 5) provides regulations and guidance for the development of new businesses throughout the City.

3.13.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on Population, Housing, and Employment if it would:

- 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)?
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

METHODOLOGY AND ASSUMPTIONS

This analysis considers whether the project would result in a substantial increase in population and housing within the City of Merced and the surrounding region. The analysis of these impacts relies on data provided by the California Department of Housing and Community Development and the City and County of Merced. Determination of potential impacts on the existing housing environment in the City of Merced was made with consideration of displacement of current residents caused by influx of new residents, potential increases in housing values, and other factors. These determinations also assume maximum capacity, employment, and utilization of all aspects of the proposed Project.

There is one housing unit within the portion of the Project site that would be annexed to the City of Merced as part of the proposed Project. However, that existing housing unit is not within the area to be developed as part of the proposed Project, and would not be removed, displaced, or relocated as part of the proposed Project. There are no other occupied housing units currently located on the project site. Construction and operation of the proposed Project would not remove any existing housing units within the Project site, and would not displace any residents. Therefore, ***no impact*** would occur related to the

displacement of substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere. This topic is not further discussed in this EIR.

IMPACTS AND MITIGATION

Impact 3.13-1: Implementation of the proposed Project would not induce substantial population growth in the area either directly or indirectly. (Less than Significant)

The most recent data from the United States Census Bureau states that the population of the City of Merced, as of 2022, is 91,572.[6] The proposed Project includes 700 proposed residential units, which will lead to an increase of the City's population. With an average household size of 3.0 people,[7] it is projected that the 700 proposed housing units could generate up to 2,100 new residents for the City of Merced. When added to the existing population (91,572), the proposed Project would lead to 93,672 total residents, approximately a 2.24% increase.

Potential impacts associated with substantial unplanned population growth in an area are assessed based on a project's consistency with adopted plans that have addressed growth management from a local and regional standpoint. The City of Merced Vision 2030 General Plan and the Bellevue Corridor Community Plan (BCCP) describe the desired development for this area as having a "Mixed-Use TOD Character." This description highlights the need for community-oriented development that can help support the transportation, housing, and commercial needs of, primarily, the students of UC Merced, as well as residents of the City of Merced and Merced County. This desired growth within the BCCP planning area expects significant population growth, while it is not explicitly projected within the BCCP. MCAG's housing unit growth projects using the RTP/SCS show that the City of Merced will grow by 11,294 new households. Using the average household size for Merced (3.0 people per household),[8] the total potential population increase by the year 2035 could be up to 33,882 new residents, bringing the total population to 125,454 by the year 2035.

It is noted that the Project would ultimately be constructed in six phases. The proposed Project would develop a mix of land uses over these six phases of development, with each phase occurring over 2-3 years, depending on market conditions. This would allow for its orderly development and gradual integration into the broader framework of the community and the City of Merced. Phase One would begin with the development of the commercial land uses on the site. Phases Two – Five will gradually develop the residential land uses and their associated amenities. Phase Six will complete the project construction with development of the proposed 75,000 square foot hotel.

Development associated with the Project would provide employment opportunities, particularly during construction phases. However, temporary construction jobs do not typically provide employment

6 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-DP05.
7 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.
8 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.

opportunities that involve substantial numbers of people needing to permanently relocate to fill the positions, but rather would provide employment opportunities to people within the local community and surrounding areas. It is expected that the commercial development may not bring a significant increase in population due to the relatively large residential development that may provide employees for the commercial businesses. Similarly, proximity to UC Merced may also provide employees for the commercial businesses.

Overall, the proposed Project is consistent with the City of Merced Vision 2030 General Plan, the Bellevue Corridor Community Plan, and the growth in housing stock and population calculated by MCAG in both the Final Regional Housing Needa Allocation (RHNA) Plan and the Final Regional Transportation Plan Sustainable Communities Strategy for Merced County. With implementation of General Plan policies and Municipal Code requirements intended to guide growth and provide services necessary to accommodate growth, including reducing potential environmental impacts related to growth, impacts associated with the unplanned population growth would ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

Impact 3.13-2: Implementation of the proposed Project, in combination with other cumulative development, would not induce significant population growth in the area, either directly or indirectly. (Less than Significant)

The Merced Vision 2030 General Plan anticipates development within the City's Sphere of Influence and projects population growth. Cumulative growth throughout the City of Merced may result in impacts to residents and housing, including substantial population growth and increased housing construction and development.

According to MCAG's Final Regional Housing Needs Allocation Plan for the Merced County Region, the City of Merced specifically will grow with 11,294 new households by 2035.[9] The US Census Bureau states that the average household size in the City of Merced is 3.0 people per household.[10] Using this combined with the potential growth of 11,294 new households, by 2035 Merced's population could potentially grow to 125,454 residents. This broad expansion of the City of Merced will be guided by adherence to, and

9 MCAG, Final Regional Housing Needs Allocation (RHNA) Plan: Merced County Region, 2022.

10 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.

implementation of, the City's General Plan, future updates to the General Plan, and specific plans such as with the BCCP.[11]

Cumulative development consistent with adopted general plans would not result in substantial unplanned population growth either directly or indirectly. Therefore, the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

[11] United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-DP05.

This section describes and evaluates potential impacts associated with the provision of police protection, fire protection and emergency services, schools, parks and recreation, and other services for the proposed Project. The information in this section is derived from:

- The City of Merced Vision 2030 General Plan, 2012;
- Draft Environmental Impact Report for the City of Merced Vision 2030 General Plan, 2010;
- Merced Fire Department 2023 Strategic Plan, 2023;
- City of Merced Parks and Open Space Master Plan, 2004;
- Merced County Library Strategic Plan 2021-2024;
- Merced City School District Development Fee Justification Study, 2022;
- Merced City School District Long-Range Facilities Master Plan, 2024;
- Merced Union High School Long Range Facility Master Plan, 2022;
- Merced Union High School District 2024 Developer Fee Justification Study;
- City of Merced Public Facilities Financing Plan Update, 2021; and
- City of Merced website (www.cityofmerced.org).

3.14.1 ENVIRONMENTAL SETTING

The City of Merced provides a variety of public services, with facilities spread throughout the city, as shown on **Figure 3.14-1**.

POLICE PROTECTION

The City of Merced is serviced by the City of Merced Police Department through a combination of 24-hour security patrol, crime investigation services, and a number of community programs to promote education, training, and safety of the City's residents including: National Night Out, Fire and Cops for Kids, the Explorer Scout Program, a free gun lock distribution program, the Community Police Academy, the Community Camera Program, ride along programs, and others. Unincorporated communities designated within the City's Sphere of Influence (SOI) are serviced by the Merced County Sheriff's Department. While the proposed Project site is currently on land within the County's jurisdiction, following approval of annexation through California State Assembly Bill 3312 (AB 3312) the proposed Project site would be under the jurisdiction of the City of Merced and the City of Merced Police Department.

Districts

The City of Merced Police Department is divided into four areas of command, as shown in **Figure 3.14-2**, operating out of two stations in the City. This is done to support the Police Department's goal of "community policing" to ensure that officers are closest to the residents they serve in the event of an emergency. The Main Station is located on 22nd Street and the South Station is located on 11th Street. The Main Station is the closest to the proposed Project site being roughly 4.3 miles away and would be the primary station providing police protection services for the UC Villages site. The jurisdictions of the four districts are divided by geography as: Northwest, Northeast, Central, and South.

Each district has a dedicated citizen's council comprised of residents that regularly meet with members of the Police Department to organize community events and further the Departments goal of "community policing."[1] There are also several active neighborhood-watch programs that work with the Police Department within each district. Due to anticipated population growth, the City of Merced Vision 2030 General Plan anticipates the potential reorganization of the current district boundaries and/or the inclusion of an additional district. The General Plan also anticipates the relocation of the "Central Station" from its current location into the North Merced area of the City. While there is no specific timeline for this potential expansion, the City of Merced recognizes the possibility of Department expansion should the need arise in the future.

Staffing

The City of Merced Police Department is comprised of sworn officers, non-sworn civilian employees, and volunteers. The City of Merced Vision 2030 General Plan cites that as of 2010, the Department had 111 sworn officers, with a ratio of 1.32 officers per 1,000 residents. Based off the cited population of 80,985, this ratio exceeds the common practice of one officer per 1,000 residents previously established by the California Commission on Peace Officer Standards and Training (POST) before being repealed in 2009.

The City of Merced Vision 2030 General Plan predicts that by 2030 the number of annual police responses could rise from 65,000 in 2009 to over 130,000, leading to a potential need for additional officers and support staff.

Divisions

The City of Merced Police Department has nine separate divisions created to support the duties and operations across the City of Merced, as well as general administrative staff that work as non-sworn employees.

- Animal Control
- Code Enforcement
- Dispatch Center
- Investigations
    - Major Crimes
    - Property Crimes
    - Hi-Tech Crimes
    - Financial Crimes
    - Sexual Assault
    - Arson Investigations
    - Offender Registration
- Parking Enforcement
- Patrol

[1] City of Merced, 2012. The City of Merced Vision 2030 General Plan. Page 5-4.

- Property and Evidence
- Records
- Specialty Units
    - Traffic
    - Disruptive Area Response Team (DART)
    - Gang Violence Suppression Unit (GVSU)
    - School Resource Officers
    - Color Guard
    - Bomb Unit
    - Canine Unit
    - Critical Response Unit
        - Special Weapons and Tactics (SWAT) and Crisis Negotiation Team (CNT)
    - Small Unmanned Aerial System (SUAS)/Drone
    - Crime Scene Response Team (CSRT)

Crime Statistics

Crime statistics for the City of Merced were collected from the California Department of Justice for the years 2022 and 2023. Recent crime statistics for the City of Merced show a trending increase for violent crime including assault and robbery, while showing a decline in forceful sexual assault and no change in murder. Property crimes are only increasing for rates of auto theft and burglary, with thefts and arsons trending down. Overall, property crimes are seeing a general trend downwards while crimes against people are increasing, though have been slowly increasing over time, as shown in **Table 3.14-1**.[2]

TABLE 3.14-1: MERCED POLICE DEPARTMENT CRIME AND REPORT DATA (2022-2023)

OFFENSE TYPE	2022	2023	% CHANGE
Homicide	6	8	+33%
Sexual Assault (Forcible)	104	71	-32%
Attempted Sexual Assault	3	4	+33%
Aggravated Assault	554	517	-7%
Burglary	381	392	+3%
Motor Vehicle Theft (All Types)	425	532	+25%
Larceny-Theft (All Types)	1,721	1,586	-8%
Arson	132	88	-33%

[2] City of Merced Police Department, 2023. Statistics | City of Merced, CA. Available: https://www.cityofmerced.org/departments/police/statistics.

OFFENSE TYPE	2022	2023	% CHANGE
Total: Violent Crime	**821**	**778**	**-5%**
Total: All Offenses	**3,326**	**3,198**	**-4%**

SOURCE: CALIFORNIA DEPARTMENT OF JUSTICE, 2022-2023

FIRE PROTECTION AND EMERGENCY SERVICES

The City of Merced Fire Department provides protection services throughout the jurisdiction of the City of Merced. The Fire Department provides fire protection and prevention services, emergency medical response, rescue services, incidents involving hazardous materials, community outreach and education, and miscellaneous emergency response services. The proposed Project site is currently under the jurisdiction of the County of Merced Fire Department. However, following the proposed annexation of the Project site within the Bellevue Corridor Community Plan, the area would be under the jurisdiction of the City of Merced Fire Department.

The Merced Fire Department 2023 Strategic Plan outlines five objectives that guide the operations of the Department and the broader service to the community:

- Keep the Citizens of our City safe.
- Enhance community safety through prevention.
- Provide an effective and efficient response to all emergencies.
- Fund a modern and well-maintained fire department for the City.
- Educate the community and enhance the relationship with the Fire Department.

The City of Merced Fire Department is regularly evaluated and rated by the Insurance Services Organization (ISO) using the Fire Protection Rating System (FPRS). This rating system determines the level of fire protection services on a 1-10 scale. “10” is the lowest rating, with inadequate fire protection for the community. “1” is the highest rating, demonstrating a far above average level of fire protection services. According to the City of Merced Vision 2030 General Plan, the Merced Fire Department is currently rated as Class 2, which is well above the average of comparable cities.[3,4]

Stations

The City of Merced Fire Department operates out of five stations throughout the City, each serving their own geographically divided district. The location of each station was chosen strategically to house equipment and provide the necessary services that are specific to the needs of each area of service. The

[3] City of Merced, 2010. Merced Vision 2030 General Plan Draft Program Environmental Impact Report. Page 3.14-2.

[4] City of Merced, 2024. City of Merced Fire Department, Frequently Asked Questions (FAQs). Available: https://www.cityofmerced.org/departments/fire/frequently-asked-questions-faq-s. Accessed October 10, 2024.

five stations are geographically spread to provide adequate coverage across the City of Merced. The Fire Department Headquarters is located at Station 51.

- **District 1 (Station 51)**: Located near the intersection of East 16th Street and G Street.
- **District 2 (Station 52):** Located at the Merced Regional Airport on Falcon Way.
- **District 3 (Station 53)**: Located on Loughborough Drive, adjacent to Merced Mall.
- **District 4 (Station 54)**: Located on East 21st Street.
- **District 5 (Station 55)**: Located at the intersection of Parsons and Silverado within Carpenter Park.

The proposed Project site would not fall under the jurisdiction of any existing fire district boundary following the proposed annexation of the site area, as shown in **Figure 3.14-3**. However, the City of Merced Vision 2030 General Plan does identify potential locations and areas of service for additional fire districts and stations, and the Project site would be within the proposed boundaries of an future expanded service area.

Staffing

The City of Merced Fire Department has a staff comprised of both sworn and non-sworn personnel that are necessary to provide adequate service to the City and its residents. The current staffing numbers are determined to support the current and projected needs of the City. The Merced Fire Department also has a mutual aid agreement with the City of Atwater Fire Department and the Merced County Fire Department to request aid from one another when additional support is necessary. The Department operates on a 3-shift work schedule to provide 24-hour protection services to the City. The current breakdown of staff at the City of Merced Fire Department is as follows:

- **Sworn Personnel: 87**[5]
    - 18 Captains
    - 18 Engineers
    - 45 Firefighters
    - 6 Chief Officers
- **Non-Sworn Personnel: 5**

Equipment

To adequately provide fire protection and emergency services, the City of Merced Fire Department utilizes several different vehicles and support equipment to improve their effectiveness. The current list of equipment utilized by the City of Merced Fire Department is as follows:[6]

- Engine Companies (water, hose, and pump)

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5 City of Merced, 2024. City of Merced Fire Department, Fire. Available: https://www.cityofmerced.org/departments/fire. Accessed October 10, 2024.

6 City of Merced, 2024. City of Merced Fire Department, Fire. Available: https://www.cityofmerced.org/departments/fire. Accessed October 10, 2024.

- Ladder Companies (ladders, rescue tools, rescue equipment)
- Aircraft Rescue Firefighting (ARFF vehicles)
- Medium Rescue Trailer
- Mass Decontamination Trailer
- Miscellaneous Support Vehicles

Service Calls and Response Time

The City of Merced Vision 2030 General Plan predicts a further increase in the number of calls for service received by the City of Merced Fire Department. Cited in the General Plan, in 2010 there were 6,325 responses to calls for service. Of those calls, the breakdown was as follows: 6% fires, 57% emergency medical issues, 37% other calls (good intent calls, false alarms, miscellaneous calls). Maintaining a similar breakdown, the number of calls for service in 2023 increased to 11,256.[7]

The City of Merced Vision 2030 General Plan states that the current average response time throughout the area of service is between 4-6 minutes. This quick response time accounts for the arrival of the first emergency service vehicle. The City of Merced Vision 2030 General Plan describes that the potential increase in population and growing socio-economic capabilities of Merced could lead to a need for increased funding of the Fire Department in order to keep response times within the current range of 4-6 minutes.[8]

SCHOOLS

School Districts

The City of Merced is served by four public school districts, each providing educational opportunities for children throughout the City:

- **Merced City School District** (Elementary and Middle School; K-8th Grade)
- **Merced Union High School District** (High School; 9th-12th Grade)
- **Weaver Union School District** (Elementary Schools; K-6th Grade)
- **McSwain Union Elementary School** (Elementary Schools; K-6th Grade)

These districts are separate agencies from the City, each with their own elected officials and funding sources. The City does collaborate closely with the school districts regarding the construction or relocation of school sites and facilities, developer impact fees, and joint community activities. The City of Merced Vision 2030 General Plan has dedicated goals established for the improvement of schools throughout the City.

[7] City of Merced, 2024. City of Merced Fire Department, Fire. Available: https://www.cityofmerced.org/departments/fire. Accessed October 10, 2024.

[8] City of Merced, 2010. Merced Vision 2030 General Plan Draft Program Environmental Impact Report. Page 3.14-2.

The proposed Project Site would be under the jurisdiction of Merced City School District for K-8th grade students and Merced Union High School District for 9th-12th grade students. Merced City School District operates 14 elementary schools and four middle schools throughout the City. The MCSD Long-Range Facilities Management Plan identifies that the proposed Project site is closest to the elementary school attendance zone for Givens Elementary School[9] and the middle school attendance zone for Cruickshank Middle School.[10] The Merced Union High School District Long-Range Facilities Master Plan operates six high schools and one education center. The closest high school to the proposed Project site is El Capitan High School and will likely be the most impacted institution by the UC Villages proposed development.[11] The proposed Project site is currently under the jurisdiction of Merced County but is anticipating annexation by the City of Merced, which would place the UC Villages within the boundaries of these school districts.

DISTRICT CAPACITY

The Merced City School District Long-Range Facilities Master Plan and the Merced Union High School District 2024 Developer Fee Justification Study both identify the existing and projected student capacities for each district, including both permanent and portable classrooms.

MCSD identifies that the District has a capacity with portables of 8,993 elementary school students and 3,552 middle school students, and a current enrollment of 8,555 elementary school students and 2,428 middle school students. This gives the District a current utilization factor of 95.1% for the elementary schools and 68.4% for the middle schools. The projected utilization factor in six years will be 94.0% for the elementary schools and 69.4% for the middle schools.[12] Shown below in **Table 3.14-2**. by the 2029-2030 school year Givens Elementary School is projected to only reach 77.7% of its total capacity (638 students) and Cruickshank Middle School is projected to only reach 75.2% of its total capacity (992 students).[13]

TABLE 3.14-2: MERCED CITY UNIFIED SCHOOL DISTRICT EXISTING/PROJECTED STUDENT CAPACITY

	TOTAL CLASSROOMS	TOTAL CAPACITY	2023/2024 CURRENT ENROLLMENT	2029/2030 PROJECTED ENROLLMENT	2023/2024 CURRENT UTILIZATION	2029/2030 PROJECTED UTILIZATION
Elementary Schools						
Burbank Elem.	27	702	726	724	103.4%	103.1%
Chenoweth Elem.	28	732	732	733	100.0%	100.1%
Franklin Elem.	27	635	567	621	89.3%	97.8%
Fremont Elem.	22	572	559	613	97.7%	107.2%
Givens Elem.	24	638	546	496	85.6%	77.7%
Gracey Elem.	24	633	509	457	80.4%	77.2%

9 Merced City School District, 2024. Merced City School District Long-Range Facilities Management Plan. Page 8.15.
10 Merced City School District, 2024. Merced City School District Long-Range Facilities Management Plan. Page 8.16.
11 Merced Union High School District, 2022. Merced Union High School District Long-Range Facilities Plan. Page 2-4.
12 Merced City School District, 2024. Merced City School District Long-Range Facilities Management Plan. Page 6.2.
13 Merced City School District, 2024. Merced City School District Long-Range Facilities Management Plan. Page 6.3.

	TOTAL CLASSROOMS	TOTAL CAPACITY	2023/2024 CURRENT ENROLLMENT	2029/2030 PROJECTED ENROLLMENT	2023/2024 CURRENT UTILIZATION	2029/2030 PROJECTED UTILIZATION
Muir Elem.	23	594	582	510	98.0%	85.9%
Peterson Elem.	25	655	684	805	104.4%	122.9%
Reyes Elem.	26	677	565	490	83.5%	72.4%
Rivera Elem.	31	816	893	929	109.4%	113.8%
Sheehy Elem.	24	633	503	474	79.5%	74.9%
Stefani Elem.	22	664	609	609	91.7%	91.7%
Stowell Elem.	23	449	527	449	117.4%	100.0%
Wright Elem.	23	563	553	544	93.3%	91.7%
Sub-Totals	**349**	**8,993**	**8,555**	**8,454**	**95.1%**	**94.0%**
Middle Schools						
Cruickshank Middle	31	992	629	746	63.4%	75.2%
Hoover Middle	25	800	607	618	75.9%	77.3%
Rivera Middle	22	704	607	618	86.2%	87.8%
Tenaya Middle	33	1,056	585	482	55.4%	45.6%
Sub-Totals	**111**	**3,552**	**2,428**	**2,464**	**68.4%**	**69.4%**
Other Schools						
Community Day	3	80	31	31		
Sub-Totals	3	80	31	31		
District Totals	**463**	**12,625**	**11,014**	**10,949**	**87.2%**	**86.7%**

SOURCE: MERCED CITY UNIFIED SCHOOL DISTRICT LONG-RANGE FACILITIES PLAN, PAGE 6.3

For 9th – 12th grade students, Merced Union High School District has determined its existing and projected capacity in the Merced Union High School District Long Range Facility Master Plan and the Merced Union High School District 2024 Developer Fee Justification Study. The most recent reports by Merced Union High School District do not generally breakdown its student capacity projections by specific schools. However, the District does identify the student capacity for El Capitan High School, the closest high school to the proposed Project site. As of 2022, there were 1,847 students with a campus capacity of 2,000 students.[14] For the District at large, as of 2024 there are 11,226 students with a District-wide capacity of 11,479 students.[15]

Higher Education

The City of Merced is also served by two higher education institutions: Merced College and the University of California, Merced. Merced College is a junior college with a 270-acre main campus located north of Yosemite Avenue, between M Street and G Street. The college seeks to expand educational opportunities,

[14] Merced Union High School District, 2022. Merced Union High School District Long Range Facility Master Plan. Page 4-21.

[15] Merced Union High School District. 2024. Merced Union High School District 20242 Developer Fee Justification Study. Page 9.

vocational training, and personal growth for its prospective students. Merced College offers two-year Associate in Arts or Sciences degrees and Certificates of Completion in vocational subjects.

The second higher education institution servicing the Merced area is the University of California, Merced. Located alongside Lake Yosemite, it is the 10th campus in the University of California system and opened in 2005. The University is experiencing rapid growth in educational opportunities, facilities expansion, and the number of students. As of the 2023-2024 academic year, UC Merced had approximately 9,100 students. The proposed project site is directly adjacent to the UC Merced main campus, making it an important commercial, transit, and housing, resource for the growing student and faculty population.

LIBRARY SERVICES AND CULTURAL FACILITIES

Public Libraries

The City of Merced is served by the Merced County Library System. The main library is in Merced, located next to the historic Merced County Courthouse at 21st Street and O Street, shown on Figure 3.14-1. There are eighteen other branch libraries throughout Merced County. In addition to operating as a library, the main library in the City also serves as a community gathering space with a multitude of public events and amenities offered such as free internet, air conditioning, restroom facilities, and educational opportunities. Separate from the Merced County Library System, Merced College's Lesher Library is also open to the public but non-students are prohibited from borrowing library material. The University of California, Merced's Library is open to the public to browse, however free borrowing library material is restricted to students, faculty, and those affiliated with the University of California system. Members of the general public may borrow library materials for a fee.

Given its potential annexation into the City of Merced, this proposed Project site would primarily be supported by the Merced County Library System's main library within the City. Despite its proximity, the fees levied to the general public for borrowing materials from the UC Merced Library limit its availability to the entire public. The same is true of the library at Merced College.

Cultural Facilities

There are a number of facilities throughout Merced that expand and enrich the artistic and culturally diverse character of its communities. These facilities provide residents with opportunities to pursue artistic endeavors while supporting the cultural character of the City.

The Merced Multi-Cultural Center is located directly adjacent to the Merced Civic Center. It is a multi-purpose arts facility created to host numerous community events and showcase the diverse artistic expressions of community members. run by the Merced County Regional Arts council, a body that sponsors and organizes various community events such as arts programs for school children, local art festivals for the public, writing groups, and art exhibits. The Merced Open Air Theater (MOAT) serves a similar purpose as a gathering space for community members to highlight diverse artistic displays.

PARKS AND RECREATION SYSTEM

The City of Merced has a well-developed system of public parks and recreational facilities throughout the City. The current inventory of public parks and recreational facilities, **Table 3.14-3**, includes sports complexes, picnic areas, multi-use parks, and smaller neighborhood and community parks, shown on **Figure 3.14-4**. The City of Merced Vision 2030 Master Plan states that the City has historically used the standard of five park acres per 1,000 residents[16]. In addition to the developed park facilities operated by the City, Lake Yosemite, school grounds, and church grounds supplement the overall open space available to the residents. At the time of the adoption of the 2004 Park and Open Space Master Plan the City had approximately 4.98 acres per 1,000 residents. The City of Merced Vision 2030 General Plan establishes different designations for public facilities to improve management according to the different needs of each community and the uses specific to each neighborhood.

- **Mini-Parks**: Tot lots and children's playgrounds are all small, single purpose play lots designed primarily for small children usage. Due to their size, the facilities are usually limited to a small open grass area, a children's playground and a small picnic area.
- **Neighborhood Parks:** are a combination playground and park, designed primarily for non supervised, non-organized recreation activities. They are generally small in size (about 5 acres) and serve an area of approximately one-half mile radius. Typically, facilities found in a neighborhood park include a children's playground, picnic areas, trails, open grass areas for passive use, outdoor basketball courts and multi-use sport fields for soccer, softball, and baseball. Optimum size is between three and seven acres.
- **Community Parks**: are planned primarily to provide active and structured recreation opportunities. In general, community park facilities are designed for organized activities and sports, although individual and family activities are also encouraged. Community parks serve a much larger area and offer more facilities. As a result, they require more in terms of support facilities such as parking, restrooms, and covered play areas. Community parks usually have sport fields or similar facilities as the central focus of the park. Their service area is roughly a one to two mile radius. Optimum size is between 15 and 20 acres.
- **School Parks**: are park facilities, usually neighborhood park facilities that are developed adjacent to or on school grounds.
- **Special Use Areas**: are miscellaneous public recreation areas or land occupied by a specialized facility. Some of the uses falling into this classification include community centers, skate parks, community gardens, or sites occupied by buildings.
- **Urban Plazas**: are small parks, usually passive, that provide an opportunity for the public to gather in urban locations. Size varies, but urban plazas are typically small and primarily hard surfaces.
- **Athletic Parks**: are sites where sports fields are the central focus. Facilities may consist of baseball, softball and soccer fields. Supplemental activities may include tennis, volleyball, playgrounds, and picnic areas.

[16] City of Merced, 2012. The City of Merced Vision 2030 General Plan. Page 7-29.

- **Linear Parks**: are open spaces or developed landscaped areas that follow linear corridors such as creek corridors, canals, trail corridors, abandoned railroad rights-of-way, canals, and other elongated features. This type of park usually contains pedestrian/bicycle trails, landscaped areas, viewpoints and seating areas. Neighborhood park facilities may be incorporated when space is available.

Public Parks Inventory

TABLE 3.14-3: CITY OF MERCED PUBLIC PARKS AND OPEN SPACE INVENTORY

	ACRES	FACILITIES						
		RB	PG	PS	S	BF	BB	RR
Regional Parks:								
Applegate Park	32.37	X	X	X			X	X
Youth Sports Complex	12.34					X		X
Community Parks:								
Fahrens Park	47.62		X				X	X
Joe Herb Park	26.74		X	X		X		X
McNamara Park	8.7	X	X		X		X	X
Neighborhood Parks:								
Ada Givens Park	10		X	X	X			X
Bob Carpenter Park	5.99							
Burbank Park	3.28		X					
Davenport Park	7.5							
Gilbert Macias Park	4.91			X			X	X
Rahilly Park	28.91		X	X				X
Roland D. Brooks Jr. Park	4							
Stephen Gray Park	2.5							
Stephen Leonard Park	2.7	X	X		X		X	X
Mini Parks:								
12th and G St.	0.19		X					
11th and H St.	0.17		X					
8th and V st.	0.89		X					
Dennis Chavez Park	0.28		X					
William Lloyd Garrison Park	1.02							
Diego Rivera Park	0.25		X					
Love Veasely Park	0.17		X					
Harriet Tubman Park	0.45		X					
Charles Richard Drew Park	0.52		X					
Circle Drive Park	0.26		X					
Linear Parks:								
Santa Fe	15.6		X					
Black Rascal Creek	22		X					

	ACRES	FACILITIES						
		RB	PG	PS	S	BF	BB	RR
Bear Creek	8							
RB=Recreation Building, S=Pool, PG=Playground, BF=Ballfields, PS=Picnic Shelter, RR=Restroom, BB=Basketball								

SOURCE: CITY OF MERCED VISION 2030 GENERAL PLAN, TABLE 3.13-2, 3.13-3

3.14.2 REGULATORY SETTING

STATE

Uniform Fire Code

The Uniform Fire Code with the State of California Amendments contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The Fire Code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code. This includes regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

California Code of Regulations

The California Code of Regulations, Title 5 Education Code, governs all aspects of education within the State.

Proposition 1A/Senate Bill 50

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) is a school construction measure authorizing the expenditure of State bonds totaling $9.2 billion through 2002, primarily for modernization and rehabilitation of older school facilities and construction of new school facilities. $2.5 billion is for higher education facilities and $6.7 billion is for K-12 facilities. Proposition 1A/SB 50 implemented significant fee reforms by amending the laws governing developer fees and school mitigation.

- Establishes the base (statutory) amount (indexed for inflation) of allowable developer fees at $1.93 per square foot for residential construction and $0.31 per square foot for commercial construction.

- Prohibits school districts, cities, and counties from imposing school impact mitigation fees or other requirements in excess of or in addition to those provided in the statute.

Proposition 1A/SB 50 also prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[…] legislative or adjudicative act […] involving […] the planning, use, or development of real property" (Government Code 65996(b)). Additionally, a local agency cannot require participation in a Mello-Roos for school facilities; however, the statutory fee is reduced by the amount of any voluntary participation in a Mello-Roos. Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation." The law identifies certain circumstances under which the statutory fee can be exceeded, including preparation and adoption of a "needs analysis," eligibility for State funding, and satisfaction of two of four requirements (post-January 1, 2000) identified in the law including: year-round enrollment, general obligation bond measure on the ballot over the last four years that received 50 percent plus one of the votes cast, 20 percent of the classes in portable classrooms, or specified outstanding debt. Assuming a district qualifies for exceeding the statutory fee, the law establishes ultimate fee caps of 50 percent of costs where the State makes a 50 percent match, or 100 percent of costs where the State match is unavailable. District certification of payment of the applicable fee is required before the City or County can issue the building permit.

Quimby Act

California Government Code Section 66477, Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The required dedication and/or fees are based upon the residential density, parkland cost, and other factors. Land dedication and fees collected pursuant to the Quimby Act may be used for acquisition, improvement, and expansion of park, playground, and recreational facilities or the development of public school grounds.

LOCAL

City of Merced Vision 2030 General Plan

CHAPTER 5 – PUBLIC SERVICES AND UTILITIES

Goal Area P-1: Public Facilities and Services

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.

Implementing Actions:

1.2.b Expand existing facilities to the extent possible at present locations.

1.2.c Periodically evaluate the City's service delivery system and identify policies and programs which may improve operating efficiency and/or reduce service delivery costs.

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.a Prepare and adopt adequate fee schedules commensurate with the cost of planned improvements and services, with annual review and update.

1.3.b Periodically evaluate the City's service delivery system and identify policies and programs which may be applied to new development to improve operating efficiency and/or reduce service delivery costs.

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.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.

1.3.f Consider changes to the Public Facilities Financing Plan and Public Facilities Impact Fee program, under applicable provisions of law, to reflect lower fees for "in-fill" development, transit-oriented development, and new development within the 2015 SUDP vs. areas being added to the SUDP/SOI in the Merced Vision 2030 General Plan.

Goal Area P-2: Police and Fire Protection Services

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.d Ease of access should be a primary consideration in selecting a fire station site.

2.1.e Maintain an adequate and reliable water system to serve fire protection needs.

2.1.f Provide fire facilities and related resources to support the Fire Department Facilities Master Plan and any subsequent updates.

2.1.g Utilize existing community resources, to the maximum extent feasible, in the provision of public protection services.

2.1.h Assure that new development utilizes modern public protection concepts in their design and development.

Goal Area P-7: Public Schools

Policy P-7.1: Cooperate With Merced Area School Districts to Provide Pre-Kindergarten, Elementary, Intermediate, And High School Sites That Are Centrally Located to the Populations They Serve and Adequate to Serve Community Growth**.**

Implementing Actions:

7.1.a. The City recognizes that education and public schools are an important and integral part of a well balanced community—providing not only educational opportunities for our youth, but also vital recreation and open space for our community.

7.1.b. The City of Merced will assist, support, collaborate and cooperate with the school districts having jurisdiction in planning for and providing of educational services and School Facilities to meet the needs of current and projected future students and employees. The City will work with the school districts to negotiate a memorandum of understanding (MOU)/cooperative agreement, which will address how the school impacts of development projects will be analyzed, the preparation of plans for services by developers, and school funding issues.

7.1.c. The City will promote the clustering of public and quasi-public uses such as schools, parks, child care facilities, and community activity centers. Joint-use of public facilities will be promoted and agreements for sharing costs and operational responsibilities by school districts and public entity partners will be encouraged.

7.1.e. The City and the School Districts will work together toward circulation and transportation systems within the City that provide for the movement of students from homes to schools, including considerations for pedestrian, bicycle, and overall safe routes to school.

7.1.k. The City of Merced will support and cooperate with the School Districts in planning for and providing child care and educational services and School Facilities with sufficient capacity, to meet the needs of current and projected future student enrollments and employees. To this end, the City will work cooperatively with the School District(s) in monitoring housing, population and school enrollment trends to plan for future School Facility and Child Care Facility needs.

7.1.l. Through the City's environmental review process, reasonable attempts will be made to reduce the effects of incompatible land uses and noise adjacent to or within a quarter mile of school facilities and other noise sensitive land uses.

Policy P-7.2: Support Higher Educational Opportunities.

Implementing Actions:

7.2.a. Work with Merced College to ensure that facilities and grounds are available to meet future student needs.

7.2.b. Work closely with both the Merced Community College District and University of California Chancellor's Office to assure that adequate community infrastructure is available to meet their institutional needs.

7.2.c. Work with the County and UC Merced planning staff in the preparation of necessary plans and studies for the expansion of the UC Merced campus site and grounds.

7.2.d. Develop programs with UC Merced students, faculty, and employees to gain their prospective on future development goals for the City.

Goal Area P-8: Government, Health, Library, and Cultural Facilities

Policy P-8.1: The City Will Support The Cultural and Health Related Needs of the Community by Incorporating Such Facilities And Services in Development And Redevelopment Proposals.

Implementing Actions:

8.1.b Encourage the continued operations of the multi-cultural and performing arts program and facilities in the Downtown area of Merced.

8.1.c Examine the needs for developing youth services programs and supporting facilities.

Policy P-8.2: The City Will Promote Consolidation of Complementary or Support Services to Avoid Duplication of Programs.

Implementing Actions:

8.2.a. Senior centers, satellite libraries, adult education, recreation and/or other public facilities should be located in proximity to each other in each Village Core mixed-use area to allow for integrated activities to the maximum extent feasible.

8.2.b. Continue to emphasize Downtown Merced as the central location for public and government facilities in the City (e.g., County and City government centers, civic center, post office, department of motor vehicles, federal and state offices, etc.).

8.2.c. Encourage development of child care centers in all areas, including non-residential areas.

8.2.d. Encourage the inclusion of child care facilities in new housing developments.

8.2.e. Promote the development of shared cultural and recreational facilities and programs between the community and local educational facilities.

8.2.f. Continue to encourage parks to be located adjacent to schools in order to promote the joint use of buildings and sports facilities.

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.a. Explore ways to incorporate "information access" into public facilities and buildings.

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.

CHAPTER 7 – OPEN SPACE, CONSERVATION, AND RECREATION

Goal Area OS-3: Open Space for Outdoor Recreation

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.

3.1.b Consider density bonuses for development proposals which offer extra park land dedications where needed.

3.1.c Continue to implement the City's 2004 Parks and Open Space Master Plan and any subsequent updates.

3.1.d Continue to encourage joint use agreements between the City and local school districts to combine the design and use of park and school facilities when feasible.

3.1.e Use the City's Park Dedication Ordinance to develop the City's park system.

3.1.f Design and develop parks which are compatible with adjacent land uses through the establishment of a park planning process that is responsive to community and neighborhood input.

Policy OS-3.3: Maintain the City's Existing High-Quality Open Space Facilities.

Implementing Actions:

3.3.a Design park facilities so that a high quality of maintenance can occur with minimum effort.

3.3.b Encourage community participation in park maintenance and improvement programs.

3.3.c Explore park concession opportunities as a revenue source for park improvements and maintenance.

3.3.d Encourage neighborhood participation in policing and park security efforts.

Policy OS-3.4: Develop a Diverse and Integrated System of Park Facilities Throughout Merced.

Implementing Actions:

3.4.a. Community parks should be distributed throughout the City.

3.4.b. Neighborhood parks and village greens are to be located within Villages.

3.4.c. Greenways should be designed to connect various park sites, schools and other public places with paths exclusively for pedestrians and bicyclists.

3.4.d. In cooperation with Merced County and the Merced Irrigation District, evaluate the Lake Yosemite regional park to identify how it might adequately meet the needs of the City of Merced and the new growth areas in the region including the U.C. Merced campus.

CHAPTER 11 – SAFETY

Goal Area S-4: Fire Protection

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.

4.1.b. Work with the Fire Department and the Environmental Health Division to identify fire districts that will require specialized manpower and equipment, such as businesses that use hazardous materials, and request that land uses or structures with similar needs be confined to these districts.

Policy S-4.2: Maintain a Reasonable Level of Accessibility and Infrastructure Support for Fire Suppression, Disaster, and Other Emergency Services.

Implementing Actions:

4.2.a. Continue to use 8-inch or larger pipe in high-value districts. In residential districts, additional "looping" or completion of water main grids shall continue to be provided where possible so that lengths of 6-inch pipe on the long side of the block will not exceed 600 feet.

4.2.b. Maintain current standards defined in the Fire Code and City Standards for the spacing of fire hydrants. In general, these standards call for 500-foot spacing in residential areas and 300-foot spacing in commercial and industrial areas.

4.2.c. Continue to provide fire prevention and disaster preparedness information through the schools, public interest groups, and other facilities and people.

4.2.d. Continue close collaboration between Inspection Services, Fire Prevention, and Fire Suppression support personnel to ensure public safety and improve construction safety through the building permit and life safety inspections process.

4.2.e. Continue to enforce the present nuisance abatement program regarding a height limit on weeds during the dry season (mid-April through mid-November) in both vacant and developed lots, abandoned vehicles, and vacant buildings.

Goal Area S-6: Crime

Policy S-6.1. Provide Superior Community-Based Police Services Within the Resource Constraints of the City.

Implementing Actions:

6.1.a. Continue programs, such as "Neighborhood Watch" which increase residents' involvement in, and ownership of, police operations.

6.1.b. Direct services and outreach programs towards youths in the community.

6.1.c. Locate future police facilities to enhance the "community policing" concept through the expansion of existing or the addition of new police service districts as the City grows.

Bellevue Corridor Community Plan

CHAPTER 4 – OPEN SPACE, CONSERVATION, AND RECREATION

Goal Area OS-2: Open-space for Outdoor Recreation

Goal Area OS-3: Open-space for Public Health and Safety

CHAPTER 7 – PUBLIC SERVICES AND FACILITIES

Goal Area P-2: Police and Fire Protection

Policy P-2.1: Ensure adequate service levels for police and fire protection in order to service substantial growth in the BCP area.

Merced County Library Strategic Plan 2021-2024

STRATEGIC PLAN GOALS

Goal 1: Welcoming and accessible library spaces for each Merced County Library Community.

- Evaluate each library location to determine specific needs.
- Develop collections that reflect the wants, needs, and interests of the community.
- Assess technology and infrastructure needs to improve accessibility.

Goal 2: Merced County Library programs meet the needs of our diverse community.

- Engage underserved populations through tailored programming.
- Increase community engagement with culturally-relevant materials.
- Take Programming beyond library walls.

Goal 3: Merced County Library is visible, well supported, and a strong community partner.

- Position the library for collaborations and partnerships.
- Improve marketing efforts internally and externally by establishing standards.
- Develop organization role to focus on outreach and collaboration.

City of Merced Fire Department 2023 Strategic Plan

STRATEGIC PLAN GOALS

Goal 1: Keep the citizens of our city safe.

Goal 2: Enhance community safety through prevention.

Goal 3: Provide an effective and efficient response to all emergencies.

Goal 4: Fund a modern and well-maintained Fire Department for the city.

Goals 5: Educate the community and enhance the relationship with the Fire Department.

3.14.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact on Public Services if it would:

- 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, or other public facilities;
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

METHODOLOGY AND ASSUMPTIONS

Impacts related to public services and recreation are discussed below. The following impact assessments are based on existing conditions within the City of Merced regarding emergency services, recreational parks and facilities, and other community-oriented services such as public art and library facilities. These existing conditions were extrapolated from various City documents including the City of Merced Vision 2030 General Plan, the City of Merced Parks and Open Space Master Plan, and others.

The following impact assessments also include a determination of whether implementation of the UC Villages project would significantly impact the existing capabilities and capacity of emergency services and recreational facilities. Currently, the proposed Project site is not within the boundaries of the City of Merced. However, the Project site is within the boundaries of the Bellevue Corridor Community Plan and the City of Merced's SUDP and SOI. These factors in addition to the annexation guidelines outlined in AB 3312 lead to this proposed Project anticipating the annexation of the site into the City of Merced, thus necessitating the inclusion of emergency services and public facilities within the City.

Calculations for the student generation projections were completed using the new student generation factors provided in both the Merced City School District Development Fee Justification Study and the Merced Union High School District 2024 Developer Fee Justification Study. These ratios were applied to the proposed applicable residential unit numbers and the commercial development square footage. These projections are only potential in nature and do not reflect a definite expansion in the broader student populations of Merced and the relevant school districts.

IMPACTS AND MITIGATION

Impact 3.14-1: Implementation of the Project would not 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. (Less than Significant)

POLICE PROTECTION

The proposed UC Villages project site is located in what would become the northeastern corner of the City of Merced's boundary, directly adjacent to UC Merced. Its location in the northern region of the City would likely place it within the boundaries of the City of Merced Police Department's District 1. The City of Merced Vision 2030 General Plan anticipates that there will be an increased need for additional officers and equipment to adequately provide service for the City if developments occur and population trends continue to increase. Given that this is anticipated in the General Plan, the UC Villages Project remains consistent with the current projections. The City of Merced Police Department has also cited that there is an anticipated increase in responses to calls, like the General Plan. Given that a growth in the Police

Department to meet projected demands has already been recognized by the City of Merced to accommodate increased development and population growth, the UC Villages Project would not result in substantial adverse impacts on police protection. Therefore, the impact on police protection services would be ***less than significant***.

FIRE PROTECTION AND EMERGENCY SERVICES

The City of Merced Fire Department currently operates out of five stations throughout the City, giving them the ability to cover the entire geographic area with effectiveness and quick response to emergency situations. Given the location of the proposed Project site, it is likely that the station that would be providing regular protection to the area would be either Station 55 within District 5, or Station 53 within District 3. The City of Merced Vision 2030 General Plan anticipates that population growth and new development will necessitate an expansion of the current capacity of the Fire Department. Within this potential expansion is the possibility of adding additional fire stations within the City to support the potential urban expansion and development within the SUDP, SOI, and the various community plans. One of the proposed fire station sites would include the proposed Project site in its area of responsibility, allowing for an efficient response by the fire department. Given that the proposed Project site is within the planning area of an existing community plan, the Bellevue Corridor Community Plan, and that the City of Merced Vision 2030 General Plan outlines potential expansion of the fire department following increased development within the SOI, the Project would not result in substantial adverse impacts on emergency response operations and capacity. Therefore, the impact on fire protection and emergency services would be ***less than significant***.

SCHOOLS

The UC Villages Project is currently not within the existing boundaries of the City of Merced, however it is within its Sphere of Influence, Specific Planned Urban Development area and under the guidance of the Bellevue Corridor Community Plan and is anticipated to be annexed by Merced.

While the UC Villages Project recognizes the need for off-campus housing for students at UC Merced, the traffic study done for this Environmental Impact Report assumes that half of the proposed units for the Project, 328 units, could serve non-university students for housing. This was done to provide a fair yet conservative trip generation estimate; it is assumed that half of the residential units will be multi-family units and half will be student housing. The Merced City School District Development Fee Justification Study and the Merced Union High School District 2024 Developer Fee Justification Study outline student generation factors for specific developments within the respective school districts. **Table 3.14-4** shows the number of students the proposed Project would generate in the Merced City School District. **Table 3.14-5** shows the number of students the proposed Project would generate in the Merced Union High School District.

The Merced City School District Development Fee Justification Study provides student generation factors for residential and commercial development. The Merced Union High School District 2024 Developer Fee Justification Study calculates the student generation factor for commercial development according to

potential employees generated, then calculating potential students generated from the number of potential employees. For residential development, the student generation factor is provided

TABLE 3.14-4: MERCED CITY SCHOOL DISTRICT POTENTIAL STUDENT GENERATION

RESIDENTIAL	TOTAL APPLICABLE UNITS	STUDENT GENERATION FACTOR	POTENTIAL NEW ELEMENTARY SCHOOL STUDENTS	POTENTIAL NEW MIDDLE SCHOOL STUDENTS	TOTAL POTENTIAL NEW STUDENTS (K-8)
Multiple-Family Development	328	0.189 per unit	62	62	124
COMMERCIAL	**DEVELOPMENT SQUARE FOOT**	**STUDENT GENERATION FACTOR**	**POTENTIAL NEW ELEMENTARY SCHOOL STUDENTS**	**POTENTIAL NEW MIDDLE SCHOOL STUDENTS**	**TOTAL POTENTIAL NEW STUDENTS (K-8)**
Community Shopping Center Development	30,000	0.188 (per 1,000 sq ft.)	6	6	11
Lodging (Hotel Development)	75,000	0.120 (per 1,000 sq ft.)	9	9	18
Total			**77**	**77**	**153**

SOURCE: MERCED CITY SCHOOL DISTRICT DEVELOPMENT FEE JUSTIFICATION STUDY, 2022. PAGE C-2, TABLE C-1. DE NOVO PLANNING GROUP, 2024.

TABLE 3.14-5: MERCED UNION HIGH SCHOOL DISTRICT POTENTIAL STUDENT GENERATION

RESIDENTIAL	TOTAL APPLICABLE UNITS		STUDENT GENERATION FACTOR		POTENTIAL NEW HIGH SCHOOL STUDENTS
Multiple-Family Development	328		0.1973 per unit		65
COMMERCIAL	**DEVELOPMENT SQUARE FOOT**	**EMPLOYEES PER AVERAGE SQUARE FOOT**	**TOTAL POTENTIAL EMPLOYEES**	**STUDENT GENERATION FACTOR**	**POTENTIAL NEW HIGH SCHOOL STUDENTS**
Community Shopping Center Development	30,000	0.00153	46	0.1533 per employee	7
Lodging (Hotel Development)	75,000	0.00113	85	0.1533 per employee	13
Total					**85**

SOURCE: MERCED UNION HIGH SCHOOL DISTRICT 2024 DEVELOPER FEE JUSTIFICATION STUDY, 2024. PAGE 5. TABLE 3. DE NOVO PLANNING GROUP, 2024.

The combined potential students generated by the UC Villages Project for the Merced City School District is 153 including both commercial and residential developments. Elementary schools could see 77 potential students and middle schools could also see 77 potential students. The current and projected enrollment for Givens Elementary, as well as the student capacity, from Table 3.14-2 shows that the additional potential 77 students would not lead to the school be beyond its student capacity with the

inclusion of potential students from the UC Villages Project. The current and projected enrollment for Cruickshank Middle School, as well as the student capacity, from Table 3.14-2 shows that the additional 77 students would not lead to the school be beyond its student capacity with the inclusion of potential students from the UC Villages Project.

The combined students generated by the UC Villages Project for the Merced Union High School District is 85 including both commercial and residential developments. The most recent reports by Merced Union High School District do not generally breakdown its student capacity projections by specific schools. However, the District does identify the student capacity for El Capitan High School, the closest high school to the proposed Project site.[17] As of 2022, there were 1,847 students with a campus capacity of 2,000 students. With the projected 85 potential students that could be generated by the UC Villages Project, El Capitan High School's student population would increase to 1,932 students. This potential increase would not lead to the school being beyond its student capacity with the inclusion of potential students from the UC Villages Project. Therefore, the impact to schools would be ***less than significant***.

LIBRARY SERVICES AND CULTURAL FACILITIES

For library services and other community-oriented services and facilities, the proposed Project site is not near either the Merced County Library System's main library, the quasi-public library located at Merced College, nor notable community-oriented facilities. It is, however, directly adjacent to the University of California, Merced. Despite the inability of members of the public to borrow library materials for free, there is the possibility for them to pay a fee if they desire. Given the fee attached to borrowing library materials, it is unlikely this development will significantly impact the operations at UC Merced. Despite the distance between the UC Villages proposed site and existing public amenities, it is not an outlier among development within other Rural-Residential (R-R) land within the Bellevue Corridor Community Plan, or various suburban neighborhoods. The relative distance residents or users of the Project site would need to travel to access these amenities is not significantly different compared to other neighborhoods outside of the urban center of Merced. For the reasons stated above, the Project would not result in substantial adverse impacts on existing government facilities oriented for community use, nor would it significantly impact the existing capacity of these facilities. Therefore, the impact on library services and cultural facilities would be ***less than significant***.

Overall, the UC Villages Project is consistent with relevant City documents and would fit into the existing conditions and projected growth for police protection services, fire protection and emergency services, local public school systems, and library services and cultural facilities. Therefore, the proposed UC Villages Project would have a ***less-than-significant impact*** on these services. No 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

[17] Merced Union High School District, 2022. Merced Union High School District Long Range Facility Master Plan. Page 4-21.

environmental impacts, would occur in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.14-2: Implementation of the Project would not result in a substantial 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. (Less than Significant)

The proposed Project would have recreational amenities including, but not limited to, work/study areas, a fitness center, areas of recreational activities such as cornhole, bocce ball, pickleball, bike repair stations, and/or a recreational pool, as well as open green spaces. It is anticipated that at least half of the expected Project population, approximately 2,100 people total, would be students at UC Merced, Merced College, or other higher learning institutions. Those campuses each have their own indoor and outdoor recreation areas which could be accessed by residents of the proposed Project.

The closest public parks near the Project site are Davenport Park (7.5 acres), Bob Carpenter Park (5.99 acres), Fahrens Park (47.62 acres), and Rahilly Park (28.91 acres). When considering these four parks as the most accessible to the potential new residents from the mixed-use developments at the UC Villages, there is a total area of 90.02 accessible park acres. Additionally, the site is close to Yosemite Lake and its multiple recreational areas, providing a wide range of recreational opportunities for the potential residents of the UC Villages Project.

Due to the abundance of recreational opportunities near the Project site, implementation of the proposed Project would not result in a substantial 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. Therefore, the impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

Impact 3.14-3: Implementation of the Project would not include recreational facilities or require the construction or expansion of recreational facilities

which might have an adverse physical effect on the environment. (Less than Significant)

The UC Villages Project includes 700 proposed residential units, which will increase the City's overall population and affect the ratio of parkland to residents. With an average household size of 3.0 people,[18] it is projected that the 700 proposed housing units in the UC Villages Project could potentially generate up to 2,100 new residents for the City of Merced. The City of Merced Vision 2030 General Plan, Policy OS-03.1 states that 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.[19] Therefore, the proposed Project would generate a demand of 3.15 acres of community parks and 7.35 acres of neighborhood parks, resulting in 10.5 acres of total parkland required.

The proposed Project would have green, turf areas adjacent to the four amenity buildings onsite, and greenery and landscaping would be present throughout the site. Outdoor recreational space and landscaping would accompany each of the development phases. Plazas or hardscaped areas would also be provided. Approximately 17,360 square feet of residential amenity space would be provided, including clubhouses, pools, workout rooms, meeting rooms, and the like. The proposed Project would also include two detention basins that would serve as open space areas. No parks are proposed on the Project site, and the Project would not meet the City's requirement of 10.5 acres.

The City collects public facilities impact fees for parks from new development based upon projected impacts from the development, as addressed in Chapter 17.62 of the City's Municipal Code. The City also reviews the adequacy of impact fees on an annual basis to ensure that the fee is commensurate with anticipated future facilities demands, assessed on a fair share basis for new development. Additionally, Section 17.62.040 of the City's Municipal Code outlines the establishment of the public facilities impact fee, including fees that can be applied toward community park and recreation facilities, in lieu of parkland dedication. The project applicant would be required to pay the public facilities impact fee as determined by the City to address the parkland shortfall. Payment of the Project's public facilities impact fee would ensure that the City requirements are satisfied, resulting in a ***less-than-significant impact*** on recreational facilities.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.

[18] United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.
[19] City of Merced, 2012. The City of Merced Vision 2030 General Plan. Page 7-29.

CUMULATIVE IMPACTS

Cumulative setting would include all areas covered in the service areas of the Merced Fire Department, Merced Police Department, the City of Merced Parks and Community Services Department, the Merced City School District, the Merced Union High School District, and any other relevant public services.

Impact 3.14-4: Implementation of the Project, in combination with cumulative development, would not 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, or other public facilities. (Less than Significant)

This analysis evaluates whether the impacts of implementation of the proposed Project, together with the impacts of cumulative development, would result in a cumulatively significant impact with respect to police protection facilities, fire protection facilities, school facilities, library facilities, parks or recreational facilities, and other municipal services.

POLICE PROTECTION

The geographic context for the analysis of cumulative impacts related to police protection facilities includes the Merced Police Department service area, which comprises the City of Merced. A significant cumulative environmental impact would result if cumulative growth exceeds the ability of the Department to adequately serve its service area, thereby requiring construction of new facilities or modification of existing facilities.

Development of growth anticipated under the General Plan would increase the demand for law enforcement services, which could increase response times or result in the Department not reaching its service goals. In the event of an emergency, the Department would continue to receive mutual aid from additional police departments for which they have a mutual services agreement such as the Merced County Sheriff. Periodic evaluation of the Department's delivery system, station facilities, equipment, and staffing levels occurs to identify ways to improve efficiency and service (General Plan Implementing Actions 1.2.c and 2.1.a). Regular updates to the City's fee schedule and collection of the City's public facilities impact fee from new development would identify and provide financing tools to fund and maintain facility improvements that help to provide services adequate for development and growth (General Plan Policy P-1.3 and Implementing Actions 1.3.a, 1.3.b, and 1.3.c).

The public services provided by the City of Merced are guided by the City of Merced Vision 2030 General Plan regarding construction, alteration, or growth in the capacity of all relevant departments. The City of Merced Police Department maintains adequate and efficient levels of protection and service to residents of Merced by dividing up their areas of operation into districts. This division occurs to ensure that officers

can maintain quick response times to all emergency calls, as well as maintain a working relationship with the communities it serves.

The division of the City into districts by the Police Department allows for scalability when new development and population growth increases the need for police protection services. Police service districts should be sized to promote community-based policing concepts and to maintain sufficient personnel to promote crime prevention and to combat criminal activity (General Plan Implementing Action 2.1.a). The City of Merced Vision 2030 General Plan recognizes this and outlines potential areas of growth for the Department. These areas of growth include: identifying potential sites for new stations, adding additional equipment and staff, adjusting routes and districts to accommodate response time standards. These areas of potential growth are based off projections within the City of Merced Vision 2030 General Plan, the City's SUDP, and the City's SOI.

Therefore, cumulative development could be served by the existing police facilities in the city, and no new facilities would be required. Therefore, the cumulative impact would be ***less than significant***.

FIRE PROTECTION

The geographic context for the analysis of cumulative impacts related to fire protection services includes the Merced Fire Department service area. A significant cumulative environmental impact would result if this cumulative growth exceeded the ability of the Merced Fire Department to adequately serve its service area, thereby requiring construction of new facilities or modification of existing facilities.

Implementation of General Plan policies would ensure the adequacy of service by monitoring service areas. Fire stations should be located so that no development within the City is located outside the primary response time objectives (4 to 6 minutes, at least 90 percent of the time) for at least one fire station (Implementing Action 2.1.b). Periodic evaluation of the Department's delivery system, station facilities, equipment, and staffing levels occurs to identify ways to improve efficiency and service (General Plan Implementing Actions 1.2.c and 2.1.a). Firefighting equipment and companies of personnel should be sufficient in number and adequately distributed throughout the planning area in order to allow optimum response time to calls within the primary service areas of a fire station and to ensure prompt availability of additional companies for serious or simultaneous fires (General Plan Implementing Action 2.1.a). The City would provide fire facilities and related resources to support the Fire Department Facilities Master Plan and any subsequent updates (General Plan Implementing Action 2.1.f).

Cumulative growth in the City would maintain acceptable service ratios, response times, and other performative objectives related to fire protection such that development of a new or expansion of an existing station would not be required. Therefore, the cumulative impact on fire protection would be ***less than significant***.

SCHOOLS

The geographic context for the analysis of cumulative impacts related to school facilities includes the Merced City School District and Merced Union High School District. Regional growth resulting from past, present, and reasonably foreseeable projects would result in increased demand for additional school

facilities within the districts serving the City of Merced. Like development in Merced, the schools are expected to receive development impact fees from cumulative development. Developer payment of standard school impact fees would cover a fair share of any need for new or altered school facilities, and as provided by California Government Code Section 65996, the payment of such fees is deemed to fully mitigate the impacts of new development on school services.

As the City grows in population, the public schools anticipate relatively small growth year to year. With five high schools, five middle schools, 14 elementary schools, and one charter elementary school, there is sufficient capacity to accommodate the overall growth in Merced's student population that stays consistent with the projections laid out in the City of Merced Vision 2030 General Plan. Therefore, cumulative impacts to schools would be ***less than significant***.

LIBRARIES

The geographic context for analysis of cumulative impacts to library facilities within the Merced County Library System. A significant cumulative environmental impact would result if cumulative growth exceeded the ability of the Merced County Library System to adequately serve people within their service area, thereby requiring construction of new facilities or modification of existing facilities. Compliance with the General Plan would ensure that library services are expanded. All cumulative projects would be required to comply with City ordinances and other policies that address library facilities and services.

The City and County of Merced adopted a property tax sharing agreement in 1997 in which the County will receive a share of the tax increment from Redevelopment Project Area #2 specifically for library purposes.[20] The City of Merced Vision 2030 General Plan states that this tax sharing agreement produced roughly $8 million of dedicated library funds in the year 2014. This program helps ensure that the County Library System can adequately upscale its services and infrastructure to meet rising demands following development throughout the County. Therefore, the cumulative impact to library resources would be ***less than significant***.

PARKS AND RECREATION

The geographic context for the analysis of cumulative impacts of parks and recreational facilities includes those located within the City boundary. A significant cumulative environmental impact would result if this cumulative growth resulted in an increase in the use of existing parks and recreational facilities, such that substantial physical deterioration of the parks or recreational facilities would occur, be accelerated, to require the construction of new parks and recreational facilities or modification of existing parks and recreational facilities.

The City's parkland standard is the provision of 5.0 acres of overall parkland, 1.5 acres of community parkland and 3.5 acres of neighborhood parkland per 1,000 residents. The City's current ratio is approximately 2.7 acres per 1,000 residents. This does not meet the current standard that is required by

[20] City of Merced, 2012. The City of Merced Vision 2030 General Plan. Page 5-15.

the City of Merced Vision 2030 General Plan. The City of Merced will need to increase the number of public parks throughout the City or expand existing facilities to increase the ratio of park acres per 1,000 residents to meet existing standards.

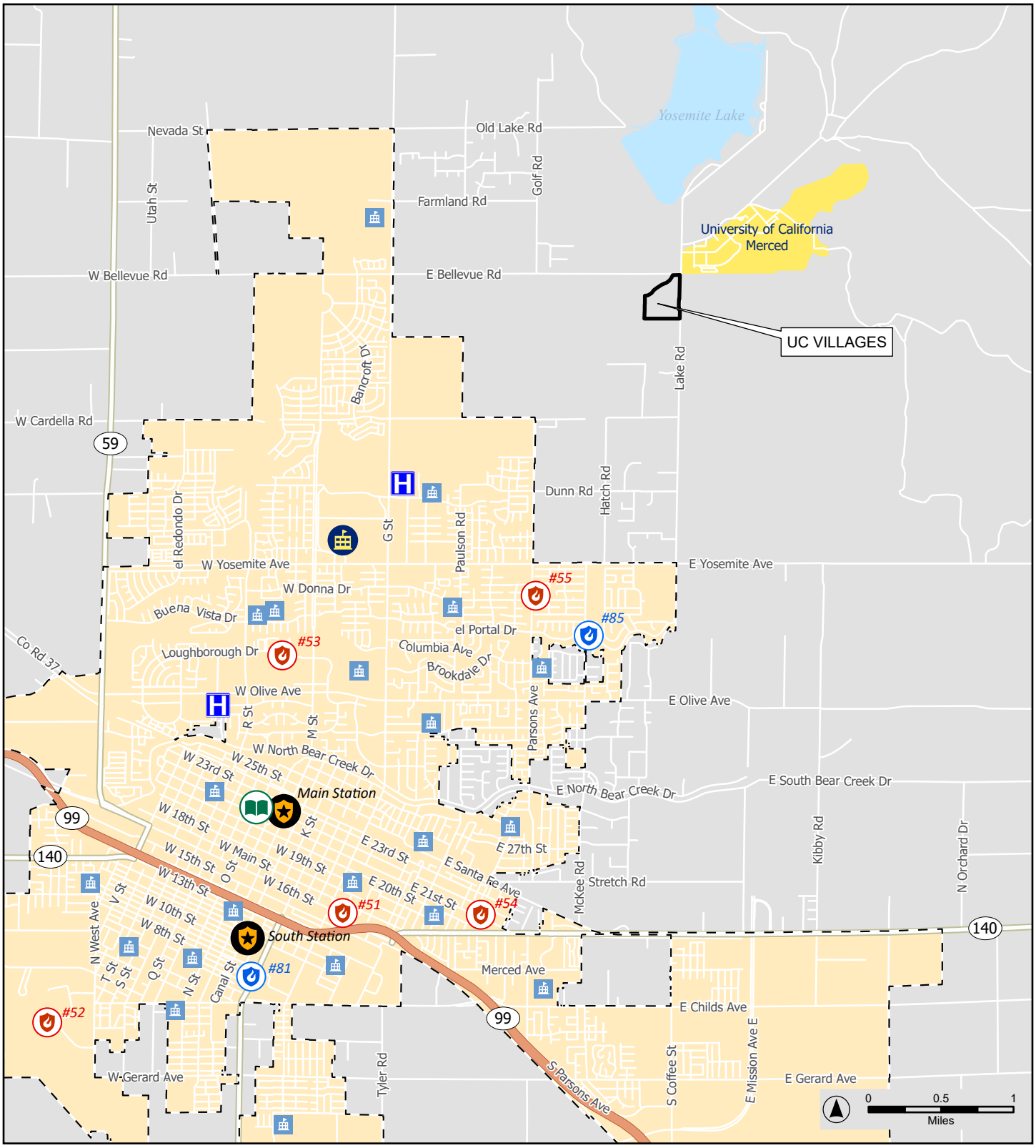
The Merced Parks and Open Space Master Plan identifies existing park facilities and future needs such that the development of additional facilities can grow with the City's population (General Plan Implementing Action 3.1.a). Compliance with the Parks and Open Space Master Plan, development of pipeline parks identified in the Parks and Open Space Master Plan, and adherence the policies set forth in the General Plan would ensure that adequate parks and recreation facilities are provided as new development comes online. Future development would be required to contribute to acquisition or development of adequate parks and recreational facilities through dedication of parkland or pay in-lieu fees (General Plan Policy OS-3.1 and Implementing Action 3.1.e). Therefore, the cumulative impact to parks and recreation facilities would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant.

MITIGATION MEASURE(S)

None Required.



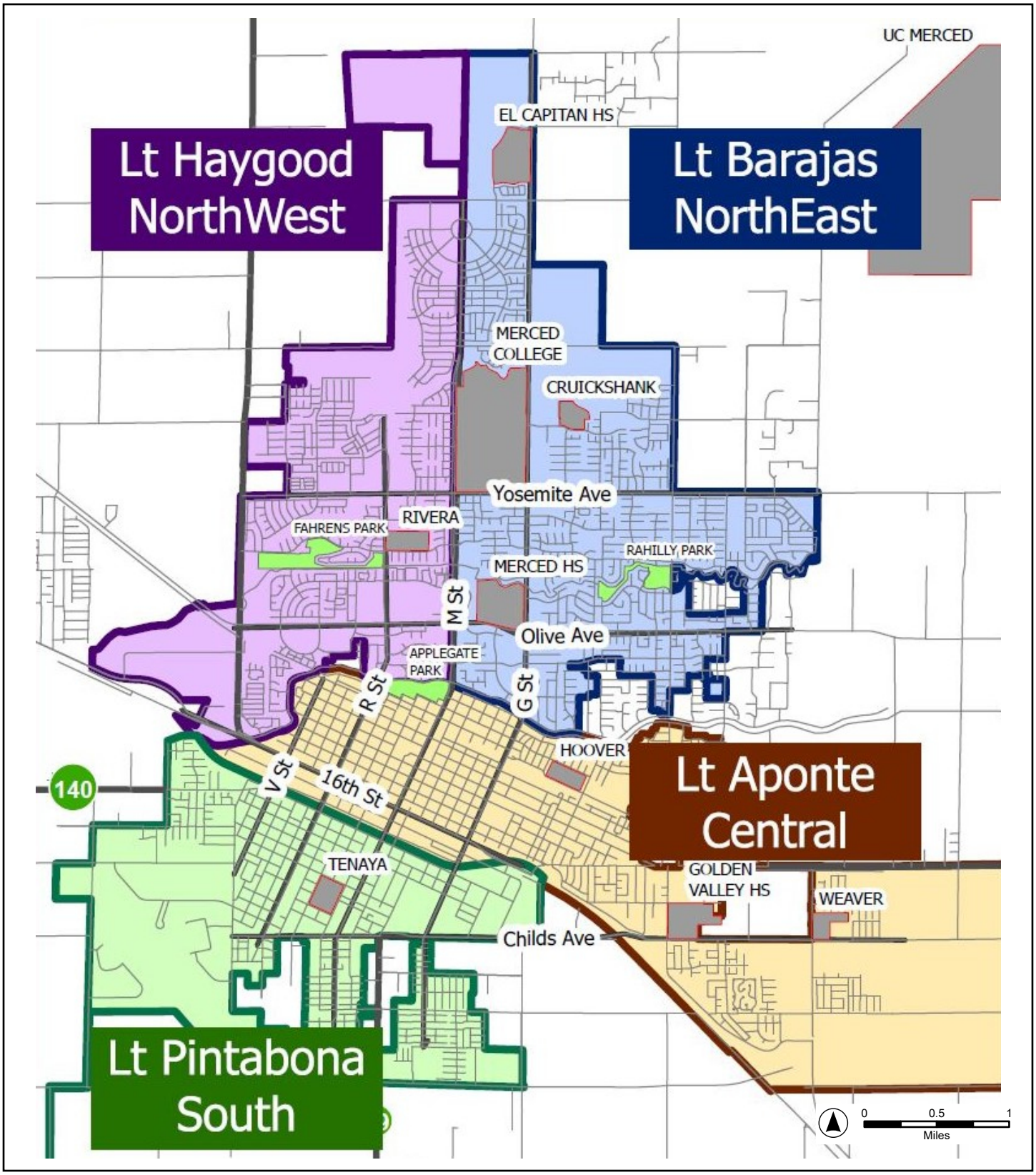
Legend

- Project Boundary
- City of Merced
- Police Station
- City of Merced Fire Station
- Merced County Fire Station
- Hospital
- Merced County Main Library
- Merced College
- Public School (Elementary, Middle, High)

UC VILLAGES

Figure 3.14-1. Community Service Facilities

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; Google Maps. Map date: October 14, 2024.



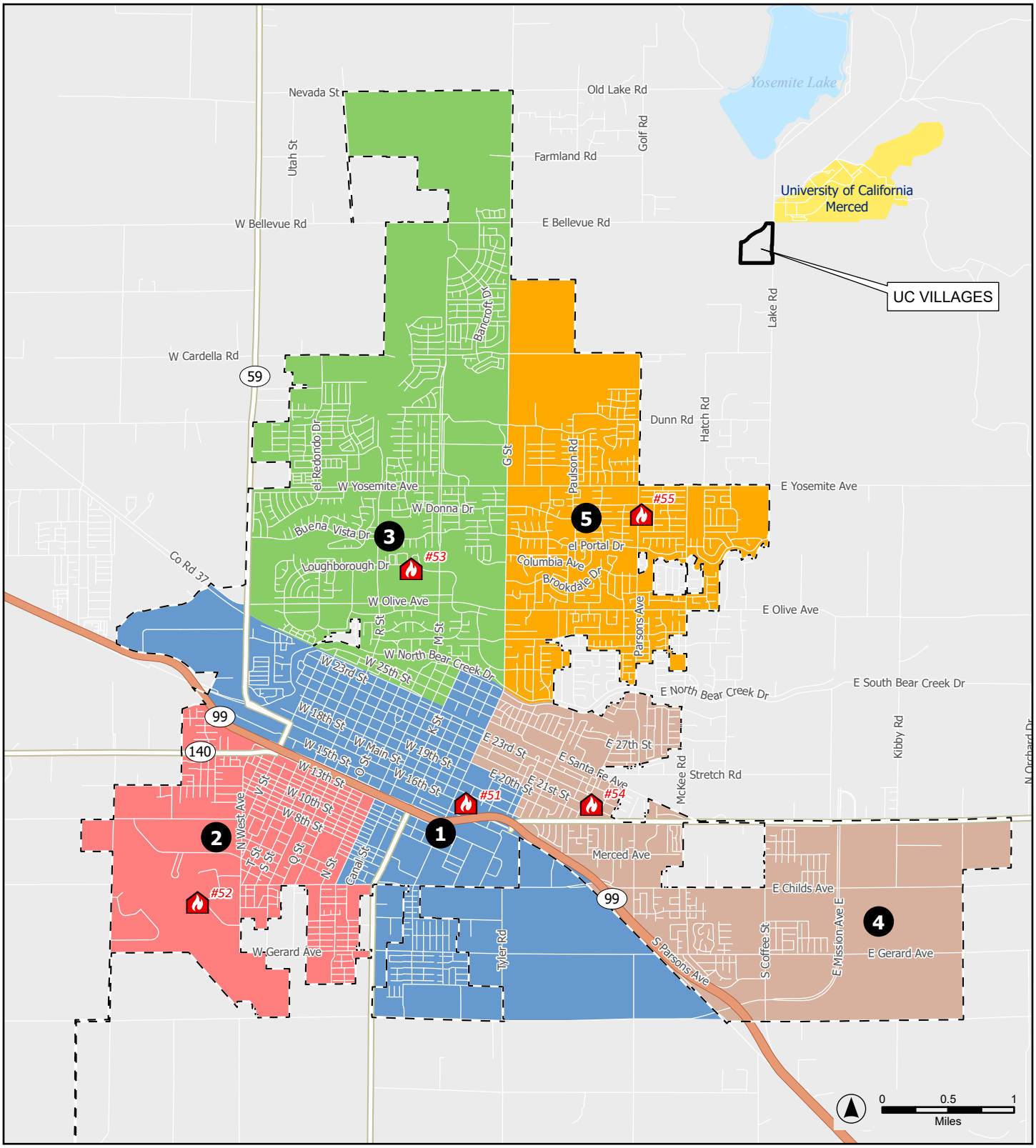
Legend

- Northwest - Lt. Haygood
- Northeast - Lt. Barajas
- Central - Lt. Aponte
- South - Lt. Pintabona

UC VILLAGES

Figure 3.14-2. Police Areas of Command

Sources: City of Merced Police Department, cityofmerced.org/departments/police/areasofcommand. Map date: October 14, 2024.



Legend

- Project Boundary
- University Lands
- City of Merced
- City of Merced Fire Station

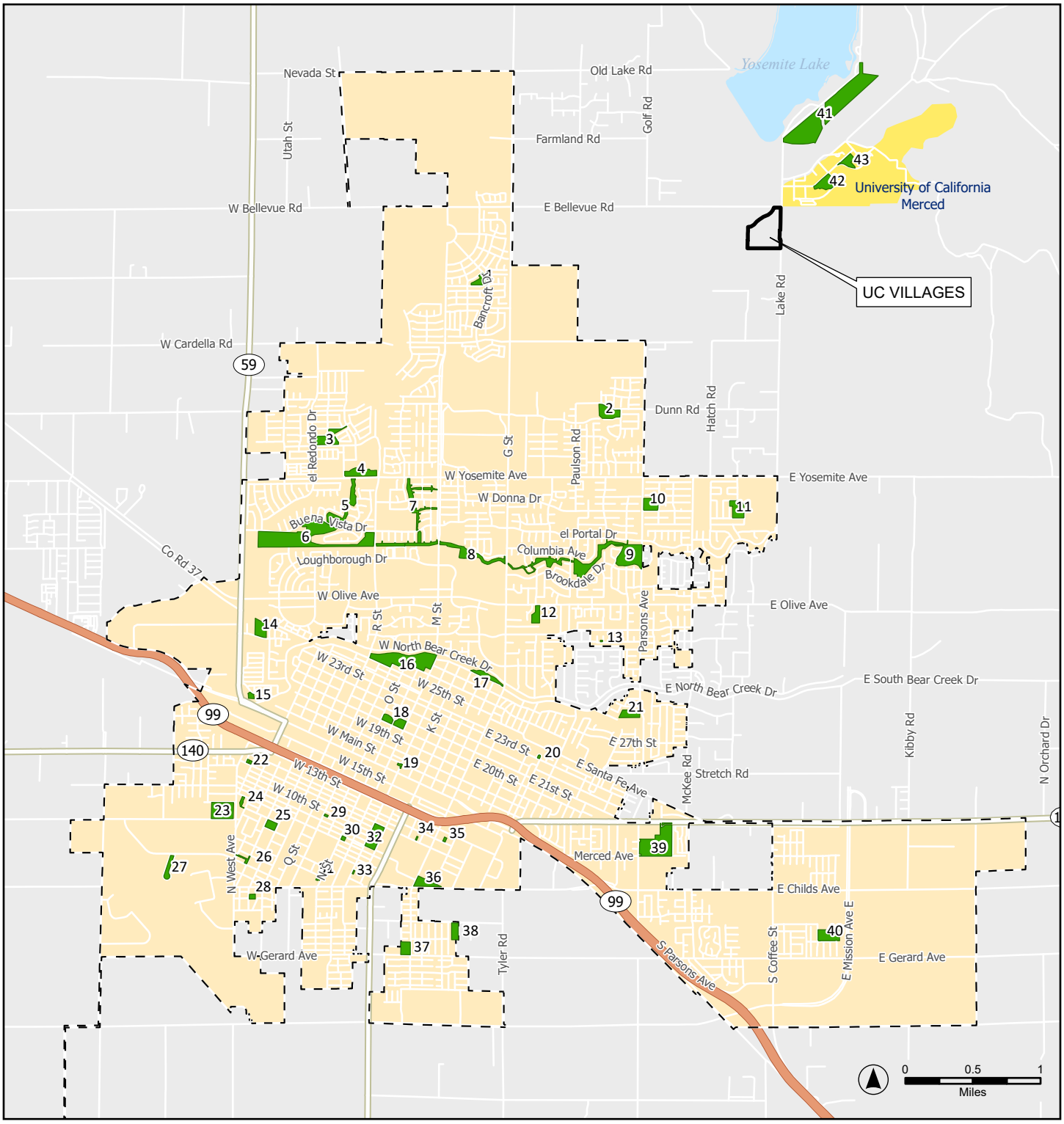
Fire Department Districts

- District 1
- District 2
- District 3
- District 4
- District 5

UC VILLAGES

Figure 3.14-3. City of Merced Fire Department Districts

Sources: City of Merced Fire Department, cityofmerced.org/departments/fire/district-map. Map date: October 14, 2024.



Legend

- Project Boundary
- University Lands
- City of Merced
- # Park

Park Key

1-Elmer Murchie Park
2-Davenport Park
3-Merino Park
4-Merced Dog Park
5-Fahrens Park (Old)
6-Fahrens Park
7-Santa Fe Strip Park
8-Black Rascal Cr Bikeway
9-Rahilly Park
10-Bob Carpenter Park
11-Bernasconi Park
12-Burbank Park
13-Hansen Park
14-Carolo Gabriault Park
15-Steven Gray Park
16-Applegate Park
17-Bear Creek Strip Park
18-Courthouse Square
19-Bob Hart Square
20-Circle Drive Park
21-Ada Givens Park
22-Dennis Chavez Park
23-Youth Sports Complex
24-Fredrick Douglas Park
25-Stephen Leonard Park
26-Banneker Memorial Park
27-Macready Park
28-Garrison Park
29-Diego Rivera Park
30-Drew Park
31-Harriet Tubman Park
32-McNamara Park
33-Veasley Family Park
34-11th Street Park
35-12th Street Park
36-Macias Park
37-Brooks Park
38-Flanagan Park
39-Joe Herb Park
40-Dwight Amey Park
41-Yosemite Lake Regional Park
42-Kelley Grove
43-Keasey Quad

UC VILLAGES

Figure 3.14-4. Parks

Sources: City of Merced Parks & Recreation, GreenInfo Network, California Protected Areas Database (CPAD) 2024a; Google Maps. Map date: October 15, 2024.

This section describes the regulatory framework and existing conditions for the UC Villages related to transportation, and the potential transportation-related impacts of the proposed Project. This chapter will describe the transportation and circulation implications of project implementation, addressing roadways, transit, pedestrian, and bicycle access, potential Vehicle Miles Traveled (VMT) impacts, design- or incompatible use hazards, and adequacy of emergency access.

Sources used in the preparation of this chapter include the Vehicle Miles Traveled (VMT) Analysis prepared by TJKM Transportation Consultants (July 2024). The VMT analysis for the UC Villages project is included as Appendix E of this EIR. In addition, local planning documents were referenced including *Draft 2030 Merced County General Plan Environmental Impact Report*, *2030 Merced County General Plan*, *Environmental Impact Report for the Merced Vision 2030 General Plan*, the *City of Merced Vision 2030 General Plan*, and the Merced County Association of Governments (MCAG) *VMT Thresholds and Implementation Guidelines.*

One comment letter referencing transportation was received on the Notice of Preparation (NOP). The San Joaquin Valley Air Pollution Control District (SJAPCD) noted that the proposed Project may use heavy trucks to supply the commercial portion of the proposed Project, and a review of truck routes is requested. SJVAPCD Rule 9410 (Employer Based Trip Reduction) may be applicable if the proposed Project would result in employment of 100 or more "eligible" employees.

3.15.1 ENVIRONMENTAL SETTING

The UC Villages project site is located in unincorporated Merced County, to the northeast of the City of Merced's city limits. The site is at the southwestern corner of the Bellevue Road and Lake Road intersection. The project site is bounded by existing Bellevue Road, ranchette parcels, vacant land, the Merced Irrigation District (MID) Yosemite Lateral and the future University Vista Project to the north; Lake Road and the University of California, Merced (UC Merced) parking lot (Bellevue Lot) to the east; open vacant land parcels designated Mixed Use and Low Density to the south; and existing Los Olivos Road, ranchette parcels, and the MID Yosemite Lateral to the west. The project site is 35.86 acres and is comprised of APNs 060-590-016, -017, -019, -025, -026, and 060-020-016. These six parcels would be annexed to the City of Merced. Development of the UC Villages urban uses would occur only on five of those parcels (excludes APN 060-590-026) and comprises 34.18 acres. The project site is within the Bellevue Community Plan area.

The UC Villages Master Plan provides for internal circulation areas and points of access to surrounding roadways, such as Bellevue Road, Lake Road, Mandeville Lane, and Los Olivos Road. The existing and currently planned roadway, transit, bicycle, and pedestrian transportation systems within the study area are described below.

Roadway System

The existing roadway system near the Project is described below:

State Route 99 (SR 99), or "Golden State Highway," is a four-lane freeway that runs along the Central Valley in a north-south direction. The roadway connects the City of Merced with other significant destinations in the region, including Atwater, Livingston, Modesto, Fresno, Bakersfield, Stockton, and

Sacramento. UC Merced and the proposed Project would be accessible to regional traffic from SR 99 via Campus Parkway. The posted speed limit is 65 miles per hour (mph).

State Route 140 (SR 140), or "Central Yosemite Highway," is a two-lane state highway that runs through the San Joaquin Valley between Interstate 5 (I-5) and Yosemite National Park in an east-west direction. The roadway connects UC Merced and the proposed Project with I-5, Yosemite National Park, and communities in between including Gustine, Planada, and Mariposa. The posted speed limit is 55 mph near the intersection with Campus Parkway and various from 40 mph to 45 mph within the City of Merced.

Campus Parkway is a four-lane expressway that extends from SR 99 to Yosemite Avenue east of the City of Merced in a north-south direction. Campus Parkway is planned by the Merced County Association of Governments to be part of a "Merced Loop System" of expressways (including the Atwater-Merced Expressway) that would connect to the City of Atwater, Merced-Castle Airport, UC Merced, and areas north, east, and south of the City of Merced. Campus Parkway currently provides regional traffic from SR 99 and SR 140 with quick access to UC Merced and the proposed Project via Lake Road. On-street parking is not permitted. The posted speed limit is 55 mph.

G Street is a two- to four-lane arterial that bisects the City of Merced in a north-south direction. The roadway widens to four lanes from 13th Street to approximately 500 feet north of Mercy Avenue/Community College Drive, and north of Cardella Road. G Street provides roadway users from UC Merced and the proposed Project with access to residential and commercial areas in Merced, including downtown. On-street parking is not permitted. The posted speed limit is 55 mph north of Yosemite Avenue, 45 mph from Yosemite Avenue to Olive Avenue, and 40 mph south of Olive Avenue.

Yosemite Avenue is a two- to four-lane arterial that runs in the northerly half of the City of Merced in an east-west direction. The roadway provides traffic from UC Merced and the proposed Project access to residential and commercial developments in the northern part of the City. Yosemite Avenue additional connects Lake Road with Campus Parkway. On-street parking is not permitted. The posted speed limit is 50 mph.

Olive Avenue is a two- to four-lane arterial that runs in the northern portion of the City of Merced in an east-west direction. Similarly to Yosemite Avenue, roadway provides traffic from UC Merced and the proposed Project access to residential and commercial developments in the northern part of the City. On-street parking is present on both sides on some portion of the roadway. The posted speed limit is 40 mph.

Bellevue Road is a two-lane arterial that runs in an east-west direction in the north planning area of the City of Merced. The roadway is within the City of Merced limits from G Street to approximately 2,550 feet west of M Street. Bellevue Road extends from UC Merced and the proposed Project to Fox Road near Merced-Castle Airport and connects to SR 59 in between. The roadway is planned to be the northern portion of the Merced Loop System. On-street parking is not present. The posted speed limit is 55 mph.

Lake Road is a two-lane collector that extends in a north-south direction from Yosemite Avenue to the east shore of Yosemite Lake north of UC Merced. The roadway is within the City's north planning area and provides roadway users from the City, SR 99, and SR 59 via Campus Parkway with access to UC Merced and the proposed Project. On-street parking is not permitted. The posted speed limit is 55 mph.

Cardella Road is a four-lane arterial that runs in an east-west direction from G Street to Freemark Avenue. The roadway serves residential developments in the northern portion of the City. The roadway is planned for extension from G Street east to Lake Road. On-street parking is not permitted. The posted speed limit is 40 mph.

Golf Road is a two-lane collector that runs in a north-south direction. The roadway serves rural residential neighborhoods north of Bellevue Road in the north planning area of the City. The roadway is planned to be extended south to Gardner Avenue as a minor arterial. The roadway provides travelers from UC Merced and the proposed Project access to developments north and south (in the future) of Bellevue Road. On-street parking is not present. No posted speed limit is present.

Scholars Lane is a two-lane local roadway that runs in the east-west direction through the western portion of UC Merced. The roadway provides access to the facilities at UC Merced for travelers from the proposed Project. On-street parking restrictions are present. The posted speed limit is 25 mph.

Pedestrian System

Walkability is defined as the ability to travel easily and safely between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal "walkable" community includes wider sidewalks, a mix of land uses such as residential, employment, and shopping opportunities, a limited number of conflict points with vehicle traffic, and easy access to transit facilities and services.

Pedestrian facilities consist of marked crosswalks, concrete sidewalks, pedestrian signals, and off-street paths that provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreational facilities.

In the Project site's vicinity, pedestrian facilities are currently present only on the UC Merced campus. Concrete sidewalks or asphalt paths are present along most roadways on both sides. Concrete curb cuts with colored tactile textured surfaces, marked crosswalks, and countdown pedestrian signal heads are present at signalized intersections. Unsignalized intersections generally concrete curb cuts with colored tactile textured surfaces and marked crosswalks.

No pedestrian facilities currently exist west of Lake Road. Existing frontage and outlying pedestrian facilities are shown in **Figure 3.15-1** and **Figure 3.15-2.**

Bicycle System

Bicycle paths, lanes, and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the following four classes:

- **Class I (Multiuse Trail)**: A completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- **Class II (Bike Lane)**: A designated lane for the exclusive use or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited but with vehicle parking and cross-flows by pedestrians and motorists permitted.

- **Class III (Bike Route)**: A route designated by signs or pavement markings and shared with pedestrians and motorists.
- **Class IV (Separated Bikeway)**: An on-street facility reserved for use by bicyclists with physical separation between the bikeway and travel lanes. Physical separation consists or vertical elements that may include curbs, landscaping, bollards, or parking lanes.

Within the Project site's vicinity, a Class I multi-use trail currently extends on the east side of Lake Road from Lake Yosemite County Park to Yosemite Avenue. Additionally, Class II bike lanes are present along Bellevue Road from Lake Road to G Street.

Existing frontage and outlying bicycle facilities are shown in **Figure 3.15-3** and **Figure 3.15-4.**

Transit System

Transit service in the vicinity of the Project is provided by Merced County Transit, which operates under the brand name "The Bus." The Bus was founded in 1996 after a consolidation of four former local transit providers and is administered and governed by the Transit Joint Powers Authority for Merced County. The Bus provides fixed-route and demand response bus transit services throughout Merced County.

The Bus provides eight fixed-route scheduled bus routes in the City of Merced. Of the eight routes, the UC Merced Route provides direct service to UC Merced. The UC Merced Route connects UC Merced with the Merced Transportation Center in downtown Merced and serves additional points in the city in between.

Table 3.15-1 shows the operating hours and termini of the UC Merced Route. **Figure 3.15-5** shows existing transit facilities operating within the Project's vicinity.

TABLE 3.15-1: EXISTING BUS SERVICES

ROUTE	FROM	TO	WEEKDAYS		WEEKEND	
			OPERATING HOURS	HEADWAY (MINUTES)	OPERATING HOURS	HEADWAY (MINUTES)
UC Merced	Merced Transportation Center	UC Merced University Transit Center	6:10 a.m. - 8:02 p.m.	40	-	-

SOURCE: TJKM TRANSPORTATION CONSULTANTS, JULY 2024. TRAFFIC IMPACT STUDY

Proposed Access and Circulation

The UC Villages Master Plan provides for internal circulation areas and points of access to surrounding roadways, such as Bellevue Road, Lake Road, Mandeville Lane, and Los Olivos Road.

When UC Merced was annexed to the city on August 22, 2024, two roadways were also annexed to the as the "Road Strip" under AB 3312. Bellevue Road, between G Street and Lake Road, was annexed to the City. When the VST Specific Plan area was annexed to the City on October 16, 2024, Lake Road adjacent to the UC Merced campus and VST Specific Plan area was also annexed the City.

Bellevue Road is a major east-west arterial at the northern end of the city. According to the Bellevue Community Plan, Bellevue Road is classified as a Major Arterial with a right-of-way of 150 feet to 200 feet dependent on side access roads and would have signalized intersections at 1⁄4-mile intervals. Although the BCP indicates that Bellevue Road is planned for six (6) lanes with one- or two-way frontage roads, Bellevue Road would be built as a four (4) lane arterial with one- or two-way frontage roads based upon a current agreement between the Regents of the University of California and the City.

Lake Road is a north-south collector roadway within the County of Merced that begins at the E. Yosemite Avenue to the south and extends north towards Yosemite Lake, northwest of the UC Merced Campus. Lake Road is adjacent to the eastern boundary of the project site. Lake Road would eventually be part of Campus Parkway, a major expressway within the County that currently begins at State Route 99 (SR 99) and ends at E. Yosemite Avenue. The University is responsible for the design and funding the improvements of Campus Parkway to Bellevue Road. The proposed Project's circulation system would tie into the intersection of Bellevue Road and Lake Road, which is currently being designed by UC Merced.

Mandeville Lane would be developed in accordance with the BCP as a two-lane collector road that would connect from Lake Road to Los Olivos Road. According to the BCP, Mandeville Lane is classified as a "Transit Avenue," which is a recommended transit route that would accommodate one lane of traffic in each direction, bicycle lanes and a potential dedicated bus guideway. Los Olivos Road is located along the western boundary of the project site and would be improved to City of Merced Standards.

Los Olivos Road is currently a collector roadway servicing single-family dwellings to the west of the Master Plan area. In the future, Los Olivos Road would be a collector road connecting Bellevue Road with Mandeville Lane. There are no direct entries or egress points for private vehicles to/from Los Olivos Road.

An internal private roadway would be developed to allow access from Bellevue Road through the project site to an intersection at Mandeville Lane. Surface off-street parking facilities would be provided via each phase pursuant to the off-street parking requirements detailed in the proposed UC Villages Master Plan.

Proposed access to the project site would be provided via a driveway along Bellevue Road, two intersections along Lake Road, and Los Olivos Road. The two driveways along Lake Road would be located between the Commercial/Retail and Hotel uses (Phases 1 and 6) and at the intersection of Mandeville Lane and Lake Road. At Los Olivos Road, two driveways would be located at the northwest corner of the project site. As noted above, Mandeville Lane bisects the project site between Phases 3, 4 and 5.

The UC Villages project would also provide a bike-friendly community, consistent with the standards set forth in the City's General Plan. A Class I off-roadway bikeway is already anticipated along Bellevue Road, while project would construct a Class I bikeway on the new Mandeville Lane that would run east-west through the project site. The project would also construct Class II, on-roadway, separated (striped) bike lane along the internal private roadway connecting Bellevue Road through the project site to an intersection at Mandeville Lane. Bike racks would be strategically located onsite near amenity buildings, the hotel, and the Commercial area.

3.15.2 REGULATORY SETTING

The following section outlines the legal, regulatory, and planning framework that governs transportation and traffic analysis in the project area. Within the study area, the streets are currently under the County of Merced jurisdiction.

STATE

State Senate Bill 743

Signed into law in 2013, Senate Bill 743 (SB 743) updated the way transportation impacts are measured in California for new development projects. In accordance with SB 743 and the resulting changes to the CEQA Guidelines published by the Natural Resources Agency, local agencies may no longer use measures of vehicle delay, such as Level of Service (LOS), to quantify transportation impacts on the environment. VMT has been codified in the CEQA Guidelines as the most appropriate measure for measuring transportation impacts under CEQA. This change went into effect statewide on July 1, 2020. The technical guidance published by the Governor's Office of Planning and Research (OPR) recommends that local jurisdictions determine the significance threshold for transportation impacts based on local conditions.

California Department of Transportation

Caltrans is responsible for the planning, design, construction, and maintenance of all interstate freeways and State routes, setting design standards for State roadways that local governments may use. Caltrans requirements for traffic impact studies are outlined in their Guide for the Preparation of Traffic Impact Studies, focusing on the review of impacts on State highway facilities such as freeway segments, on- and off-ramps, and signalized intersections.

In May 2020, Caltrans adopted the VMT-Focused Transportation Impact Study Guide (TISG) for compliance with SB 743, replacing the 2002 guide for traffic impact studies, directing lead agencies on local land use projects. Caltrans TISG specifies that development projects meeting the screening criteria of the City's adopted VMT policy with a presumed less-than-significant VMT impact require justification for the exempt status, aligning with the City's VMT policy.

Projects not meeting screening criteria must include a detailed VMT analysis in the EIR, which should cover:

- VMT analysis according to the City's guidelines, indicating significant impact if automobile VMT per capita exceeds the threshold of significance based on city-wide or regional values for similar land use types. Mitigation for increasing VMT should be identified if necessary, with measures enforceable through permit conditions, agreements, or legally-binding instruments under the City's control.
- A schematic illustration of walking, biking, and auto conditions at the project site and study area roadways.
- Evaluation of the project's primary and secondary effects on pedestrians, bicycles, travelers with disabilities, and transit performance, including countermeasures and trade-offs from mitigating VMT increases. Access to pedestrian, bicycle, and transit facilities must be maintained.

REGIONAL

2022 Regional Transportation Plan/Sustainable Communities Strategy

The Merced County Association of Governments (MCAG) has prepared the Regional Transportation Plan (RTP) / Sustainable Community Strategy (SCS), which is a long-range planning document that provides the framework for investments in roads, freeways, public transit, bikeways and other ways people move around Merced County for the next 25 years. This policy document complies with State-mandated efforts to reduce greenhouse gases (SB375).

LOCAL

City of Merced

MERCED VISION 2030 GENERAL PLAN

The City of Merced Vision 2030 General Plan contains the following policies that are relevant to transportation systems near the Project site:

Transportation and Circulation Element

Policy T-1.2: Coordinate Circulation and Transportation Planning with Pertinent Regional, State and Federal Agencies.

Policy T-1.6: Minimize Adverse Impacts on the Environment from Existing and Proposed Road Systems.

Policy T-2.4: Encourage the Use of Bicycles.

Policy T-2.7: Maintain a Pedestrian-Friendly Environment.

BELLEVUE CORRIDOR COMMUNITY PLAN

The Bellevue Community Plan (BCP) contains the following goals and policies that are relevant to transportation systems:

Goal Area M-1. Streets and Roads

Policy M-1.4: In consideration of existing Rural Residential neighborhoods, the use of design features such as traffic calming, and street off-set designs should be utilized to minimize traffic impacts. Additionally, staff will evaluate and consider spacing collector roads every 1/3 mile along Bellevue Road between G Street and Golf.

Goal Area M-2. Bikes, Pedestrian, and Public Transit.

Policy M-2.4: Identify a suitable location for a bicycle boulevard.

CITY OF MERCED 2013 MERCED BICYCLE PLAN

The City of Merced 2013 Bicycle Transportation Plan (2013 BTP) 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. The 2013 BTP also enables the City of Merced to compete for state funds for bike-related improvements.

County of Merced

2030 MERCED COUNTY GENERAL PLAN

The 2030 Merced County General Plan contains the following goals and policies that are relevant to transportation systems near the Project site:

Circulation Element

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.

GOAL CIR-4. Maintain and expand a safe, continuous, and easily accessible bicycle and pedestrian circulation system.

Policy CIR-4.1: Bicycle and Pedestrian System (RDR/PSR). Encourage a complete, safe, and interconnected bicycle and pedestrian circulation system that serves both commuter and recreational travel, and provides access to major destinations within and between Urban Communities and cities. Prioritize Class I bicycle paths and separate trails between communities as part of the MCAG Regional Bikeway Plan. To the extent possible, use railroad and canal as right-of-way instead of streets to promote safety.

MERCED COUNTY REGIONAL BICYCLE TRANSPORTATION PLAN (2008)

The Merced County Regional Bicycle Transportation Plan provides a comprehensive long-range view for the development of an extensive regional bikeway network that connects cities and unincorporated areas countywide. With an approved Bicycle Transportation Plan, Merced County and local municipalities are eligible for bicycle project funding through the State Bicycle Transportation Account (BTA).

3.15.3 IMPACTS AND MITIGATION MEASURES

The potential impacts of the proposed Project on transportation and circulation were evaluated against the thresholds of significance described below. The project impacts and the proposed mitigation measures are listed below.

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines contains a checklist of potential environmental impacts that must be considered. Consistent with Appendix G of the CEQA Guidelines and thresholds of significance adopted by the governing jurisdictions, a significant impact would occur if the proposed Project would:

- Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

VMT Screening Criteria

The Merced County Association of Governments (MCAG) published the *VMT Thresholds and Implementation Guidelines*[1] for various jurisdictions within Merced County on September 2022. The *VMT Thresholds and Implementation Guidelines* document includes screening criteria that describe proposed project attributes that presumably would produce less-than-significant VMT impacts. Proposed projects that include the attributes described in the screening criteria are thus exempt from VMT analyses.

The screening criteria include the following project attributes:

- Within 0.5 miles of a transit priority area or a high-quality transit area and is consistent with the Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), has a floor area ratio (FAR) equal or greater than 0.75, does not provide an excessive amount of parking, or does not reduce the number of affordable residential units;
- Includes local-serving retail with a combined area of less than 50,000 square feet (sf);
- Results in an equal or net reduction in VMT may be considered to have less than significant VMT impact. A net reduction in VMT would occur if the land use proposed by the project would generate less VMT than the existing land use;
- Includes 100 percent affordable housing units;
- Generates fewer than 1,000 average daily trips (ADT) if consistent with a jurisdiction's General Plan, or generates fewer than 500 ADT if not consistent with a jurisdiction's General Plan;
- Is an institutional/government and public service uses that supports community health, safety and welfare (e.g., police stations, fire stations, government offices, utilities, public libraries, community centers, and refuse stations);

[1] Merced County Association of Governments (MCAG), 2022. VMT Thresholds and Implementation Guidelines. November.

- Is a local park, daycare center, student housing project on or adjacent to a college campus, local-serving gas station, bank, and/or K–12 public school;
- Within areas of low VMT.

Based on the above criteria, the proposed Project is not screened out, and thus requires a full VMT analysis.

Alternative Modes of Transportation

The proposed Project would have a significant impact on pedestrian facilities if its implementation would conflict with applicable or adopted policies, plans, or programs related to bicycle facilities or otherwise decreases the performance or safety of bicycle facilities.

The proposed Project would have a significant impact on bicycle facilities if its implementation would conflict with applicable or adopted policies, plans, or programs related to bicycle facilities or otherwise decreases the performance or safety of bicycle facilities. :

The proposed Project would have a significant impact on transit facilities if its implementation would conflict with a program, plan, ordinance, or policy regarding existing or planned transit facilities.

METHODOLOGY AND ASSUMPTIONS

A traffic analysis, as reported in the Traffic Impact Study (TIS), was prepared to identify potential impacts on transportation infrastructure due to the addition of traffic from the proposed Project. Analyses for Vehicle Miles Traveled (VMT) were conducted to determine the proposed Project's impacts on VMT, as required by CEQA Guidelines Section 15064.3.

VEHICLE MILES TRAVELED

For VMT forecasting, the latest version of the Merced County Council of Governments (MCAG) travel demand model (TDM) was obtained and the proposed Project was inserted into the travel analysis zone (TAZ) of the TDM where the Project is located.

The UC Merced Villages Project is located in TAZ #673 of the MCAG model. The Project is estimated to add 29,300 square feet of retail, 328 multi-family housing units, and 326 student housing units. **Table 3.15-2** shows the land use changes for the base year plus project scenario.

TABLE 3.15-2: LAND USE CHANGES IN THE MCAG TDM

TAZ	RETAIL (KSF)	HOTEL ROOMS	MULTI-FAMILY HOUSING UNITS	STUDENT HOUSING UNITS	TOTAL HOUSING UNITS
#673	+29.3	+200	+328	+326	+654

SOURCE: TJKM TRANSPORTATION CONSULTANTS, JULY 2024. TRAFFIC IMPACT STUDY

The results of the model run are shown in **Table 3.15-3**.

TABLE 3.15-3: MCAG TDM VMT RUN RESULTS UNDER 2015 BASE YEAR CONDITIONS

TAZ	BASE YEAR AVERAGE DAILY VMT PER RESIDENT IN TAZ (PER MCAG MODEL)	REGIONAL AVERAGE DAILY VMT (PER MCAG MODEL)[1]	VMT THRESHOLD: 14% BELOW REGIONAL AVERAGE DAILY VMT (PER MCAG MODEL)	BASE YEAR PLUS PROJECT AVERAGE DAILY VMT PER RESIDENT IN TAZ (PER MODEL RUN)
#673	7.90	8.67	7.45	7.25

SOURCE: TJKM TRANSPORTATION CONSULTANTS, JULY 2024. TRAFFIC IMPACT STUDY
NOTES: 1. THE REGIONAL AVERAGE IS THE VMT/RESIDENT VALUE OF THE TAZS COMPRISING MERCED COUNTY

Regarding the different types of housing coded in the model, a ratio of 2.73 population per multi-family housing unit and 4.00 students per student housing unit was used to calculate the final VMT/capita values extracted from the model.

The existing base year per resident VMT for TAZ #673 is 7.90. Adding the proposed Project into the model decreases the per-resident VMT in the TAZ from 7.90 to 7.25. The Project's VMT per-resident value is lower than the threshold value of 7.45.

IMPACTS AND MITIGATION

The potential adverse environmental impacts related to transportation and circulation that might arise from the implementation of a proposed Project. Impacts are assessed based on the stated thresholds of significance and methodology described above. Each impact is followed by recommended mitigation to reduce the identified impacts, if needed.

Impact 3.15-1: Implementation of the proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. (Less Than Significant)

The following discussion focuses on whether the proposed Project would result in impacts to existing or planned pedestrian facilities, bicycle facilities, or transit facilities and services within the project area or other plans, policies, or goals.

Bicycle and Pedestrian Facilities

A review of the site plan and Traffic Impact Study (July 2024) does not indicate the project would adversely impact existing or planned pedestrian facilities.

The City of Merced Municipal Code Section 18.32.060 ("Sidewalks") require sidewalks to be installed along all streets and may be required in other locations where sidewalks are deemed necessary by City standard. According to the proposed Project's site plan, concrete sidewalks are proposed along portions of Bellevue Road and Lake Road that run along the Project's frontage. Provided these concrete sidewalks are built to the standard designs of the City of Merced, the Project is not expected to conflict with applicable or

adopted policies, plans, or programs related to pedestrian facilities or otherwise decrease the performance or safety of pedestrian facilities.

The Circulation Element of the City of Merced General Plan shows an existing Class I pedestrian-bike path along Lake Road and existing Class II bike lanes along Bellevue Road in the project's vicinity. No additional bicycle facilities are proposed by the City near the Project site. According to the Project's site plan, the Project proposes a relocation of the existing Class I pedestrian-bike path along Lake Road to the east to accommodate roadway widening. Additionally, a Class I pedestrian-bike path is proposed along Bellevue Road near the Project site. Furthermore, Class III sharrows and bike racks are proposed on internal roadways and at locations within the Project site once constructed.

Based on the above, the proposed Project would not conflict with a program, plan, ordinance, or policy addressing pedestrian and cycling facilities, and the impact on bicycle facilities would be ***less than significant***.

Transit Facilities

Currently, the Route UC bus route operated by "The Bus" is the only transit service operating near the Project site. The nearest bus stop to the Project site is the University Transit Center, which is on the UC Merced campus approximately 950 feet to the west of the Project site. The proposed Project could increase transit demand by introducing new residents to the area, and providing retail and hotel uses which could be reached via transit. The proposed Project could nominally increase the demand for public transit service.

As the city and UC Merced campus continue to grow and roadway improvements are made in the Project vicinity, public transit service could be increased by The Bus. Challenges with achieving improved mobility in a region that is made up of both urban and rural areas will persist.[2] The City of Merced 2030 General Plan notes that Mandeville Lane offers the opportunity for direct public transit access eastward from M Street to UC Merced.[3] However, there are no current plans to change bus routes, add buses, or increase bus service in Merced. As the city continues to grow, the City, the Transit Joint Powers Authority for Merced County (operators of The Bus), UC Merced, and other applicable transit providers should coordinate to adjust transit frequencies and facilities to handle changes in transit demand near the Project's vicinity. Such adjustments could include the addition of bus routes or bus stops/shelters. The improvement or addition of transit facilities and service could help reduce overall VMT per capita within the city. The proposed Project would not adversely impact existing or planned transit facilities, and the impact on transit facilities would be ***less than significant***.

With these recommendations, the operations of the proposed Project would not conflict with a program, plan, ordinance, or policy addressing transit facilities and a ***less than significant*** impact would occur.

[2] Merced County Association of Governments (MCAG), 2023. Unmet Transit Needs, Analysis and Recommendations Report, FY 2023-2024. February. Page 5.

[3] City of Merced, 2012. Merced Vision 2030 General Plan. January. Page 4-20.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.15-2: Implementation of the proposed Project would not be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding Vehicle Miles Traveled (VMT). (Less than Significant)

A travel demand model run was conducted using assumptions summarized in the previous sections to identify the proposed Project's projected VMT per capita. According to the MCAG *VMT Thresholds and Implementation Guidelines* document, if a project is below the vehicle miles traveled (VMT) threshold, then there is no significant impact based on VMT. The regional average per resident is 8.67 VMT. The threshold of significance is 14 percent below the Regional Average for its VMT/Capita value, or 7.45 daily VMT. The residential portion of the proposed Project would have a 7.25 VMT per resident, as shown in Table 3.15-3. Therefore, VMT impacts resulting from the residential use would be ***less than significant***.

Page 5 of the MCAG *VMT Thresholds and Implementations Guidelines* document states "One or more of the following project attributes may be presumed to produce a less than significant VMT impact; such as a local serving retail project with a combined area of less than 50,000 square feet."[4] Since the retail portion of the proposed Project is under the local-serving retail threshold of 50,000 square feet, it is exempt from VMT thresholds analysis; therefore, VMT impacts resulting from the retail use would be ***less than significant***.

The hotel portion of the Project is considered as a serviced-oriented use which includes both visitors and employees. Therefore, for such projects, VMT per service population (population/users + employment) is recommended by MCAG as the VMT metric. The Merced County Average VMT per service population is 24.96 VMT.[5] The hotel use is within a low VMT/service population area as shown in Figure 6, VMT per Service Population Screening Map for Merced County, on page 16 of the MCAG *VMT Thresholds and Implementation Guidelines* document. Being within a low VMT/service population area means that the service population VMT is less than 21.47, which is 14 percent lower than the County average. Therefore, VMT impacts resulting from the hotel use would be ***less than significant***.

Implementation of the proposed Project would be consistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding Vehicle Miles Traveled (VMT) and the impact would be ***less than significant***.

4 Merced County Association of Governments (MCAG), 2022. VMT Thresholds and Implementation Guidelines. Page 5, November.

5 Merced County Association of Governments (MCAG), 2022. VMT Thresholds and Implementation Guidelines. Page 16, Figure 6. November.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.15-3: Implementation of the proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses. (Less Than Significant)

Proposed access to the Project site would be provided via a driveway along Bellevue Road, two new intersections along Lake Road, and Los Olivos Road. The two driveways along Lake Road would be located between the Commercial/Retail and Hotel uses (Phases 1 and 6) and at the intersection of Mandeville Lane and Lake Road. At Los Olivos Road, two driveways would be located at the northwest corner of the Project site. As noted above, Mandeville Lane bisects the Project site between Phases 3, 4 and 5. New intersections and driveways would be constructed in compliance with the City of Merced's Standard Designs, which specify the engineering and design requirements for roadways. The proposed site plan does not include any sharp curves, steep grades or complex intersections that would result in an increased hazard.

CONSTRUCTION ACTIVITIES

Construction activities associated with the proposed Project would include use of construction equipment, including vehicles removing or delivering fill material, bulldozers, and other heavy machinery, as well as building materials delivery, and construction worker commutes. The transport of heavy construction equipment to the site, haul truck trips, and construction worker commutes could affect the local roadway network.

The City of Merced has standardized procedures for the establishment of temporary construction work zones and traffic control plans. The City has incorporated the "Work Area Traffic Control Handbook" (WATCH)[6] as its guidance manual for maintaining worker safety within a temporary traffic control zone; establishing temporary construction plans including guidelines for traffic control and safety; typical work zone layouts for all types of temporary road, lane, and shoulder closures and detours; and work zone layouts for bike lane closures and intrusions. Compliance with the City's established standard procedures for construction traffic control plans would not increase hazards.

Based on the above, the proposed Project would not substantially increase hazards or result in incompatible uses, and the impact would be ***less than significant***.

[6] BNi Building News, 2024. WATCHBOOK: Work Area Traffic Control Handbook. Available at the City of Merced Engineering Department.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Impact 3.15-4: Implementation of the proposed Project would not result in inadequate emergency access. (Less Than Significant)

Assessing emergency access for a large site such as the proposed Project involves evaluating the design and infrastructure to ensure that emergency services (fire, police, and medical) can reach and operate within the site quickly and efficiently in case of emergencies. Key considerations and steps in the assessment process:

- Multiple Access Points: Ensure there are at least two access points to the subdivision to provide alternative routes for emergency vehicles in case one is blocked.
- Road Width and Turn Radius: Roads should be wide enough to accommodate large emergency vehicles, with adequate turn radii at corners and cul-de-sacs.
- Surface and Maintenance: Roads must be capable of supporting the weight of heavy emergency vehicles and maintained in good condition, including during construction phases.
- Fire Lane Designation: Designate and clearly mark fire lanes that are no-parking zones to ensure unobstructed access.
- Building Access: Buildings should have clear access for firefighters, including considerations for ladder access in multi-story structures.
- Ensure there are adequate provisions for emergency vehicles to turn around, especially in dead-end streets or cul-de-sacs, following the specific requirements of local emergency services.
- Ensure the site plan complies with all relevant local, state, and federal regulations regarding emergency access and services.

The proposed Project would provide site access from publicly accessible roadways. A new driveway along Bellevue Road and two new intersections along Lake Road would be provided. Further, the proposed Project would construct Mandeville Lane to connect Lake Road to a future connection at Los Olivos Road. These multiple access points would allow emergency services to access the project site. The proposed site plan does not include any cul-de-sac streets, but some streets would end at parking lots, which would have sufficient space for emergency vehicles to access onsite buildings and adjacent areas, and turn around large apparatuses.

The City of Merced has the following requirements related to access and circulation in the City of Merced Municipal Code Section 17.32, Fire Code:

- All-weather Surface Requirements: Required access roads from every building to a public street shall be all-weather hard-surfaced (suitable for use by fire apparatus) right-of-way not less than

22 feet in width as measured from the face of the curb. Such right-of-way shall be unobstructed and maintained only as access to the public street.

- Fire Access Road Specifications: Fire apparatus access roads shall have an unobstructed width of not less than 22 feet as measured from the face of the curb, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches.
- Obstruction Policies: Unobstructed access to fire hydrants shall be maintained at all times. The Fire Department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.

Compliance with the City's Municipal Code and the City's Standard Designs for roadways would ensure adequate emergency access, and the impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

CUMULATIVE IMPACTS

"Cumulative impacts," according to the CEQA Guidelines are significant effects resulting from the combination of two or more individual effects, which may stem from a single or multiple projects. These impacts compound or increase other environmental impacts. Cumulative impacts consider the environmental changes from the incremental impact of the project alongside other related past, present, and reasonably foreseeable future projects. The cumulative setting for this analysis is based on MCAG *VMT Thresholds and Implementation Guidelines* document.

Under cumulative conditions, pedestrian, bicycle, and transit facilities and services are anticipated to improve as more infrastructure comes online and currently rural areas in Merced are urbanized. Facilities such as sidewalks, bike lanes, trails, and multi-use paths are required elements of all projects, as outlined in the City of Merced's Standard Designs. Improved and expanded transit facilities will be provided as transit demand increases over time. Therefore, a cumulative impact to alternate modes of transportation would not occur, and there would be ***no impact***.

Impact 3.15-5: Implementation of the proposed Project, in combination with other cumulative development, would not be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding Vehicle Miles Traveled (VMT). (Less than Significant)

The discussion of VMT impacts associated with the proposed Project in Impact 3.15-2, above, is inherently a cumulative impact analysis because it addresses project-generated VMT based on an efficiency threshold that is aligned with long-term goals and relevant plans. As detailed under Impact 3.15-2,

implementation of the proposed Project would result in VMT below the established threshold, which is a reduction compared to a countywide average. As described above, according to the MCAG *VMT Thresholds and Implementation Guidelines* document, if a project is below the vehicle miles traveled (VMT) threshold, then there is no significant impact based on VMT. The threshold for Merced County is 14 percent below the Regional Average for its VMT/Capita value, or 7.45 daily VMT. The implementation of the proposed Project would be consistent with CEQA Guidelines Section 15064.3, subdivision (b) regarding VMT, and the cumulative VMT impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None Required.

Legend

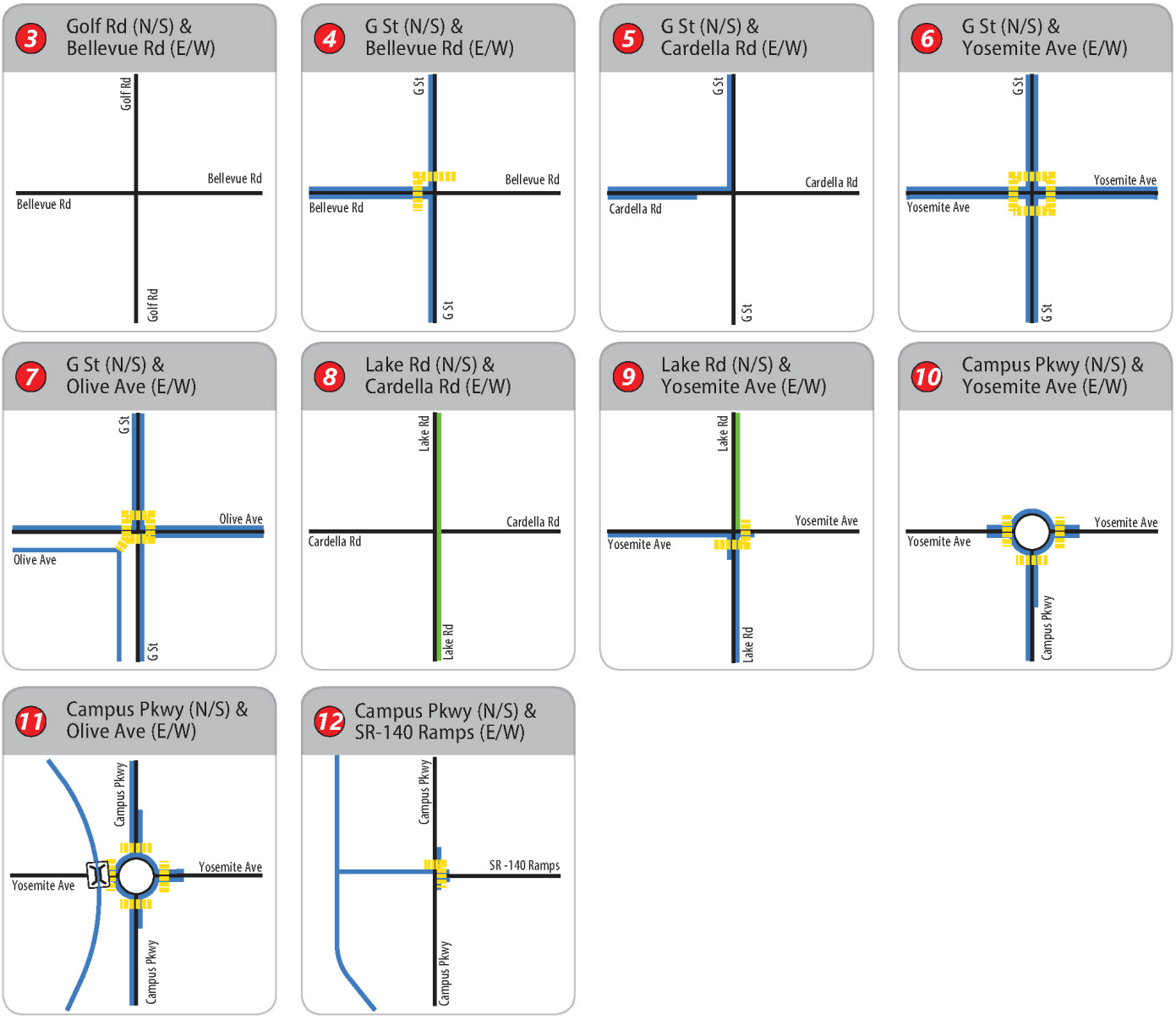
- Study Intersection
- Study Segment
- Concrete Sidewalk
- Class I Bike-Ped Path
- Marked Crosswalk

UC VILLAGES

Figure 3.15-1.

2024 Existing Project Frontage Pedestrian Facilities

Source: TJKM. Map date: August 7, 2024.



Legend

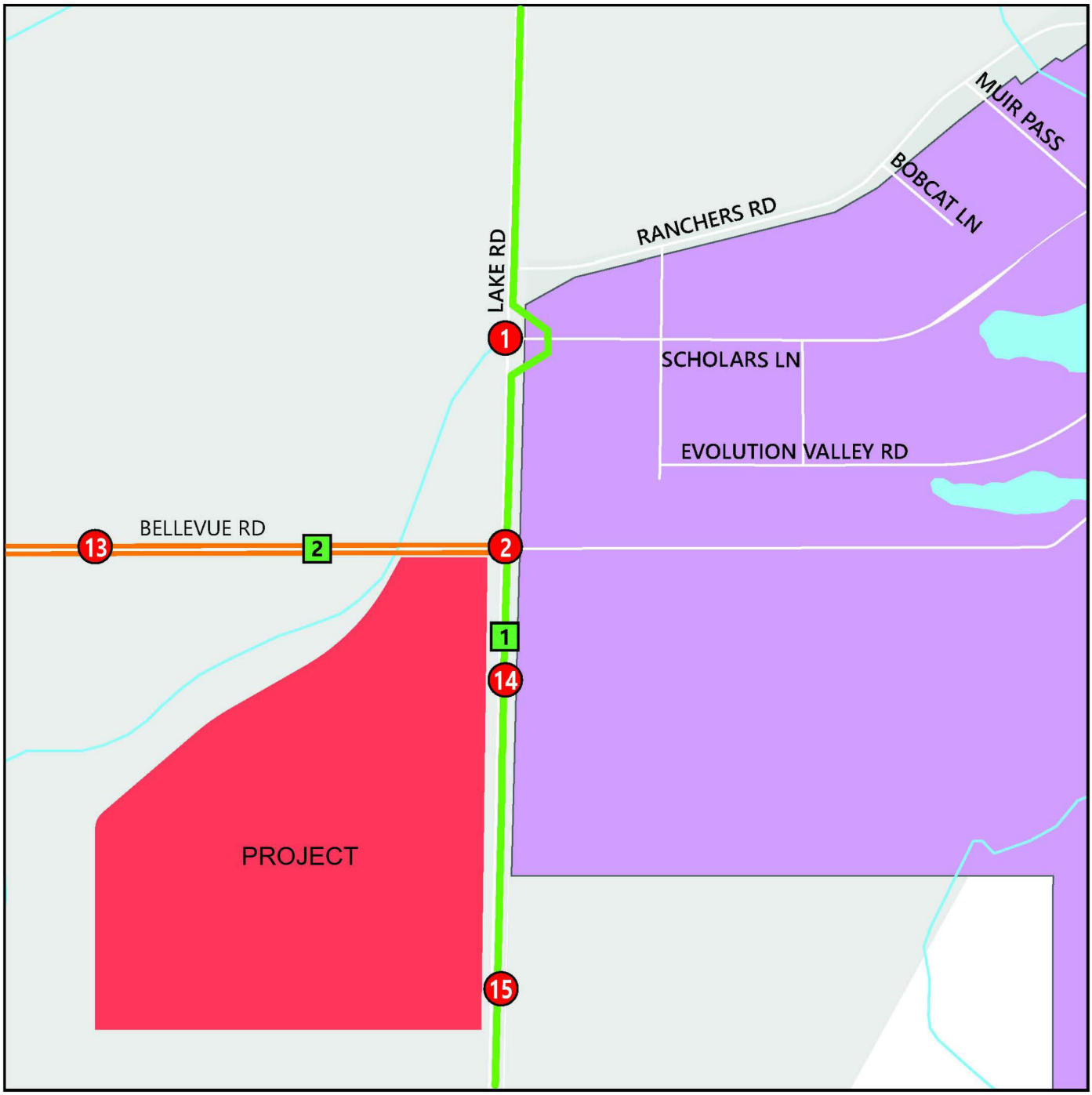
- Study Intersection
- Roundabout
- Pedestrian Crossing
- Concrete Sidewalk
- Class I Bike-Ped Path
- Marked Crosswalk

UC VILLAGES

Figure 3.15-2.

2024 Outlying Existing Pedestrian Facilities

Source: TJKM. Map date: August 7, 2024.



Legend

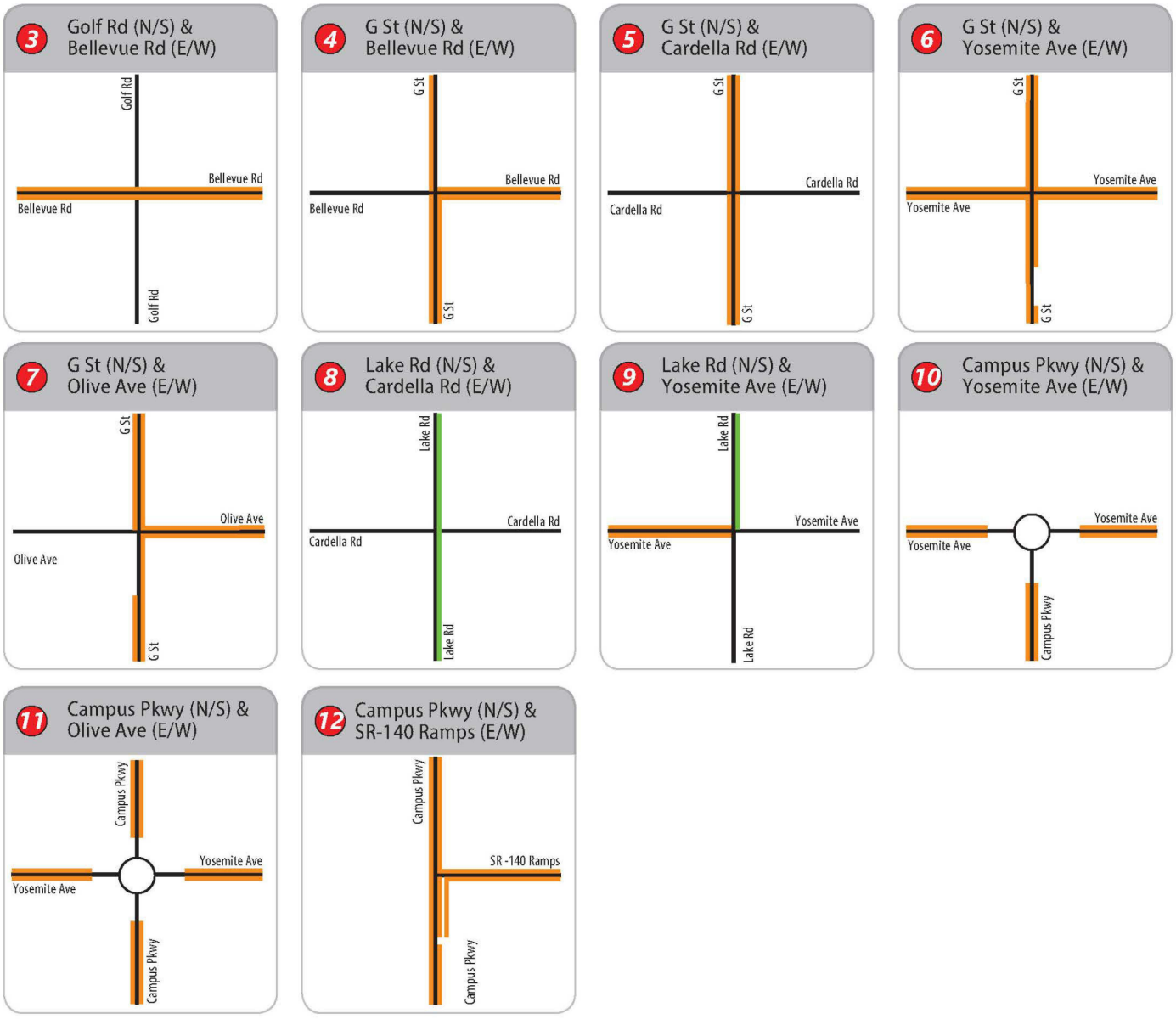
- X Study Intersection
- X Study Segment
- Class I Bike-Ped Path
- Class II Bike Lane

UC VILLAGES

Figure 3.15-3.

2024 Existing Project Frontage Bicycle Facilities

Source: TJKM. Map date: August 7, 2024.



Legend

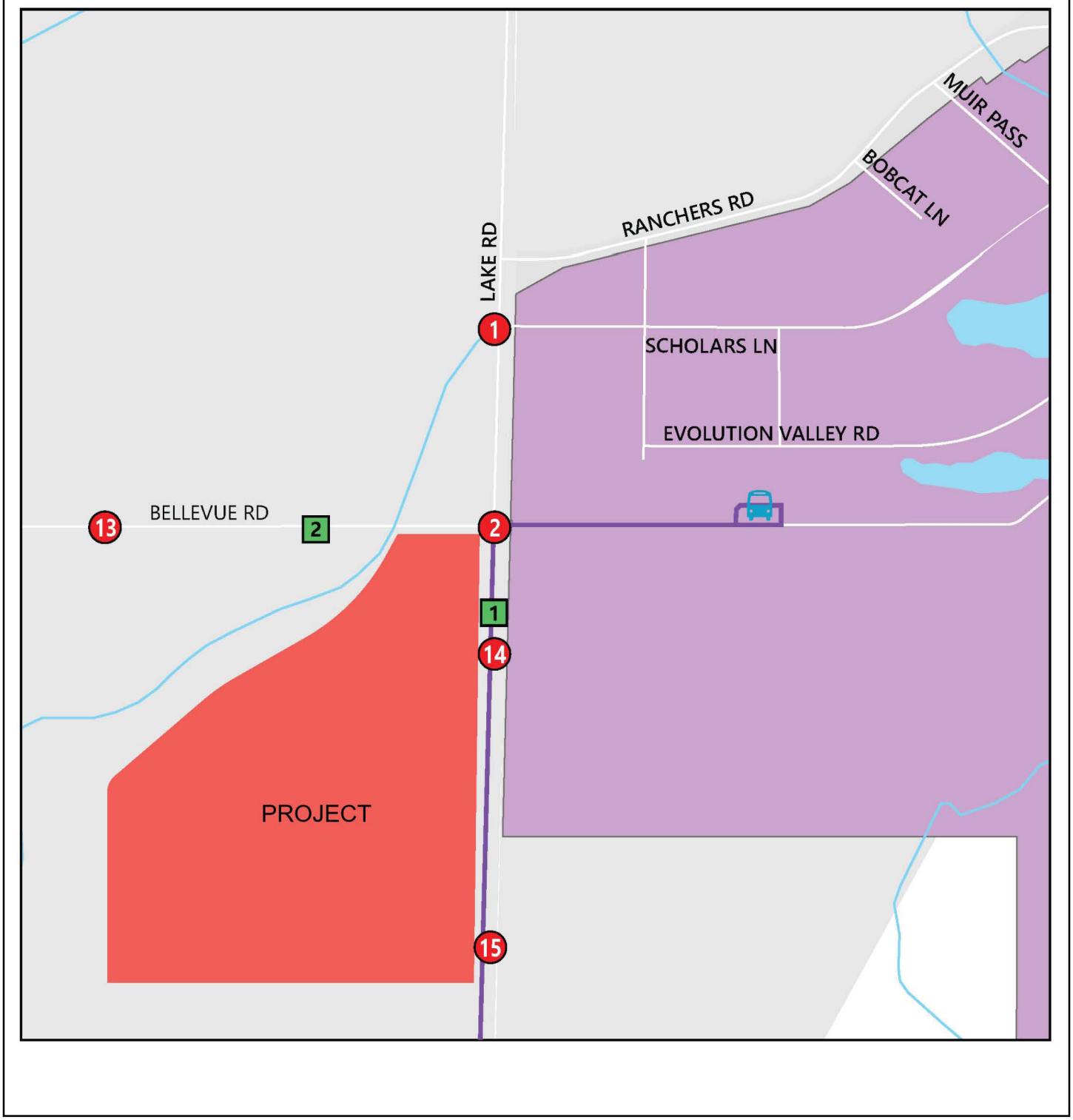
- Study Intersection
- Roundabout
- Class I Bike-Ped Path
- Class II Bike Lane

UC VILLAGES

Figure 3.15-4.

2024 Outlying Existing Bicycle Facilities

Source: TJKM. Map date: August 7, 2024.



Legend

- Study Intersection
- Study Segment
- Bus Stop
- UC Merced Bus Route

UC VILLAGES

Figure 3.15-5.

2024 Existing Transit Facilities

Source: TJKM. Map date: August 7, 2024.

This section of the EIR describes the existing environment and regulatory framework necessary to evaluate potential impacts on tribal cultural resources (TCRs) from the Project and potential Project-specific and cumulative impacts on TCRs that could result from the Project. A TCR is a site, feature, place, or 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.

The following analysis of the potential environmental impacts related to TCRs is derived primarily from the following sources:

- California Native American Heritage Commission (NAHC) Sacred Lands File Search, May 7, 2024;
- Archaeological Resources Inventory Report for the Merced UC Villages Project;[1]
- Regional pre-contact setting;[2]
- Ethnographic overviews of Northern Valley Yokuts;[3] and the
- Confidential tribal consultation record under Assembly Bill (AB) 52.

The NAHC responded via letter to the NOP on April 2, 2024. The letter stated that the city should follow appropriate state law for tribal consultation requirements.

3.16.1 ENVIRONMENTAL SETTING

The Project Area is located along the eastern edge of the San Joaquin Valley, in a semi-rural area southwest of the University of California, Merced campus. The Project Area consists of farmland and is surrounded by farmland to the south and east. Elevations within the Project Area range from 220 to 245 feet above mean sea level. The Yosemite Lateral Canal is located along the northwestern boundary of the Project Area. Yosemite Lake is 0.5 mile to the north and Cottonwood Creek is 3 miles to the southwest of the Project Area.

PRE-CONTACT HISTORY

It is generally believed that human occupation of California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 BP and 8,000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Animals that were hunted probably consisted mostly of large species still alive today. Bones of extinct species have been found but cannot be definitively associated with human artifacts. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and floral foods were probably exploited on a limited

1 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

2 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

3 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

basis. A lack of deep cultural deposits from this period suggests that groups included only small numbers of individuals who did not often stay in one place for extended periods.[4]

PALEO-INDIAN (11,550–8,550 B.C.)

This period began when the first people began to inhabit what is now known as the California Culture Area. It was commonly believed these first people subsided on big game and minimally processed foods (i.e., hunters and gatherers), presumably with no trade networks. However, more recent research indicates they may have been more sedentary, relied on some processed foods, and traded. Populations likely consisted of small groups traveling frequently to exploit plant and animal resources.[5]

LOWER ARCHAIC (8,550–5,550 B.C.)

This period is characterized by cycles of widespread floodplain and alluvial fan deposition. Artifact assemblages from this period include chipped stone crescents and early wide-stemmed points, marine shell beads, eastern Nevada obsidian, and obsidian from the North Coast Ranges. These types of artifacts found on sites dating to this period indicate trade was occurring in multiple directions. A variety of plant and animal species were also utilized, including acorns, wild cucumber, and manzanita berries.[6]

MIDDLE ARCHAIC (5,550–550 B.C.)

This period is characterized by a drier climate period. There are two distinct identified settlement/subsistence identified patterns in this period: the Foothill Tradition and the Valley Tradition. Functional artifact assemblages consisting primarily of locally sourced flaked stone and groundstone cobbles characterize the Foothill Tradition, while the Valley Tradition was generally characterized by diverse subsistence practices and extended periods of sedentism.[7]

UPPER ARCHAIC (550 B.C.–A.D. 1100)

This period is characterized by an abrupt change to wetter and cooler environmental climate conditions. Much greater cultural diversity is evident from this period. More specialized artifacts, such as bone tools, ceremonial blades, polished and groundstone plummets, saucer and saddle *Olivella* shell beads, *Haliotis* shell ornaments, and a variety of groundstone implements are characteristic of this period.[8]

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4 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

5 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

6 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

7 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

8 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

EMERGENT (A.D. 1100–HISTORIC)

This period is most notably marked by the introduction of the bow and arrow, the emergence of social stratification linked to wealth, and more expansive trade networks signified by the presence of clam disk beads that were used as currency. The Augustine Pattern (the distinct cultural pattern of the Emergent Period) is characterized by the appearance of small projectile points (largely obsidian), rimmed display mortars, flanged steatite pipes, flanged pestles, and chevron-designed bird-bone tubes. Large mammals and small seeded resources appear to have made up a larger part of the diet during this period.[9]

ETHNOGRAPHIC HISTORY

The following ethnographic history (or ethnohistory) is provided for context of TCRs inside the Project Area and does not constitute a comprehensive or diachronic ethnographic overview of Native American cultural in and around the Project Area.

Ethnographically, present-day Merced County lies within the Northern Valley Yokuts territory. The Northern Valley Yokuts are bounded on the north by the Bay and Plains Miwok territories, the Costanoan on the west, the Northern, Central, and Southern Miwok on the east, and the Southern Valley Yokuts to the south. The San Joaquin River forms the central spine of the Northern Valley Yokuts territory that runs north collecting water from primary drainages that flow southwest from the Sierra Nevada. Los Banos lies in an area dominated ethnographically by the Nopchinchi Tribelet, who inhabited the area west of the San Joaquin River near Los Banos Creek and Little Panoche Creek. The environment consisted of marshland flanking rivers and streams separated by more arid plains with sparse vegetation. Despite the hot summers of the Central Valley, the abundance of animal life made settlements attractive in the region. Rivers were well stocked with fish, mussels, and pond turtles, with migratory birds nesting along riverbanks. Elk and pronghorn sheep roamed the plains and edges of the marshland, while smaller mammals including jackrabbits, ground squirrels, and quail were omnipresent.[10]

Archaeological evidence indicates that the Yokuts were relative latecomers to the region, moving northward from the main bend in the San Joaquin River and displacing Costanoan and Miwok groups in their path. The Northern Valley Yokuts were firmly established by the early 19th century when Spanish expeditions were exploring the interior of California. By that time, the population was estimated to be 30,000, with the main concentrations along the San Joaquin River and its main tributaries. They were organized in territorial tribelets of up to 300 people. Gathering parties left the villages seasonally to collect seeds and acorns. Acorn processing and fishing were the main subsistence activities, followed by hunting

9 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

10 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

for waterfowl. According to archaeological records, elk and antelope hunting were less common. The Yokuts practiced traditional burning methods in the meadows to increase the harvest of seeds.[11]

Acorn processing was a time consuming and important activity centered on individual or groups of oak trees that could yield hundreds of pounds of acorns. Tule roots were also harvested and ground into a meal. The Yokuts lived in permanent villages on built-up mounds along the river. Structures with round to oval, hard-packed dirt floors 2 feet below ground surface have been documented in Merced and Fresno counties. These have been interpreted as single family dwellings constructed with light wooden poles joined at the top and covered with tule mats. Sweathouses and ceremonial assembly chambers have also been documented in Northern Valley Yokuts territory.[12]

The technological skills of the Northern Valley Yokuts included basket making and the production of ground stone items like mortars and pestles used for acorn processing. Lithic tool technology consisted of projectile points, knives, scrapers, and expedient tools like hammer stones and choppers. Lithic materials used for these items included chert, jasper, chalcedony, and obsidian. Funerary customs included flexed inhumation burial or cremation; the latter was used for those who died away from home, shamans, or high-status individuals.[13]

The Northern Valley Yokuts first encountered Spanish exploratory missions in the early 1800s. The biggest impact to Yokuts culture came with the start of the mission system in the first quarter of the 19th century when large numbers of Yokuts peoples were taken to the San José, Santa Clara, Soledad, San Juan Bautista, and San Antonio missions. Located approximately 85 miles southwest of Merced, San Juan Bautista is the closest mission to the area. The succeeding period is characterized by Native Americans fleeing the harsh mission system and being pursued by punitive expeditions. Bands of ex-mission Native Americans allied with unconverted groups and began to raid mission territories, stealing herds of cattle and horses for meat. These raids continued into the Mexican Period, which was marked by a drastic decline of the native population particularly due to the malaria epidemic in 1833.[14]

The American Period after 1848 marked a further decline in the native population in Northern Yokuts territory. The native groups were first subjected to a new wave of diseases brought by gold prospectors passing through their territory and then, were pushed aside by European-American settlers who decided to farm in the Central Valley.[15]

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11 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

12 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

13 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

14 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

15 ECORP Consulting, Inc. 2024. Archaeological Resources Inventory Report for the Merced UC Villages Project, Merced County, California

3.16.2 REGULATORY SETTING

Relevant federal, state, and local laws and regulations pertaining to cultural resources are discussed below.

FEDERAL

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires that the federal government list significant historic resources on the National Register of Historic Places (NRHP), which is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service (NPS) and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or traditional cultural significance at the national, state, or local level. The NHPA defines the responsibilities of federal agencies to protect and preserve historic properties found eligible for or listed in the NRHP. Sections 106 and 110 of the NHPA include specific provisions for the identification and evaluation of these properties for inclusion in the NRHP, such as consulting with interested parties that often include local Native American tribes.

Amendments to the NRHP and its implementing regulations expanded federal responsibilities for consultations with interested parties, especially Native Americans, under Section 106 of the NHPA. The result has been a more focused effort by federal agencies to involve interested parties in identifying historic properties of cultural significance and, if warranted, in considering effects that may result from a federal undertaking. Traditional Cultural Properties (TCPs) are more often identified as resources during these consultation efforts.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a historic district can also be included in the NRHP. In 1990, National Register Bulletin 38 presented guidelines for evaluating traditional cultural significance as a kind of cultural significance for which historic properties can be found eligible for inclusion in the NRHP using established criteria (Parker and King 1990, revised in 1992 and 1998).[16] The process for considering TCPs is situated within the framework of the NRHP as the preservation of tangible cultural properties that have historical and ongoing significance to living communities, as evidenced in their traditional cultural practices, values, beliefs, and identity.

[16] Parker, Patricia L. and Thomas F. King. 1990. National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties. Electronic Document. https://www.nps.gov/subjects/nationalregister/upload/NRB38-Completeweb.pdf. Accessed July 2, 2024.

The criteria for listing in the NRHP include resources that:

a) are associated with events that have made a significant contribution to the broad patterns of history;
b) are associated with the lives of persons significant in our past;
c) 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) have yielded or may likely yield information important in prehistory or history.

Additionally, the NRHP guidelines describe a type of cultural significance for which properties may be eligible for inclusion in the NRHP. A property with traditional cultural significance will be found eligible for the NRHP because it is associated with cultural practices or beliefs of a living community that:

a) are rooted in that community's history; and
b) are important in maintaining the continuity of the cultural identity of the community.

This type of significance is grounded in the cultural patterns of thought and behavior of a living community and refers specifically to the association between their cultural traditions and a historic property.

STATE

California Environmental Quality Act

Pursuant to the California Environmental Quality Act (CEQA), a historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR, CEQA Guidelines Section 15064.5). In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with state guidelines are also considered Historic Resources under CEQA unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a lead agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California Public Resources Code (PRC) Section 5024.1.

CEQA applies to archaeological resources when: (1) the archaeological resource satisfies the definition of a historical resource, or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." Under CEQA (PRC Section 21083.2[g]), a unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

- The archaeological resource contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
- The archaeological resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

Finally, CEQA Guidelines Section 15064.5(e) and (f) provide measures to protect historic resources, archeological resources, and human remains (in any location other than a dedicated cemetery) from disturbance, vandalism, or inadvertent destruction.

CEQA also requires lead agencies to determine if a proposed project would have a significant effect on unique archaeological resources. If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources.

"Unique archaeological resource" means 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:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 California Code of Regulations (CCR) Section 15064[c][4]).

Assembly Bill 52

In 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include TCRs, potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the PRC defines California Native American tribes 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 the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are any of the following:
    a) Included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or

b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
c) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as a Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their TCRs and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

In accordance with Section 21082.3(c)(1) of the PRC:

> … information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is 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 subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the CCR, without the prior consent of the tribe that provided the information.

Therefore, the details of tribal consultation summarized herein are provided in a confidential administrative record and not available for public disclosure without written permission from the tribes.

LOCAL

Merced County General Plan

The following goals and policies of the Draft 2030 Merced County General Plan[17] are applicable to TCRs:

Goal 2: Regulation and Development Review (RCR): The goal is to protect and preserve cultural, archaeological, and historic resources of the County in order to maintain its unique character.

Policy RCR-2.1 Archaeological Site and Artifact Protection (RDR): Requires development projects that affect archaeological sites and artifacts to avoid disturbance or damage to these sites.

Policy RCR-2.4: Park and Open Sace Historic Resource Preservation (RDR): Requires the preservation of historic resources located in parks and publicly owned open space areas.

Policy RCR-2.5: Human Remains Discovery (RDR): Requires that, in the event of the discovery of human remains on any project, construction site, all work in the vicinity of the find will cease and the County Coroner and Native American Heritage Commission will be notified.

Policy RCR-2.8: Historical Preservation Area/Site Designation (RDR): Allow sites of historical and archaeological significance to be designated as historical preservation areas or sites during the Community Planning process or on individual sites in rural areas.

Policy RCR-2.9: Historical and Cultural Resources Investigations, Assessment, and Mitigation Guidelines (RDR/ Infrastructure and Service Master Plans, Strategies, and Programs [MPSP]): Establish and adopt mandatory guidelines for use during the environmental review processes for private and public projects to identify and protect historical, cultural, archaeological, and paleontological resources, and unique geological features.

Policy RCR-2.10: Tribal Consultation (RCR/MPSP/Inter-Governmental Coordination [IGC]): Consult with Native American tribes regarding proposed development projects and land use policy changes consistent with Planning and Zoning Law at Government Code Section 65351, and the Governor's Office of Planning and Research (OPR) Tribal Consultation Guidelines.[18]

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17 Merced County. 2013. 2030 Merced County General Plan (as amended), Chapter 9: Recreation and Cultural Resources. https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/BackroundRpt_2030/MCGPU_BR_Ch9_RecCultRes-2012-11-30.pdf. Accessed July 2, 2024.

18 Governor's Office of Planning and Research. 2005. State of California Tribal Consultation Guidelines: Supplement to General Plan Guidelines, November 14, 2005. Electronic Document. https://opr.ca.gov/docs/011414_Updated_Guidelines_922.pdf. Accessed July 2, 2024.

TRIBAL CULTURAL RESOURCES

Information about potential impacts to TCRs was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnohistory information about pre-contact lifeways and settlement patterns; 3) information on archaeological sites recorded from during surveys of the Project Area on file with the California Historical Resource Information System; and 4) the tribal consultation record under AB 52 for the Project.

TRIBAL CONSULTATION RESULTS

On May 22, 2024, the City of Merced sent project notification letters to the following tribes.

- Amuah Mutsun Tribal Band
- Northern Valley Yokuts Tribe
- Southern Sierra Miwuk Nation
- Tule River Indian Tribe
- Dumna Wo-Wah Tribal Government
- North Fork Rancheria of Mono Indians
- Wuksache Indian Tribe/Eshom Indians
- Picayune Rancheria of Chukchansi Indians
- Big Sandy Rancheria of Western Mono Indians of California
- California Valley Miwok Tribe
- Chicken Ranch Rancheria of Me-Wuk Indians of California
- Cold Springs Rancheria of Mono Indians of California

The notifications included information about the proposed Project, the agency contact information, and requested a response within 30 days regarding the tribe's desire to consult on the Project. The 30-day response window concluded on June 23, 2024.

On May 31, 2024, the California Valley Miwok Tribe replied to the notification letter, indicating that the Tribe had no comment or concerns with the Proposed Project. Therefore, the City considered tribal consultation with the California Valley Miwok Tribe concluded pursuant to Sections 21080.3.2(b)(1) and 21082.3(d)(1).

On June 4, 2024, the Picayune Rancheria of the Chukchansi Indians responded to the notification letter by noting that the points of contact for the Tribe had changed and provided updated contact information. On September 27, 2024, the City notified the new points of contact of the opportunity to consult, but no further correspondence occurred. Therefore, the City considers tribal consultation with the California Valley Miwok Tribe concluded pursuant to Sections 21082.3.

On July 3, 2024, after the 30-day window, the North Rancheria of Mono Indians responded with contact information for the new director and also asked if a cultural records search had been completed. The City of Merced responded that an updated cultural resources records search had been received and a copy

could be provided to the tribe upon completion of the CEQA document. Therefore, the City considers tribal consultation complete under Section 21083.1(d).

The balance of the tribes did not request consultation within the required timeframe. The City considers consultation with non-responsive tribes concluded pursuant to PRC Section 21082.3(d)(3).

Because all tribes either failed to request consultation or did not provide any information about TCRs in the Project Area, this EIR draws from other lines of evidence to address the CEQA checklist questions for TCRs. Other lines of evidence include ethnographic and records search information, the results of the archaeological survey, and the results of a search of the Sacred Lands File with NAHC.

SACRED LANDS FILE SEARCH

A search of the NAHC Sacred Lands File was requested on April 26, 2024. The NAHC responded on May 7, 2024 that the Sacred Lands File search was negative, which means that no sacred lands have been previously recorded within the Project Area or in the vicinity of the Project Area.

ETHNOGRAPHIC HISTORY INFORMATION

The *Handbook of North American Indians*[19] lists several Native American villages throughout Merced County, all of which are several miles away from the Project Area. There are no known ethnographically documented villages within ten miles of the Project Area in any direction. Additional ethnographic information reviewed for the project, as summarized above, does not identify any villages, occupational areas, or resource procurement locations in or around the current project area.

ARCHAEOLOGICAL SITE RECORDS

The entire Project Area was subjected to an archaeological survey and records search review, which revealed that no Native American resources have been previously mapped within its boundaries. In addition, approximately 60 percent of the area within a 0.5-mile radius surrounding the Project Area has been subject to cultural surveys, and no Native American archaeological resources have been previously recorded within the 0.5-mile radius of the Project Area.

19 Wallace, William J. 1978. Northern Valley Yokuts. In Handbook of North American Indians, Vol. 8: California, edited by R.F. Heizer, pp. 462-470. Smithsonian Institution, Washington, D.C.

3.16.3 IMPACTS AND MITIGATION MEASURES

This section describes potential impacts to TCRs that could result from implementation of the Project. The section also recommends mitigation measures as needed to reduce impacts to less than significant.

THRESHOLDS OF SIGNIFICANCE

Based on the CEQA Guidelines Appendix G: Items XVII (a) and (b) of the CEQA Guidelines, TCR impacts are considered to be significant if a project would:

- cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074.

The CEQA lead agency makes this determination based on the expert opinion of culturally affiliated consulting tribes.

PROJECT IMPACTS AND MITIGATION MEASURES

Impact 3.16-1: The proposed Project could result in a substantial adverse change in the significance of a TCR listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(K), or by the lead agency pursuant to criteria set forth in PRC Section 5024.1(c).

Tribal consultation under AB 52 did not reveal the presence of TCRs inside on the Project, and based on other lines of evidence, there are no known TCRs near the Project site. However, there exists the potential for ground disturbing activity to reveal undocumented TCRs or human remains during the construction phase. If previously unknown TCRs or human remains are encountered during ground-disturbing activities, the impact could result in damage that constitutes an impact to the aspects of integrity that make the resource significant. If that occurs, the impact to TCRs would be ***potentially significant***.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.16-1(a)*: Unanticipated Discovery of TCRs. If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 100 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American tribe shall be immediately contacted and invited to assess the significance of the find, make recommendations for further evaluation and treatment, and may be requested to provide additional worker training to recognize sensitive cultural resources, as necessary. If deemed necessary by the City of Merced, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that tribal values are considered. Work at the discovery location cannot resume until the City of Merced, in consultation, as appropriate, and in good faith, determines that the discovery is either not a*

TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.

Mitigation Measure 3.16-1(b): *Implement Mitigation Measure 3.5-3.*

SIGNIFICANCE AFTER MITIGATION

Less than Significant

Mitigation Measure 3.16-1(a) would protect previously undiscovered resources by stopping work in the vicinity of the find and allow recovery and consultation to occur. Should human remains be discovered during construction activities, Mitigation Measure 3.16-1(b) would ensure that determines the remains are identified and if they are Native American, the Most Likely Descendent would be contacted. With Mitigation Measure 3.16-1(a) and (b) in place, the Project would have a ***less-than-significant impact*** on TCRs.

CUMULATIVE IMPACTS

Impact 3.16-2: The proposed Project, in combination with cumulative development, could result in a substantial adverse change in the significance of a TCR listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(K), or by the lead agency pursuant to criteria set forth in PRC Section 5024.1(c).Impact Determination: less than significant with mitigation incorporated.

Cumulative development in the Merced region could increase the potential of impacting known and previously unknown TCRs and could contribute to loss of these resources in the area. All future projects will be required to follow existing state and federal law or other agency regulations and policies that require tribal consultation, although projects that do not require discretionary approval may not be subject to the same level of evaluation and thus result in impact to TCRs. The cumulative loss of TCRs would be potentially significant.

Although no TCRs were identified on the Project site and tribalu consultation failed to identify potential onsite resources, previously undiscovered TCRs or human remains could be identified during project construction. Any damage to or removal of TCRs would disturb the integrity of the resource. If TCRs are identified on the Project site, the damage of such resources would have a cumulative contribution to the cumulative impact of the loss of TCRs, and the cumulative impact would be ***potentially significant***.

SIGNIFICANCE BEFORE MITIGATION

Potentially Significant

MITIGATION MEASURE(S)

Mitigation Measure 3.16-2: *Implement Mitigation Measure 3.16-1(a) and (b).*

SIGNIFICANCE AFTER MITIGATION

Less than Significant

Mitigation Measure 3.16-2 would protect previously undiscovered resources by stopping work in the vicinity of the find and allow recovery and consultation to occur. Should human remains be discovered during construction activities, Mitigation Measure 3.16-2 would ensure that determines the remains are identified and if they are Native American, the Most Likely Descendent would be contacted. With Mitigation Measure 3.16-2 in place, the Project's contribution to the loss of TCRs would be less than considerable, and the cumulative impact on TCRs would be ***less than significant***.

This section describes the regulatory setting, impacts associated with wastewater services, water services, storm drainage, and solid waste disposal that are likely to result from Project implementation, and measures to reduce potential impacts to these services. This section is based in part on the following documents, reports and studies: *California's Groundwater,* CalRecycle *Solid Waste Information System,* CalRecycle *Jurisdiction Diversion/Disposal Rate Summary*, *Urban Water Management Plan* (2020), *Wastewater Collection System Master Plan* (2023), *Storm Drain Master Plan (2002)*, UC Villages Water Supply Assessment (West Yost, 2024).

No comments were received during the Notice of Preparation (NOP) scoping period regarding this environmental topic (Appendix A).

3.17.1 WASTEWATER SERVICES

ENVIRONMENTAL SETTING

According to the City's Wastewater Collection System (WCS) Master Plan, the City owns, operates, and maintains a series of pipelines that collect wastewater from an area of approximately 9,697.4 acres. The City's wastewater collection system is comprised of over 400 miles of gravity sewers ranging in size from 6 to 48 inches in diameter. Pumping facilities within the existing truck sewer system include the Highway 59 pump station and Bellevue Ranch pump station.

Based on flow monitoring data used in development of the City of Merced Wastewater Collection System Master Plan 2022 Update, wastewater flows within the City's existing service area are approximately 7.02 million gallons per day (MGD). The City also estimates that average residential per capita wastewater flows are approximately 60 gallons per capita per day (gpcd). As a conservative measure of wastewater generation in recently constructed and new residential homes, the city's recommended wastewater generation value is 65 gpcd. Wastewater generation from UC Merced is likely to be 0.27 MGD based on growth anticipated under the UC Merced 2020 Long Range Development Plan.

The Merced Wastewater Treatment Facility (WWTF) treats all wastewater collected through the City's sanitary sewer system. The effluent disposal and reuse facilities at the Merced WWTF are estimated to have sufficient land and disposal potential to serve reasonable buildout design flow estimates of up to 35 MGD, if and when buildout occurs. As an alternative to expansion of the existing Merced WWTF, the City's WCS Master Plan and associated Draft EIR identify the potential to construct a new North Merced WWTF with a buildout capacity of up to 15 MGD.

REGULATORY SETTING

Clean Water Act / National Pollutant Discharge Elimination System Permits

The Clean Water Act (CWA) is the cornerstone of water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the

chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

The CWA regulates discharges from "non-point source" and traditional "point source" facilities, such as municipal sewage plants and industrial facilities. Section 402 of the Act creates the NPDES regulatory program which makes it illegal to discharge pollutants from a point source to the waters of the United States without a permit. Point sources must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). National Pollutant Discharge Elimination System (NPDES) permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, storm water associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than one acre, mining operations, and animal feedlots and aquaculture facilities above certain thresholds.

Permit requirements for treatment are expressed as end-of-pipe conditions. This set of numbers reflects levels of three key parameters: (1) biochemical oxygen demand (BOD), (2) total suspended solids (TSS), and (3) pH acid/base balance. These levels can be achieved by well-operated sewage plants employing "secondary" treatment. Primary treatment involves screening and settling, while secondary treatment uses biological treatment usually in the form of "activated sludge."

All so-called "indirect" dischargers are not required to obtain NPDES permits. An indirect discharger is one that sends its wastewater into a city sewer system, so it eventually goes to a sewage treatment plant. Although not regulated under NPDES, "indirect" discharges are covered by another CWA program called pretreatment. "Indirect" dischargers send their wastewater into a city sewer system, which carries it to the municipal sewage treatment plant, through which it passes before being discharged to surface water.

In April 2020, the Central Valley Regional Water Quality Control Board (RWQCB) issued Waste Discharge Requirements (WDR) to the City for the Merced WWTF, provided in Order No. R5-2020-0014, NPDES No. CA0079219. The permit outlines performance standards for effluent to the Merced WWTF's receiving waters, which include the Hartley Slough, Merced Wildlife Management Area, and Land Application Area. In addition, the permit outlines discharge prohibitions and specifies monitoring and reporting requirements for the Merced WWTF.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State is required to adopt policies, plans, and objectives that will protect the State's waters for the use by and enjoyment of Californians. In California, the SWRCB has the authority and responsibility for establishing policy related to the State's water quality. Regional authority is delegated by the SWRCB to a Regional Water Quality Control Board (RWQCB). The Porter-Cologne Act authorizes the SWRCB and RWQCB to issue NPDES permits.

Under the Central Valley Regional Water Quality Control Board (CVRWQCB) NPDES permit system, all existing and future municipal and industrial discharges to surface water within the city would be subject to regulation. NPDES permits are required for operators of municipal separate storm sewer

systems, construction projects, and industrial facilities. These permits contain limits on the amount of pollutants that can be contained in each facility's discharge.

City of Merced General Plan

The Public Services and Facilities Element addresses issues related to wastewater and stormwater. In addition to Policies P-1.2 and P-1.3 listed under "Domestic Water" above, the following policies related to wastewater and stormwater are applicable to the proposed Project include:

POLICIES: PUBLIC SERVICES AND FACILITIES ELEMENT

- **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.
- **Policy P-5.1:** Provide effective storm drainage facilities for future development.
- **Policy P-5.2:** Integrate drainage facilities with bike paths, sidewalks, recreation facilities, agricultural activities, groundwater recharge, and landscaping.

City of Merced Municipal Code

The City of Merced Municipal Code, Division I, *Sewer System*, consists of a number of provisions relating to wastewater designed to prevent the introduction of pollutants into the wastewater system; promote reuse and recycling of wastewater; provide fees for equitable distribution of operation maintenance and improvement; and enable compliance with U.S. Environmental Protection Agency use and disposal requirements and the Porter-Cologne Water Quality Control Act.

Utility Master Plans

The City of Merced maintains a variety of Master Plan documents that guide the design, development, and maintenance of the utilities within the city limits. These include: *Urban Water Management Plan* (2020), *Wastewater Collection System Master Plan* (2023), *Storm Drain Master Plan (2002)*.

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project will have a significant impact on the environment associated with wastewater utilities if it will:

- Require or result in the relocation or construction of new or expanded wastewater treatment and/or collection facilities, the construction of which could cause significant environmental effects.

- 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 providers existing commitments.

IMPACTS AND MITIGATION MEASURES

Impact 3.17-1: The proposed Project would not result in a determination by the wastewater treatment and/or collection provider which serves the project that the provider does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (Less than Significant)

The Project Site is part of the City of Merced's North Merced Sewer Master Plan. Currently a 21" sewer main exists in Bellevue Road servicing UC Merced which is tributary to the G Street sewer trunk line. A recent flow analysis was performed for the City of Merced and determined there was excess capacity in the G Street trunk line which will service the proposed Project.

Estimated wastewater demand for the annexation area based on land use is 157,143 gallons per day, average daily flow, with a peak hour flow of 361,430 gallons per day. The calculated total annual wastewater flow is 176-acre feet per year. The project will install a sewer system consisting of various sized gravity sewer lines conveying wastewater to a proposed sanitary sewer lift station. The sewer lift station will be installed in the vicinity of the southeast corner of the project. A sanitary sewer force main will be installed in Lake Road and discharge wastewater into the existing sewer line in Bellevue Road. Ultimately, the project sewer flow would switch south and discharge into a future 24" sewer line in Cardella Road per the above-mentioned North Merced Sewer Master Plan. The project may be able to eliminate the sewer lift station once the Cardella sewer trunk line has been installed and the project connects to said Cardella sewer trunk line.

As mentioned in the environmental setting, The Merced WWTF treats all wastewater collected through the City's sanitary sewer system. The effluent disposal and reuse facilities at the Merced WWTF are estimated to have sufficient land and disposal potential to serve reasonable buildout design flow estimates of up to 35 MGD, if and when buildout occurs. As an alternative to expansion of the existing Merced WWTF, the City's WCS Master Plan and associated Draft EIR identify the potential to construct a new North Merced WWTF with a buildout capacity of up to 15 MGD. Additionally, the City collects wastewater rates and impact fees to fund the operation, maintenance, and expansion of the collection system and WWTF. Furthermore, the City must also periodically review and update their Wastewater and Sewer Master Plans, and as growth continues to occur within the Planning Area, the City will identify necessary system upgrades and capacity enhancements to meet growth.

The development of the proposed Project under this permitted option would not exceed the wastewater discharge requirements in the WDR Order. Therefore, the proposed Project would have a ***less than significant*** impact relative to this wastewater treatment capacity.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Impact 3.17-2: The proposed Project would not result in the construction of new wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The wastewater collection and conveyance system that will serve the proposed Project will consist of engineered infrastructure consistent with the City's existing infrastructure requirements. A sanitary sewer main is proposed to route sewer flows from the project site. The sanitary sewer trunk main will run from the east boundary line of the project site southward within the Lake Road right-of-way. The proposed sewer main will continue southward along Professional Drive and tie into the existing 21-inch sewer main in Bellevue Road, where it will be carried to the existing WWTF.

New wastewater collection and conveyance infrastructure needed for the proposed Project will require trenching/excavation of earth, and placement of pipe within the trenches at specific locations, elevations, and gradients. Utility lines within the Project site and adjacent roadways would be extended throughout the project site. The wastewater collection/conveyance infrastructure design will be required to be reviewed by the Public Works Department to ensure consistency with the City's engineering standards through the improvement plan process. This improvement plan process will include full engineering design (i.e., location, depth, slope, etc.) of all conveyance infrastructure as well as a review of new sewer pump stations and new force mains if needed. Ultimately, the sanitary sewer collection system will be an underground collection system installed as per the City of Merced standards and specifications. Sanitary sewer disposal and treatment will be to the City of Dixon WWTF.

Estimated wastewater demand for the annexation area based on land use is 157,143 gallons per day, average daily flow, with a peak hour flow of 361,430 gallons per day. The calculated total annual wastewater flow is 176-acre feet per year. The project will install a sewer system consisting of various sized gravity sewer lines conveying wastewater to a proposed sanitary sewer lift station. The sewer lift station will be installed in the vicinity of the southeast corner of the project. A sanitary sewer force main will be installed in Lake Road and discharge wastewater into the existing sewer line in Bellevue Road. Ultimately, the project sewer flow would switch south and discharge into a future 24" sewer line in Cardella Road per the above-mentioned North Merced Sewer Master Plan. The project may be able to eliminate the sewer lift station once the Cardella sewer trunk line has been installed and the project connects to said Cardella sewer trunk line.

As mentioned in the environmental setting, The Merced WWTF treats all wastewater collected through the City's sanitary sewer system. The effluent disposal and reuse facilities at the Merced WWTF are estimated to have sufficient land and disposal potential to serve reasonable buildout design flow estimates of up to 35 MGD, if and when buildout occurs. As an alternative to expansion of the existing Merced WWTF, the City's WCS Master Plan and associated Draft EIR identify the potential to construct a new North Merced WWTF with a buildout capacity of up to 15 MGD. Additionally, the City collects wastewater rates and impact fees to fund the operation, maintenance, and expansion of the collection system and WWTF. Furthermore, the City must also periodically

review and update their Wastewater and Sewer Master Plans, and as growth continues to occur within the Planning Area, the City will identify necessary system upgrades and capacity enhancements to meet growth.

The City of Merced WWTF has the capacity to treat and dispose of the proposed increase in flows from the proposed Project. Therefore, implementation of the proposed Project would have a ***less-than-significant impact*** relative to this topic.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

The cumulative setting includes all areas covered in the service areas of the City's wastewater system.

Impact 3.17-3: The proposed Project, in combination with other cumulative development, would not exceed the provider's capacity to serve future projected demand in addition to the provider's existing commitments. (Less than Significant)

As cumulative projects come online within the WWTF service area, the wastewater collection, conveyance, and treatments systems would continue to grow, consistent with the City's existing infrastructure requirements. New sanitary sewer mains could be added as projects are proposed. The effluent disposal and reuse facilities at the Merced WWTF are estimated to have sufficient land and disposal potential to serve reasonable buildout design flow estimates of up to 35 MGD, if and when buildout occurs. As an alternative to expansion of the existing Merced WWTF, the City's WCS Master Plan and associated Draft EIR identify the potential to construct a new North Merced WWTF with a buildout capacity of up to 15 MGD.

Because the WWTF can be expanded to accommodate treatment and disposal of the projected cumulative flows in the city, this cumulative impact is considered ***less-than-significant*** regarding wastewater treatment capacity.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

3.17.2 WATER SUPPLIES

ENVIRONMENTAL SETTING

City of Merced Water Service Area

The City's Public Works Department is the only municipal water purveyor in the City and provides service to an estimated total population of 99,100 residents (as of the year 2020), including UC Merced. There are three basic boundaries which define the City in relation to the surrounding area. These boundaries include the City limits, the Specific Urban Development Plan (SUDP) boundary, and Sphere of Influence (SOI). The City limits currently encompasses 23.1 square miles. The City's SOI is also the City's SUDP boundary and covers 44.7 square miles.

The City's water service area is considered the areas to which the City provides potable water service such as the water consumers within the City limits, the UC Merced campus, and some small County islands outside the City limits.

City of Merced Water Demand

EXISTING AND PROJECTED WATER DEMAND

This section describes and quantifies the City's historical and projected potable water use. Water demands have rebounded (increased) somewhat in recent years with the end of drought conditions and increased development activity. **Table 3.17-1** shows the City's water demand (based on land sue sector) in the City's UWMP.

TABLE 3.17-1: HISTORICAL WATER DEMAND BY WATER USE SECTOR (AFY)

YEAR	*POTABLE WATER USE*	*NON-REVENUE WATER (WATER LOSS)*	*TOTAL POTABLE WATER DEMAND*
2016	17,811	1,380	19,191
2017	18,692	1,740	20,432
2018	19,487	760	20,247
2019	18,931	1,290	20,221
2020	18,676	1,400	20,076

SOURCE: CITY OF MERCED 2020 UWMP, TABLE 4-3.

The City's water demand is anticipated to continue to increase as approved projects build out and new developments are approved and constructed within the City's water service area in accordance with the City's General Plan. The 2020 Urban Water Management Plan (UWMP) projected water demands, as documented in the City's 2020 UWMP, are shown in **Table 3.17-2**. These projections are based on projected population growth in the City's service area assuming the SB X7-7 2020 water use target of 248 gallons per capita per day, as well as a 20 percent reduction in per capita water use due to implementation of Stage 2 Shortage Response Actions in the City's Water Shortage Contingency Plan (WSCP).

TABLE 3.17-2: PROJECTED FUTURE WATER DEMAND - NORMAL YEARS (AFY)

DEMAND PROJECTION SOURCE	*2025*	*2030*	*2035*	*2040*
2020 UWMP	24,418	26,751	28,995	31,825

SOURCE: CITY OF MERCED 2020 UWMP, TABLE 4-5.

Demands are assumed to increase by 20 percent during single dry years for planning purposes. This demand increase was applied so that demands would follow the historical supply pattern for the City. For the City, the year chosen to represent the lowest water supply availability was 2013, which was the driest year for the City. During 2013, the City had 120 percent of its average supplies available. For the City, average supplies are assumed to be equal to what would occur during a normal year. Total supplies are assumed to match total demands because groundwater pumping will be operated to meet demands.

Similarly, for multiple dry years, the demands are assumed to increase by 10, 20, and 10 percent for the first, second, and third consecutive dry years, respectively. And they are assumed to decrease by 20 percent during the fourth and fifth consecutive dry years. This follows the historical supply pattern chosen for the City to represent a period of five consecutive dry years, which was during the 2012 to 2016 drought. During that period, the City had 110, 120, 110, 80, and 80 percent of its average supplies available, respectively, for each of the five consecutive years.

City of Merced Water Supplies

The City's water system relies solely on local groundwater, which the City pumps from the Merced Subbasin aquifer using groundwater extraction wells. Recycled water is not currently utilized within the City's service area and there are no plans to develop it as a source. Thus, potable water is assumed to meet all the Proposed Project's water demands. However, in the future, the City plans to use recycled water as a method of exchange to acquire more surface water from Merced Irrigation District (MID). The City is also considering installing new groundwater wells and/or constructing a new surface water treatment plant, which would allow for conjunctive use of surface and groundwater to meet future demands.

GROUNDWATER SUPPLY

Groundwater accounted for 100 percent of the City's potable water supply in 2020 and will continue to be the City's primary source of potable water for the foreseeable future. The City's well system consists of 20 production wells and local water treatment facilities at the wells. These wells have a total capacity of 54,400 gallons per minute (gpm).

Basin Description. The City pumps groundwater from the Merced Subbasin (Subbasin 5-22.04), which underlies the City and is one of nine subbasins located in the San Joaquin Groundwater Basin. The San Joaquin Groundwater Basin is located within the San Joaquin River Hydrologic Region, which itself is a part of the geomorphical province known as the Central Valley. The entire production of the City's well system is derived from the Merced Subbasin, which is the primary groundwater aquifer underlying the City and covers a surface area of approximately 491,000 acres (767 square miles).

The Merced Subbasin contains three principal aquifers:

- 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 small to large hydraulic conductivities and yields for irrigation, and 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 Aquitard and is connected laterally to the other two principal aquifers. Its major uses include irrigation, domestic, and municipal uses.

The principal aquifers are underlain by a deep aquifer with higher salinity relative to the principal aquifers.

The Merced Subbasin was classified as a high-priority basin in the Sustainable Groundwater Management Act (SGMA) 2019 Basin Prioritization. Three groundwater sustainability agencies (GSAs) were formed to manage the Merced Subbasin: the Merced Irrigation-Urban GSA (MIUGSA), the Merced Subbasin GSA, and the Turner Island Water District GSA. The City is a member of the MIUGSA. All three GSAs collaborated on the Merced Subbasin groundwater sustainability plan (GPS), which was adopted by the MIUGSA in December 2019. It was subsequently updated in July 2022 to address comments and recommendations from DWR.

The groundwater aquifers from which the City obtains its water are not adjudicated, and because of this there are no defined legal pumping rights for the City and there are no legal constraints on groundwater pumping. However, the Merced Subbasin is a high priority basin and is critically overdrafted. Therefore, the City and other members of the MIUGSA are implementing measures from its adopted GSP to sustainably manage the groundwater basin, including allocation of the estimated sustainable yield of the basin and increasing recharge. The City intends to pursue groundwater recharge projects as part of implementation of the GSP to improve the long-term water supply reliability of the subbasin for the City.

Historical and Projected Groundwater Pumping. Table 3.17-3 below shows the actual volume pumped from the City's wells from 2016 to 2020. The average annual volume pumped over this period is approximately 19,000 afy.

TABLE 3.17-3: HISTORICAL GROUNDWATER VOLUME PUMPED, AFY

LOCATION OR BASIN NAME	*2016*	*2017*	*2018*	*2019*	*2020*
Merced Subbasin	17,813	18,692	19,488	18,931	20,076

SOURCE: CITY OF Merced 2020 UWMP, TABLE 6-1.

SURFACE WATER SUPPLY

The City does not currently have any surface water supplies. In the future, the City plans to transfer and exchange surface water with MID for irrigation. To accomplish this, the City will need to construct a surface water treatment plant to treat the surface water from MID.

WASTEWATER AND RECYCLED WATER SUPPLY

The City's wastewater is treated at the Merced WWTF, which treats approximately 12 mgd and produces an effluent that meets disinfected tertiary recycled water standards. This means the effluent could potentially be used for agricultural irrigation, landscape irrigation, industrial reuse, and other applicable recycled water uses. However, recycled water from the WWTF is not used as a source of supply within the City's service area, owing to its remote location. Instead, its effluent water is discharged to Hartley Slough and the Merced Wildlife Management Area. The effluent is also used to irrigate crops grown in land application areas located outside of the City's service area. It is unlikely that recycled water will be used within the City's service area in the foreseeable future, due to the high cost associated with constructing the necessary infrastructure to bring recycled water to customers. Therefore, the City's future water demands, including those associated with the Proposed Project, are assumed to be supplied by potable water only.

Water Supply Availability and Reliability

The City relies solely on groundwater for its potable water supply, which is not as susceptible to annual runoff fluctuations as surface water. The City's wells pump from a non-adjudicated groundwater basin (Merced Subbasin) with no limits on pumping. However, the Merced Subbasin has been identified as a high priority basin and is critically overdrafted. Therefore, the future reliability of the groundwater supply for the City will depend on the long-term balance of groundwater extraction and recharge for the subbasin as a whole.

Table 3.17-4 shows the City's projected supplies during normal, single dry, and multiple dry years through 2040. As indicated in Table 3.17-4, the projected supply fluctuates depending on which year and hydrologic condition is considered. The normal year analysis is based on 2009, which was selected by the City to be representative of average conditions based on rainfall records from 2000 to 2020. As shown in Table 3.17-4 during a normal year, 100 percent of average water supplies are estimated to be available.

TABLE 3.17-4: PROJECTED CITY OF MERCED WATER SUPPLIES

HYDROLOGIC CONDITION	*PERCENT OF AVERAGE SUPPLY AVAILABLE*	*PROJECTED WATER SUPPLY, AFY*			
		2025	*2030*	*2035*	*2040*
Normal Year	100%	24,418	26,751	28,995	31,825
Single Dry Year	120%	29,301	32,101	34,794	38,190
Multiple Dry Years – Year 1	110%	26,860	29,426	31,895	35,008
Multiple Dry Years – Year 2	120%	29,301	32,101	34,794	38,190
Multiple Dry Years – Year 3	110%	26,860	29,426	31,895	35,008
Multiple Dry Years – Year 4	80%	19,534	21,401	23,196	25,460
Multiple Dry Years – Year 5	80%	19,534	21,401	23,196	25,460

SOURCE: CITY OF MERCED 2020 UWMP. WEST YOST, UC VILLAGES WATER SUPPLY ASSESSMENT, 2024.

The single dry year analysis is based on 2013, which according to rainfall data was the driest year for the City. As shown in Table 3.17-4, during a single dry year, 120 percent of average water supplies are estimated to be available to the City, which is based on the supply utilized during 2013, the historical dry year. The multiple dry year analysis is based on the period from 2012 to 2016, which was a recent drought, and is the driest five-year historical sequence for the City. As shown in Table 3.17-4, during the first, second, and third consecutive dry years, 110 to 120 percent of average water supplies are available to the City. The higher than average supplies are due to increased water usage that occurred during the first several years of the 2012 to 2016 drought, to compensate for the lack of precipitation. During the fourth and fifth consecutive dry years, 80 percent of average water supplies are available to the City, which reflects conservation measures enacted in 2015, requiring the City to reduce their usage.

For all hydrologic conditions, the percent of average supply available (80 to 120 percent) is applied to normal year projected future water supplies, to achieve the projected water supply numbers shown in Table 3.17-4.

Table 3.17-5 summarizes the projected availability of the City's existing and planned future potable water supplies compared with projected water demands in normal, single dry, and multiple dry years through 2040. Table 3.17-4 indicates that no supply shortfalls are projected to occur under all scenarios. This is due to the high reliability of the City's groundwater supply, which the City can pump even during a prolonged drought.

Pursuant to Water Code Section 10910(c)(4) and based on the technical analysis described in this WSA, the total projected water supplies determined to be available for the Proposed Project during normal, single dry, and multiple dry 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. The Proposed Project's water demands were included in future water demand projections presented in the 2020 UWMP and are included in Table 3.17-5.

TABLE 3.17-5: SUMMARY OF WATER DEMAND VERSUS SUPPLY DURING HYDROLOGIC NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS

HYDROLOGIC CONDITION		*PROJECTED WATER SUPPLY, AF*			
		2025	*2030*	*2035*	*2040*
Available Water Supply		24,418	26,751	28,995	31,825
Total Water Demand		24,418	26,751	28,995	31,825
Multiple-Dry Year 1	Available Water Supply	26,860	29,426	31,895	35,008
	Total Water Demand	26,860	29,426	31,895	35,008
Multiple-Dry Year 2	Available Water Supply	29,301	32,101	34,794	38,190
	Total Water Demand	29,301	32,101	34,794	38,190
Multiple-Dry Year 3	Available Water Supply	26,860	29,426	31,895	35,008
	Total Water Demand	26,860	29,426	31,895	35,008
Multiple-Dry Year 4	Available Water Supply	19,534	21,401	23,196	25,460
	Total Water Demand	19,534	21,401	23,196	25,460

HYDROLOGIC CONDITION		*PROJECTED WATER SUPPLY, AF*			
		2025	*2030*	*2035*	*2040*
Multiple-Dry Year 5	Available Water Supply	19,534	21,401	23,196	25,460
	Total Water Demand	19,534	21,401	23,196	25,460

SOURCE: WEST YOST, UC VILLAGES WATER SUPPLY ASSESSMENT, 2024.

REGULATORY SETTING

Safe Drinking Water Act

The federal Safe Drinking Water Act as passed in 1947 and amended in 1986 and 1996 is the Country's primary law regulating drinking water quality and is implemented by the United States Environmental Protection Agency (US EPA). The Safe Drinking Water Act authorizes the US EPA to set national health-based standards for drinking water and requires actions to protect drinking water and its sources. Additionally, it provides for treatment, monitoring, sampling, analytical methods, reporting, and public information requirements. Implementation of the Act, in California, is under the jurisdiction of the California Department of Public Health (CDPH), Division of Drinking Water and Environmental Management. Drinking Water regulations are set forth in the California Code of Regulations (CCR), Titles 7 and 22.

Water Conservation Projects Act

California's requirements for water conservation are codified in the Water Conservation Projects Act of 1985 (Water Code Sections 11950 – 11954).

Consistent with California Water Code Sections 11950 – 11954, the City has implemented various water conservation efforts, as well as Water Shortage Contingency Plan that identifies actions that can be taken to respond to catastrophic interruption of water supply.

Senate Bill (SB) 610

Senate Bill (SB) 610 was adopted in 2001 and reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process. SB 610 amended the statutes of the Urban Water Management Planning Act, as well as the California Water Code Section 10910 et seq. The foundation document for compliance with SB 610 is the Urban Water Management Plan (UWMP), which provides an important source of information for cities and counties as they update their general plans. Likewise, planning documents such as general plans and specific plans form the basis for the demand information contained in an UWMP, as well as a Water Supply Assessment required under SB 610.

Water Code Section 10910 (c)(4) states "If the city or county is required to comply with this part pursuant to subdivision (b), the water 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."

Water supply planning under SB 610 requires reviewing and identifying adequate available water supplies necessary to meet the demand generated by a project, as well as the cumulative demand for the general region over the next 20 years, under a broad range of water conditions. This information is typically found in the current UWMP for the project area. SB 610 requires the identification of the public water supplier for a project.

In addition, SB 610 requires the preparation of a Water Supply Assessment if a project meets the definition of a "Project" under Water Code Section 10912 (a). The code defines a "Project" as meeting any of the following criteria:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A commercial building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A hotel or motel with more than 500 rooms;
- 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;
- A mixed-use project that includes one or more of these elements; or
- A project creating the equivalent demand of 500 residential units.

Based on the following assumptions, SB 610 does apply to the proposed Project:

1. The proposed Project is subject to CEQA and an EIR is required.
2. The proposed Project, a mixed-use project that includes one or more of these elements, meets the definition of a "Project" as specified in Water Code section 10912(a) paragraph (3) as defined for mixed-use development.

The proposed Project has not been the subject of a previously adopted Water Supply Assessment (WSA) and has not been included in an adopted WSA for a larger project. Thus, a WSA, as required by these criteria under SB 610, has been prepared for the Project. Water Code sections 10910 through 10915 delineate the specific information that must be included in the WSA. The Water Supply Assessment is included in Appendix F of this EIR.

California Model Water Efficient Landscape Ordinance

The Water Conservation in Landscaping Act was enacted in 2006, requiring the DWR to update the Model Water Efficient Landscape Ordinance (MWELO). In 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required a retail water supplier or a county to adopt the provisions of the MWELO by January 1, 2010, or enact its own provisions equal to or more restrictive than the MWELO provisions. Because the City of Dixon is a "local agency" under the MWELO, it must require "project applicants" to prepare plans consistent with the requirements of MWELO for review and approval by the City.

The MWELO applies to new construction with a landscape area greater than 2,500 square feet. The MWELO "highly recommends" use of a dedicated landscape meter on landscape areas smaller than 5,000 square feet, and requires weather-based irrigation controllers or soil-moisture based controllers or other self-adjusting irrigation controllers for irrigation scheduling in all irrigation systems. The MWELO provides a methodology to calculate total water use based upon a given plant factor and irrigation efficiency.[1] Finally, the MWELO requires the landscape design plan to delineate hydrozones (based upon plant factors) and then to assign a unique valve for each hydrozone (low, medium, high water use).

City of Merced General Plan

The Public Services and Facilities Element and the Open Space, Conservation, and Recreation Element of the Merced Vision 2030 General Plan address issues related to water supply and conservation. The following policies related to domestic water are applicable to the proposed Project include:

POLICIES: PUBLIC SERVICES AND FACILITIES ELEMENT

- **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 public facility and infrastructure improvements.
- **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.

POLICIES: OPEN SPACE, CONSERVATION, AND RECREATION ELEMENT

- **Policy OS-5.1:** Promote water conservation throughout the planning area.

Utility Master Plans

The City of Merced maintains a variety of Master Plan documents that guide the design, development, and maintenance of the utilities within the city limits. These include: *Urban Water Management Plan* (2020), *Wastewater Collection System Master Plan* (2023), *Storm Drain Master Plan (2002)*.

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project may have a significant impact on the environment associated with water supply if it would:

[1] In calculating Estimated Total Water Use, the MWELO requires use of at least a 71% irrigation efficiency factor. Assuming 71% irrigation efficiency, the average plant factor must be 0.50. It would be possible to stay within the water budget if the average plant factor were higher than 0.50 by designing a system with an irrigation efficiency higher than 71%. The relationship between a Plant Factor (PF) and Irrigation Efficiency (IE) in the Applied Water formula is: AW=(ETo*PF)/IE.

- Require or result in the relocation or construction of new or expanded water treatment facilities, the construction of which could cause significant environmental effects; or
- Have insufficient water supplies available to serve the Project from existing entitlements and resources, or if new or expanded entitlements are needed.

IMPACTS AND MITIGATION MEASURES

Impact 3.17-4: The proposed Project would not require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The provision of public services and the construction of onsite infrastructure improvements will be required to accommodate the development of the proposed Project. Water distribution will be by an underground distribution system to be installed as per the City of Merced standards and specifications.

The City of Merced currently depends on groundwater supplied from various wells throughout the water service area. The proposed Project would require extension of offsite water conveyance infrastructure and the construction of new onsite water conveyance infrastructure to the Project site for potable water and irrigation water. Currently a 16" water main exists in Bellevue Road and is supplied by Well No. 17 lying within the UC Merced campus. Construction of the onsite potable water infrastructure would not have the potential to induce growth beyond what is proposed because the infrastructure is not oversized to accommodate additional projects or growth.

Estimated average daily water demand for the annexation area based on land is 175,362 gallons per day. Maximum Daily Demand is 333,188 gallons per day. Peak Hour Demand is 491,013 gallons per day. A water demand reduction is anticipated due to the use of water meters and the implementation of water conservation measures in conformance with the City of Merced's Urban Water Management Plan. Fire Flow requirements for Retail, Commercial, Amenities and Hotel land use is 2,500 gallons per minute at 3 hours sprinklered. Fire Flow requirements for Mixed Use residential land use is 1,500 gallons per minute at 2 hours sprinklered.

The Project will be served by the above referenced 16" water main in Bellevue Road and a future 16" water main in Lake Road as part of the 2030 water pipelines identified in the City of Merced Water Master Plan. Twelve-inch water mains will be installed in Mandeville Lane and Los Olivos Road. On-site development will be served by looped 10" backbone water lines.

The proposed Project, if approved by the City, is capable of being served by the City from the City's existing and future portfolio of water supplies. The water supply for the proposed Project will have the same water supply reliability and water quality as the water supply available to each of the City's other existing and future water customers.

The proposed Project would not require the construction of new water treatment facilities or expansion of existing water treatment facilities for water service. Implementation of the proposed Project would have a ***less-than-significant*** impact relative to this topic.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Impact 3.17-5: The proposed Project has sufficient water supplies available to serve the Project from existing entitlements and resources. (Less than Significant)

PROJECTED WATER SUPPLY FOR THE PROPOSED PROJECT

Water demands for the proposed Project will be served using the City's existing and future portfolio of water supplies. As discussed above, if approved by the City, the proposed Project would be served from the City's existing and future portfolio of water supplies. The City's existing supplies consist solely of groundwater pumped from the underlying Merced Subbasin. Recycled water is not currently utilized within the City's service area and there are no plans to develop it as a source. Instead, the City plans to use recycled water in the future as a method of exchange to acquire more surface water from Merced Irrigation District. The City is also considering installing new groundwater wells and/or constructing a new surface water treatment plant.

PROJECTED WATER DEMAND FOR THE PROPOSED PROJECT

Water demand projections for buildout of the Proposed Project were developed by referencing the project information, such as non-residential square footage and the number of residential dwelling units. Water use factors were then applied to the project information. The City's 2020 Urban Water Master Plan contains general land use-based unit water use factors, which consider total parcel acreage only. Given that such detailed information is available for the proposed Project (i.e., non-residential building square footage, number of residential dwelling units, and number of hotel rooms), the Water Supply Assessment did not use the unit water use factors from the WMP. Instead, a Water Demand Projection Worksheet from Redwood City (as shown in Appendix F) was used to estimate demand for the Proposed Project. Information included in Appendix F has been utilized in water supply analysis in the past to estimate water demand for other projects that are similar to the proposed Project. The worksheet shown in Appendix F separates the water use estimate into indoor and outdoor components for residential and commercial land uses. It also has a separate factor that can be used to estimate water use for hotels, based on the number of rooms.

It is anticipated that the proposed Project, if approved by the City, be served from the City's existing and future portfolio of water supplies. The City's existing and future supplies consist solely of groundwater pumped from wells. Proponents of the proposed Project will be responsible for funding and constructing the infrastructure required to deliver water supplies to the proposed

Project area. The inclusion of existing and planned future water supplies is specifically allowed by Water Code Section 16031(b).

Table 3.17-6 summarizes the projected water demand for each land use type. The total projected water demand for the Proposed Project is approximately 233 acre-feet per year (afy). Potable water is assumed to be used to meet the projected water demands, because no recycled water infrastructure is currently in place or planned for installation near the Project Site.

TABLE 3.17-6: PROJECTED WATER DEMAND FOR THE PROPOSED PROJECT

LAND USE	*PROPOSED QUANTITY*	*UNITS*	*WATER USE FACTOR*	*WATER USE FACTOR UNITS*	*PROJECTED WATER DEMAND, GPD*	*PROJECTED WATER DEMAND, AFY*
Multi-Family Residential (Indoor)	654	units	180	gpd/unit	117,720	131.9
Multi-Family Residential (Landscape)	1,962	persons	17	gpd/person	33,354	37.4
Commercial (Indoor)	46,680	sf	0.13	gpd/sf	6,068	6.8
Commercial (Landscape)	164,106	sf	0.072	gpd/sf	11,816	13.2
Hotel	200	rooms	195	gpd/room	39,000	43.7
				Total Water Demand	**207,958**	**233**

NOTES: AFY = ACRE-FEET PER YEAR; GPD = GALLONS PER DAY; SF = SQUARE FEET.

SOURCE: UC VILLAGES WATER SUPPLY ASSESSMENT, WEST YOST, 2024.

Determination of Water Supply Sufficiency

Water Code section 10910 states:

> *10910(c)(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.*

Pursuant to Water Code section 10910(c)(4), and based on the technical analyses described in the UC Villages Water Supply Assessment, as shown in Appendix F, concludes that the City's projected water supplies are sufficient to meet existing and projected future water demands, including future water demands associated with the Proposed Project, over a 20 year period and under normal, single dry, and multiple dry years. These projections account for the City's SB X7-7 2020 per capita water use goal, as well as a 20 percent reduction in per capita water use due to implementation of Stage 2 response actions in the City's Water Shortage Contingency Plan. The City's 2020 UWMP assumed an increase in demand during single dry years to follow the City's historical supply pattern.

Similarly for multiple dry years, demands are assumed to follow the historical supply pattern between 2012 and 2016. During that period, the City had 110, 120, 110, 80, and 80 percent of its average supplies available respectively, for each of the five consecutive years. Total supplies are assumed to match total demands because groundwater pumping will be operated to meet demands.

CONCLUSION

The water demands for buildout of the proposed Project are included in the projected water demands. Therefore, the City is able to serve the proposed Project in addition to existing and planned developments with the existing and planned future water supplies. As identified above, the proposed Project would not result in insufficient water supplies available to serve the Project from existing entitlements and resources. Therefore, the proposed Project would result in a ***less-than-significant*** impact to water supplies.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

The cumulative setting includes all areas covered in the service areas of the City's water supply services.

Impact 3.17-6: The proposed Project, in combination with cumulative development, would not require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, or have inadequate water supply. (Less than Significant)

The City's UWMP projects water supply demand well into the future. As shown in Table 3.17-4, the projected availability of the City's existing and planned future potable water supplies meets projected water demands in normal, single dry, and multiple dry years through 2040. Table 3.17-4 indicates that no supply shortfalls are projected to occur under all scenarios. This is due to the high reliability of the City's groundwater supply, which the City can pump even during a prolonged drought. Therefore, the City has adequate water supply in the cumulative scenario.

As the city continues to grow, additional water conveyance infrastructure will be required to supply new geographic areas of the city. Water mains, distribution pipes, wells, pumps, and other facilities may be required to be constructed or upsized. This is a potentially significant impact.

The proposed Project would connect to the existing 16" water main in Bellevue Road and a future 16" water main in Lake Road as part of the 2030 water pipelines identified in the City of Merced

Water Master Plan. Twelve-inch water mains would be installed in Mandeville Lane and Los Olivos Road. On-site development would be served by looped 10" backbone water lines. The addition of these specific water connections would serve the proposed Project, extending water lines only to the Project site. These connections are part of the proposed Project and would not place an undue burden on the existing water infrastructure system and would not require the construction of new water treatment or conveyance facilities. Therefore, the proposed Project would not have a considerable contribution to the impact, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

3.17.3 STORM WATER

ENVIRONMENTAL SETTING

Existing City Facilities

The Wastewater Collection Department also operates and maintains the City's storm drainage collection system. The storm drainage collection system consists of 112 miles of underground storm drain lines, underground storage pipes, and 141 acres of detention ponds. The Storm Drain Collection crew vacuums 2,448 storm drain catch basins per year, maintains 56 storm drain pump stations, and associated basins, storm inlets, and discharge lines.

The City has three major storm drain outfall systems that serve the area south of Bear Creek; the West Avenue storm drain trunk line which flows into Hartley Slough, the Auto Center Drive storm drain system that discharges into Bear Creek and the G Street storm drain which flows southward from Bear Creek into the Zentner Lateral (MID Canal) near Cone Avenue. There are numerous smaller storm drain systems serving smaller developed areas within local sub-basins that drain into Bear Creek, Black Rascal Creek, Fahrens Creek, Parkinson Creek and Cottonwood Creek.

The City of Merced also operates and maintains several detention ponds, underground storage pipes and pump stations.

Sixty-foot right-of-way (R/W) channels convey runoff through areas where the estimated peak flow rates from a watershed exceed the capacity of a 66" storm drain in areas that are not currently developed.

Underground storm drain pipelines are utilized to serve the majority of new development areas and as upgrades to many existing conveyance facilities in existing development areas. The storm drain pipeline conveyance system consists of the major trunk line (backbone) system and is intended to provide master plan level guidance for future storm drain pipeline design. In areas where cover problems exist, multi-sized smaller diameter pipes or equivalent capacity alternatives can be used in place of the pipe sizes represented in the Storm Drainage Master Plan (SDMP). In several locations in the downtown area (south of Bear Creek), where the existing storm drain pipes do not have the capacity to convey the design flows, the option of adding additional storm drains to work in conjunction with existing storm drains is proposed. Storm drain trunk lines are sized to convey the 10-year discharges operating under uniform flow conditions. All proposed storm drain lines are to be located in public streets in the existing developed areas.

Large excavated sites (detention basins) are used for the purpose of storing runoff in a manner that significantly reduces peak flows that would otherwise overtax to the available downstream outfall system. Due to capacity limitations associated with the downstream outfall systems, there are 22 detention basins proposed in this SDMP. All of the detention basins are considered to have non–interruptible outlet facilities and have been sized for inflow from a 50-year 24 hour storm (developed condition) with outflow limited to a peak rate generated by a 2 year storm occurring under the existing level of development within the contributing watershed.

Pumps are used to assist in the draining of stormwater detention basins in locations where gravity controlled structures are not feasible as the sole outflow mechanism.

The existing outfall facilities (outfall conveyance systems) within the city consist of natural channels and various MID Canals and Laterals. Runoff from existing developed and undeveloped areas within and outside the city limits currently enters these natural channels and MID Canals.

Flooding

As noted in section 3.10, Hydrology and Water Quality, flooding events as a result of storm drainage can result in damage to structures, injury or loss of human and animal life, exposure of waterborne diseases, and damage to infrastructure. In addition, standing floodwater can destroy agricultural crops, undermine infrastructure and structural foundations, and contaminate groundwater. The Project site is located within Zone X, which is an area determined to be outside the 0.2 percent (500-year) annual chance floodplain. Therefore, the Project is located within an area of minimal flood hazard; refer to Figure 3.10-3.

Future Storm Drain Master Plan Improvements

Stormwater system facilities are provided through development and the City's Capital Improvement Program. Improvements required for development are included in development agreements, and are paid for by and installed concurrently with development as needed. There are several possible future Capital Improvement Projects proposed by the City to accommodate planned growth and eliminate system deficiencies within each of the drainage basins.

REGULATORY SETTING

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands, perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e); Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas": subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual State or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);

- Withdraw approval of such State or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain Federal or State projects from regulation under this Section: subparagraph (r); and,
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).
- Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

The SWRCB and RWQCBs enforce State of California statutes that are equivalent to or more stringent than the Federal statutes. RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. In the City of Dixon, the RWQCB is responsible for protecting surface and groundwater from both point and non-point sources of pollution. Water quality objectives for all of the water bodies within Dixon were established by the RWQCB and are listed in its Basin Plan.

National Pollutant Discharge Elimination System (NPDES)

National Pollutant Discharge Elimination System (NPDES) permits are required for discharges of pollutants to navigable waters of the United States, which includes any discharge to surface waters, including lakes, rivers, streams, bays, the ocean, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. NPDES permits are issued under the Federal Clean Water Act, Title IV, Permits and Licenses, Section 402 (33 USC 466 *et seq*.).

The RWQCB issues these permits in lieu of direct issuance by the Environmental Protection Agency, subject to review and approval by the Environmental Protection Agency Regional Administrator. The terms of these NPDES permits implement pertinent provisions of the Federal Clean Water Act and the Act's implementing regulations, including pre-treatment, sludge management, effluent limitations for specific industries, and anti- degradation. In general, the discharge of pollutants is to be eliminated or reduced as much as practicable so as to achieve the Clean Water Act's goal of "fishable and swimmable" navigable (surface) waters. Technically, all NPDES permits issued by the RWQCB are also Waste Discharge Requirements issued under the authority of the CWA.

These NPDES permits regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. NPDES permits are issued for five years or less, and are therefore to be updated regularly. The rapid and dramatic population and urban growth in the Central Valley Region has caused a significant increase in NPDES permit applications for new waste discharges. To expedite the permit issuance process, the SWRCB has adopted several general NPDES permits, each of which regulates numerous discharges of similar types of wastes. The SWRCB has issued general permits for stormwater runoff from industrial and construction sites statewide. Stormwater discharges from industrial and construction activities in the Central Valley Region can be covered under these general permits, which are administered jointly by the SWRCB and RWQCB.

The SWRCB issued a Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Permit Number CA000004, Water Quality Order No. 2013-0001 DWQ), effective July 1, 2013. The 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 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 the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) and effectively prohibit discharges of non-stormwater into its MS4, unless such discharges are authorized.

The City's Storm Water Management Program (SWMP) was implemented to limit, to the MEP, the discharge of pollutants from the Merced Storm Water Group's (MSWG) storm sewer systems. The MSWG is a coalition of municipalities consisting of the City of Atwater, City of Merced, and Merced County. Development and implementation of the SWMP is intended to fulfill requirements of storm water discharges from small MS4 operators in accordance with Section 402(p) of the Federal CWA. The SWMP was developed to also comply with the General Permit.

The overall goals of the SWMP are to (1) reduce the potential impact(s) of pollution from urban areas on waters of the State and waters of the United States and protect their beneficial uses; and (2) develop and implement an effective stormwater program that is well-understood and broadly supported by stakeholders. The core objectives of the stormwater program are to:

- Identify and control those pollutants in urban runoff that exceed water quality objectives (WQOs), as measured in the waters of the State and waters of the United States, and protect the beneficial uses of the receiving waters.
- Comply with the federal and State regulations to eliminate or control, to the MEP, the discharge of pollutants associated with urban runoff from the stormwater drainage system.
- Develop a cost-effective program which focuses on the prevention of pollution in urban stormwater.
- Seek cost-effective alternative solutions where prevention is not a practical solution for exceedances of WQOs.
- Coordinate the implementation of control measures with other agencies.

Federal Emergency Management Agency

Merced County is a participant in the National Flood Insurance Program (NFIP), a federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

Communities are occasionally audited by the Department of Water Resources (DWR) to insure the proper implementation of FEMA floodplain management regulations.

Department of Water Resources

DWR's major responsibilities include preparing and updating the California Water Plan to guide development and management of the State's water resources, planning, designing, constructing, operating, and maintaining the State Water Resources Development System, protecting and restoring the Sacramento-San Joaquin Delta, regulating dams, providing flood protection, assisting in emergency management to safeguard life and property, educating the public, and serving local water needs by providing technical assistance. In addition, the DWR cooperates with local agencies on water resources investigations; supports watershed and river restoration programs; encourages water conservation; explores conjunctive use of ground and surface water; facilitates voluntary water transfers; and, when needed, operates a State drought water bank.

California Water Code

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Division 7 of the California Water Code) (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and each of the RWQCBs power to protect water quality, and is the primary vehicle for implementation of California's responsibilities under the Federal Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a water quality control plan (Basin Plan) for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

The Water Code Section 13260 requires all dischargers of waste that may affect water quality in waters of the state to prepare and provide a water quality discharge report to the RWQCB. Section 13260a-c is as follows:

> (a) Each of the following persons shall file with the appropriate regional board a report of the discharge, containing the information that may be required by the regional board:
>
> > (1) A person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system.

(2) A person who is a citizen, domiciliary, or political agency or entity of this state discharging waste, or proposing to discharge waste, outside the boundaries of the state in a manner that could affect the quality of the waters of the state within any region.

(3) A person operating, or proposing to construct, an injection well.

(b) No report of waste discharge need be filed pursuant to subdivision (a) if the requirement is waived pursuant to Section 13269.

(c) Each person subject to subdivision (a) shall file with the appropriate regional board a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge.

Water Quality Control Plan for the Central Valley Region

The Water Quality Control Plan for the Central Valley Region (Basin Plan) includes a summary of beneficial water uses, water quality objectives needed to protect the identified beneficial uses, and implementation measures. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The term "water quality standards," as used in the Federal Clean Water Act, includes both the beneficial uses of specific water bodies and the levels of quality that must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the RWQCB and others that are necessary to achieve and maintain the water quality standards.

The RWQCB regulates waste discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. The Basin Plan reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the California Water Code and the Clean Water Act.

City of Merced General Plan

The Public Services and Facilities Element of the Merced Vision 2030 General Plan addresses issues related to stormwater. The following policies related to stormwater are applicable to the proposed Project include:

POLICIES: PUBLIC SERVICES AND FACILITIES ELEMENT

- **Policy P-1.1.** Provide Adequate Public Infrastructure and Municipal Services to Meet the Needs of Future Development.
- **Polic P-5.1.** Provide effective storm drainage facilities for future development.

City of Merced Municipal Code

The following chapters of the Merced Municipal Code relate to stormwater and drainage.

CHAPTER 15.50 STORM WATER MANAGEMENT AND DISCHARGE CONTROL

This chapter is intended to protect and promote the health, safety, and general welfare of the citizens of City of Merced by 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 discharge.

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project may have a significant impact on the environment associated with Utilities if it would:

- Require or result in the relocation or construction of new or expanded storm water drainage facilities, the construction of which could cause significant environmental effects.

IMPACTS AND MITIGATION MEASURES

Impact 3.17-7: The proposed Project would not have the potential to require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The proposed Project would increase impervious surface area, resulting in approximately 58 percent of the project site converting from pervious surfaces to impervious surfaces. Onsite storm drainage infrastructure would be installed to serve the proposed Project. All stormwater generated by development of the site would be handled by a "cascading" basin system, which would interconnect the proposed basins throughout the site. Prior to entering the basin system, the stormwater would be treated through a combination of treatment devices including, but not limited to drainage swales, small bioretention basins, inlet filters, interception trees, permeable concrete pavers, stormwater planters, and rain gardens. If necessary, underground storage and treatment can be utilized to assist with any additional treatment or storage.

There are four planned detention basins located throughout the site, with the lowest basin being located at the natural low point of the project site in the southeast corner. These basins would be designed as detention basins with a non-interruptible outlet draining to the nearby Yosemite Lateral, owned, and maintained by the Merced Irrigation District. An agreement with the Merced Irrigation District to discharge into the lateral would be necessary.

The Project site slopes from an existing hill near the northern boundary of the property to the southeast by an elevation differential of 37 vertical feet. The hill also slopes to the north by an elevation differential of 16 vertical feet. The topography of the site was surveyed by Benchmark Engineering in November 2021, and was tied to the City of Merced benchmark F797 (NAVD 88).

According to the Natural Resources Conservation Service soil survey, the existing soil on site consists of primarily of gravelly loam, with some cobbly clay and clay loam also located on the site. The hydrologic soil group rating for the site ranges from a "C" to a "D", which does not allow for much percolation to occur. This will limit the ability to capture stormwater on site, and a pump station will be necessary to remove excess water from the site.

The City of Merced requires the treatment of stormwater, as well as detention of the water until the storm event has passed before discharging the stormwater from the site. The stormwater design will need to adhere to the Post Construction Standards for treatment and the detention basins will need to be sized to capture a 50 year-24-hour storm event. According to the National Oceanic and Atmospheric Administration, the amount of water to capture for said storm event will be 3.18 inches of rainfall for the site. Based on the City of Merced Standard Specifications, the capture volume for the site, including Mandeville Lane, the western half of Old Lake Road, and the eastern half of the future collector road on the western side of the project site, is approximately 6 acre-feet. An agreement with the City of Merced for use of the private basin for the street capture will be necessary.

New development and redevelopment projects are required to comply with the State's permit requirements regarding stormwater runoff. The city references state permit requirements, City Engineering Standards, and California Stormwater Quality Association (CASQA) Stormwater Best Management Practices Development Handbook for reviewing development and redevelopment projects for compliance.

A Storm Water Pollution Prevention Plan (SWPPP) will be prepared in conformance with the State Water Resources Control Board's latest General Construction Permit Guidelines. The SWPPP will be implemented during the construction phases of the project. Therefore, with implementation of the drainage system as analyzed in the Drainage Study prepared for the proposed Project and with the preparation of the SWPPP, drainage impacts would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

The cumulative setting includes all areas covered in the service areas of the City's stormwater and drainage services.

Impact 3.17-8: The proposed Project, in combination with other cumulative development, would not have the potential to require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

Regional flooding after large events is a known issue in the area. A series of culverts, conveyance systems, and other storm drainage infrastructure have been constructed over time to address the issue. Cumulative development contributes to an incremental increase in impervious surfaces that could increase stormwater runoff and impact existing storm drain facilities. All cumulative projects would be required to comply with City/County ordinances and General Plan policies, as well as other regulations that minimize stormwater runoff, such as the Clean Water Act. Stormwater drainage, and the need to construct additional storm drainage facilities is a potentially significant cumulative impact.

The proposed Project would handle its stormwater onsite through a series of bioswales and detention basins. Managing stormwater onsite would prevent an increase in offsite flooding over conditions that currently exist. The City's General Plan contains policies and programs to reduce stormwater runoff. Likewise, the sections of the Merced Municipal Code that protect water quality, also minimize stormwater runoff, such as Chapter 15.50 Storm Water Management and Discharge Control. All future development under the Project would also be required to comply with the Clean Water Act and regulations enforced by the SWQCB and RWQCB, which require reductions to stormwater runoff and protection of waterways from impacts of development. Therefore, the proposed Project would not make a considerable contribution to the need for additional stormwater infrastructure, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

3.17.4 SOLID WASTE

ENVIRONMENTAL SETTING

The Refuse Division of the City of Merced is responsible for all solid waste collection within City limits. This includes scheduled and unscheduled service for residential, commercial, and industrial customers, as well as special programs such as Street Sweeping, Leaf Collection, Assisted Refuse, Alley Cleanup, Tire Amnesty and the Bulky Item Drop-Off Site.

Merced County and its six incorporated cities jointly own and operate two active solid waste landfill facilities: the Highway 59 Landfill and the Billy Wright Landfill. The proposed Project would be served by the Highway 59 Landfill. Currently, the Highway 59 Landfill (24-AA-0001) has a permitted capacity of 1,500 tons per day, with an estimated total permitted capacity of 30,012,352 cubic yards. The total estimated remaining capacity, as of 2024, was 28,025,334 cubic yards.[2] The estimated closure date of the currently permitted facility is January 1st, 2030. In May 2016, the Merced County Association of Governments approved the Valley Fill Project, which would increase landfill capacity by 6,857,000 cubic yards and is estimated to extend the life of the Highway 59 Landfill by 15 years, assuming increased disposal capacity needs for the region. Although the expansion is not anticipated to be necessary for several years, operations of the Highway 59 Landfill have been modified in preparation for expansion of the landfill to the north.

REGULATORY SETTING

California's Integrated Waste Management Act of 1989 (AB 939)

California's Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling and composting. In order to achieve this goal, AB 939 requires that each City and County prepare and submit a Source Reduction and Recycling Element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 939 also established requirements for cities and counties to develop and implement plans for the safe management of household hazardous wastes. In order to achieve this goal, AB 939 requires that each city and county prepare and submit a Household Hazardous Waste Element.

75 Percent Solid Waste Diversion

AB 341 requires CalRecycle to issue a report to the Legislature that includes strategies and recommendations that would enable the state to recycle 75 percent of the solid waste generated in the state by January 1, 2020, requires businesses that meet specified thresholds in the bill to arrange for recycling services by July 1, 2012, and also streamlines various regulatory processes.

[2] CalRecycle. SWIS Facility/Site Activity Details. Highway 59 Landfill (24-AA-0001). Accessed August 7, 2024.

Construction and Demolition Waste Materials Diversion

Senate Bill 1374 (SB 1374), Construction and Demolition Waste Materials Diversion Requirements, requires that jurisdictions summarize their progress realized in diverting construction and demolition waste from the waste stream in their annual AB 939 reports. SB 1374 required the California Integrated Waste Management Board (CIWMB, which is now CalRecycle) to adopt a model construction and demolition ordinance for voluntary implementation by local jurisdictions.

California Green Building Standards Code (CALGreen)

CALGreen requires the diversion of at least 50 percent of the construction waste generated during most new construction projects (CALGreen Sections 4.408 and 5.408) and some additions and alterations to nonresidential building projects (CALGreen Section 5.713).

California Organic Waste Regulations (SB 1383)

SB 1383 was adopted to reduce organics waste landfill disposal by 75% (from 2014 levels) by 2025. This means diverting more than 20 million tons from landfills. The legislation aims to slow climate change by diverting organic materials from landfills, recovering 20% of edible food and redirecting it to food-insecure Californians.

As of January 2022, Tier 1 Food Generators (including businesses that have more produce, fresh grocery, and shelf-made foods to donate) are required to recover the maximum amount of edible food and maintain recovery records. As of January 2024, Tier 2 Food Generators (including businesses which typically have more prepared foods to donate, which often require careful handling to meet food safety requirements such as time and temperature controls) will be required to do the same.

City of Merced General Plan

The Public Services and Facilities Element of the Merced Vision 2030 General Plan addresses issues related to solid waste. The following policies related to solid waste are applicable to the proposed Project include:

POLICIES: PUBLIC SERVICES AND FACILITIES ELEMENT

- **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.

City of Merced Municipal Code, Chapter 8.04

Chapter 8.04 of the Municipal Code regulates the collection, transportation, and disposal of refuse and solid waste of all kinds, and the collection, transfer and recovery of recyclable and organic waste material in order to promote community welfare, convenience, health, and safety.

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project will have a significant impact on the environment associated with Utilities if it will:

1. 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; and/or.
2. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

IMPACTS AND MITIGATION MEASURES

Impact 3.17-9: The landfills that would serve the proposed Project have sufficient permitted capacity to accommodate the Project's solid waste disposal needs, and the proposed Project will comply with federal, State, and local statutes and regulations related to solid waste. (Less than Significant)

The Refuse Division of the City of Merced is responsible for all solid waste collection. Based on the waste generation factors provided by CalRecycle, the proposed Project is expected to generate approximately 3,275.1 pounds per day of solid waste upon full buildout, which is equivalent to 1.49 tons per day; refer to **Table 3.17-7**.

TABLE 3.17-7: ESTIMATED SOLID WASTE GENERATION

LAND USE	*GENERATION FACTOR(1)*	*PROJECT*	*ESTIMATED SOLID WASTE (LBS/DAY)*
Multi-Family	4 lbs/unit/day	700 units	2,800
Commercial Retail	2.5 lbs/1,000 sf/day	30,000 sq.ft.	75
Public/Institutional	0.007 lbs/1,000 sf/day	18,000 sq.ft.	0.1
Hotel	2 lbs/room/day	200 rooms	400
		Total	***3,275.1***

SOURCE: CALRECYCLE, ESTIMATED SOLID WASTE GENERATION RATES, 2024

Currently, the Highway 59 Landfill (24-AA-0001) has a permitted capacity of 1,500 tons per day, with an estimated total permitted capacity of 30,012,352 cubic yards. The total estimated remaining capacity, as of 2024, was 28,025,334 cubic yards.[3] The estimated closure date of the currently permitted facility is January 1st, 2030.

The Merced County Association of Governments approved the Valley Fill Project, which would increase landfill capacity by 6,857,000 cubic yards and is estimated to extend the life of the Highway 59 Landfill by 15 years, assuming increased disposal capacity needs for the region.

[3] CalRecycle. SWIS Facility/Site Activity Details. Highway 59 Landfill (24-AA-0001). Accessed August 7, 2024.

The proposed Project would be required to comply with applicable State and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. Furthermore, the addition of the volume of solid waste associated with the proposed Project, approximately 1.49 tons per day, would not cause an exceedance of the landfill's remaining capacity. Therefore, the proposed Project would not generate solid waste in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, or exceed any State or local standards associated with solid waste. This is a ***less than significant*** impact.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

CUMULATIVE IMPACTS

The cumulative setting includes all areas covered in the service areas of the City's solid waste collection and disposal services.

Impact 3.17-10: The landfills that would serve the proposed Project, in combination with other cumulative development, have sufficient permitted capacity to accommodate the Project's and cumulative developments' solid waste disposal needs, and will comply with federal, State, and local statutes and regulations related to solid waste. (Less than Significant)

Cumulative development within Merced and other jurisdictions serve by local solid waste facilities would contribute to an incremental increase in solid waste delivered to the Keller Canyon Landfill and other landfills in the region. Other future projects within the cumulative geographic context, would be required to comply with federal, State, and local laws and policies to address potential impacts related to solid waste. Solid wastes within the County of Merced are disposed of at two landfill sites owned and operated by the Merced County Regional Waste Management Authority, the Billy Wright Road landfill and the Highway 59 landfill.

The Merced County Association of Governments approved the Valley Fill Project, which would increase landfill capacity by 6,857,000 cubic yards and is estimated to extend the life of the Highway 59 Landfill by 15 years, assuming increased disposal capacity needs for the region.

As a result, the landfill could accommodate future development, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less than Significant

MITIGATION MEASURE(S)

None required.

Wildfires are, on average, becoming more frequent and more destructive due to a combination of higher temperatures, longer dry periods, and increased human development within wooded areas. Grassland or other vegetation in California is easily ignited, particularly in dry seasons. Wildfire is a serious hazard in high, dry fuel load areas, particularly near areas of natural vegetation and steep slopes since fires tend to burn more rapidly on steeper terrain. Wildfire is also a serious hazard in areas of high wind, given that fires will travel faster and farther geographically when winds are higher. Furthermore, wildfire is more likely in areas where electric power lines are located above ground where they can encounter either vegetation or building materials.

This section of the Draft EIR describes the existing wildfire conditions in eastern Merced County, as well as the relevant regulatory framework. This section also evaluates the possible impacts related to wildfire that could result from the proposed Project. See Section 3.14, Public Services and Recreation, for a discussion of fire protection services.

Information in this section is based, in part, on statements, data, and figures provided by the following reference materials:

- Merced County Multi-Jurisdictional Local Hazard Mitigation Plan;
- California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone Maps;
- Merced County 2030 General Plan Background Report;
- Merced County 2030 General Plan EIR;
- Merced County 2030 General Plan;
- Merced Fire Department 2023 Strategic Plan;
- Merced Irrigation District 2023-2025 Wildfire Mitigation Plan; and
- UC Merced Emergency Response Guide.

3.17.1 ENVIRONMENTAL SETTING

A wildfire is an uncontrolled fire spreading through vegetative fuels, posing danger and destruction to property and watersheds. While wildfires are often the direct result of lightning strikes, they can be caused by downed powerlines or mechanical equipment or are the result of human activities like landscape debris burns, carelessness, or arson. Wildfires often start in undeveloped areas and public land areas, such as state and federal lands, but can spread to urban areas where structures and other human development are more concentrated. The predominant dangers from wildfires are:

- Injury or loss of life to people in the affected area; and
- The destruction of vegetation, property, wildlife.

Communities throughout California are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire control practices have affected the natural cycle of the ecosystem. Wildfire risk is predominantly associated with wildland-urban interface areas, a general term that applies to development adjacent to landscapes that support wildfire. However,

significant wildfires can also occur in heavily populated areas. Merced County is exposed to a variety of wildfire hazard conditions that varies based on fuels, topography, weather, and human behavior.[1]

Generally, fire season in Merced County extends from early spring to late fall. Onset can happen suddenly due to lightning or human caused factors and wildfires can last from a few hours to a few months, but the likely hood of a large and damaging fire lasting for months in Merced County is not likely. Secondary effects from wildfire include increased erosion, destabilized slopes, degraded air and water quality, and economic impacts from burned landscapes. Urban fires primarily involve the uncontrolled burning of residential, commercial and/or industrial structures generally caused by human activities.[2]

There have not been any state or federal disaster declarations in Merced County related to wildfire in the past. There have been 101 wildfires recorded in the county from 1950-2018 totaling 110,893 acres burned. This is an average of over 1,500 acres burned every year. In 2020, a portion of the SCU Lightning Complex Fire, which is the 3rd largest fire by acres burned in state history, extended into Merced County, burning approximately 3,800 acres in the planning area. As stated above, most fires are relatively small compared to the state as a whole, the highest number of acres burned in the county was 19,131 during the 1996 Mercy fire.[3]

WILDFIRE RISK

CAL FIRE Fire Threat Areas

California Department of Forestry and Fire Protection's (CAL FIRE) Fire Threat Model identifies fire threats using fuel rank, which is a ranking system developed by CAL FIRE that incorporates four wildfire factors: fuel model, slope, ladder index, and crown index, and modeled characteristics regarding fire probability and behaviors.

The U.S. Forest Service has developed a series of fuel models, which categorize fuels based on burn characteristics. These fuel models help predict fire behavior. In addition to fuel characteristics, slope is an important contributor to fire hazard levels. A surface ranking system has been developed by CAL FIRE, which incorporates the applicable fuel models and slope data. The model categorizes slope into six ranges: 0-10%, 11-25%, 26-40%, 41-55%, 56-75% and >75%. The combined fuel model and slope data are organized into three categories, referred to as surface rank. Thus, surface rank reflects the quantity and burn characteristics of the fuels and the topography in a given area.

The ladder index is the distance from the ground to the lowest leafy vegetation for tree and plant species. The crown index reflects the quantity of leafy vegetation present within individual specimens of a given species.

1 Merced County, 2021. Multi-Jurisdictional Hazard Mitigation Plan 2021-2026. p. 4-133.
2 Merced County, 2021. Multi-Jurisdictional Hazard Mitigation Plan 2021-2026. p. 4-134.
3 Merced County, 2021. Multi-Jurisdictional Hazard Mitigation Plan 2021-2026. p. 4-138.

The surface rank, ladder index, and crown index for a given area are combined to establish a fuel rank of medium, high, or very high. Fuel rank is used by CAL FIRE to identify areas in the California Fire Plan where large, catastrophic fires are most likely.

The fuel rank data are used by CAL FIRE to delineate fire threat based on a system of ordinal ranking. Thus, the Fire Threat model creates discrete regions, which reflect fire probability and predicted fire behavior. The five classes of fire threat range from low to extreme.

In the National Risk Index, a Wildfire Risk Index score and rating represent a community's relative risk for Wildfires when compared to the rest of the United States. As shown in **Figure 3.18-1a** and **Figure 3.18-1b**, Merced County is classified as having "Relatively Moderate" wildfire risk.[4] A community's score is represented by its percentile ranking among all other communities at the same level for Risk, Expected Annual Loss, Social Vulnerability and Community Resilience. For example, Merced County's Risk Index percentile for a wildfire 89.1, meaning that its Risk Index value is greater than 84.32 percent of all US Census counties.[5] Mariposa, Madera, and Fresno counties to the east and south are rated as Very High for wildfire risk, while Stanislaus and San Benito counties have Relatively Moderate wildfire risk.[6]

CAL FIRE Fire Hazard Severity Zones

The State has charged CAL FIRE with the identification of Fire Hazard Severity Zones (FHSZ) within State Responsibility Areas. In addition, CAL FIRE must recommend Very High Fire Hazard Severity Zones (VHFHSZ) identified within any Local Responsibility Areas. The FHSZ maps are used by the State Fire Marshall as a basis for the adoption of applicable building code standards. **Figure 3.18-2** illustrates the City's and County's Fire Hazard Severity Zones and Responsibility Areas.

As shown in Figure 3.18-2, there are no VHFHSZs located in eastern Merced County, east of I-5. The Project site is not located in a SRA nor in a FHSZ. Areas to the east of the Project site, including areas on the north and east of Lake Yosemite, and grasslands east of the UC Merced campus are in a Moderate FHSZ. As the county's topography rises to the east, the land enters a High FHSZ within an SRA. No areas within or adjacent to the Project site are categorized as containing a Very High FHSZ as designated by CAL FIRE.[7]

Wildland-Urban Interface Zones

A Wildland-Urban Interface (WUI) zone is an area where human made structures and infrastructure (e.g., cell towers, schools, water supply facilities, etc.) are in or adjacent to areas prone to wildfire. Due to surrounding vegetation and proximity to wildlands, WUI areas are considered to be at greater risk of wildfires. The classic Wildland Urban Interface is where urban sprawl presses up against public and private

4 Federal Emergency Management Agency, 2024. National Risk Index, Wildfire Risk. Available: https://hazards.fema.gov/nri/map. Accessed June 20, 2024.

5 Federal Emergency Management Agency, 2024. National Risk Index, Understanding Scores and Ratings. Available: https://hazards.fema.gov/nri/understanding-scores-ratings. Accessed June 20, 2024.

6 Federal Emergency Management Agency, 2024. National Risk Index, Wildfire Risk. Available: https://hazards.fema.gov/nri/map. Accessed June 20, 2024.

7 CAL FIRE, 2024. Office of the State Fire Marshal, Fire Hazard Severity Zones in State Responsibility Area. Map date September 29, 2023, effective April 1, 2024. Available: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones. Accessed June 20, 2024.

natural areas, bringing to mind a distinct line between urban and rural areas. A Wildland Urban Intermix zone is defined as a housing development interspersed in an area, without a clearly defined boundary, dominated by wildland vegetation subject to wildfire.

Wildland fire hazards exist in varying degrees throughout the Central Valley. Areas that are in the Sierra Nevada and Coastal Ranges foothills are more prone to wildfire than the basin of the Central Valley due to steeper slopes, more vegetation, and reduced emergency access. The fire season generally lasts from five to six months, but has been elongated due to climate change.

Figure 3.18-3 identifies the Wildland-Urban Interface and Wildland-Urban Intermix in Merced County near the Project site. As shown in Figure 3.18-3, the Project site, the Bellevue Community Plan area, and areas adjacent to the northeast Merced city limits are classified as Wildland-Urban Intermix. This designation reflects the conditions that residential units are spread throughout the area, without a concentration of urban uses adjacent to rural areas.

3.17.2 REGULATORY SETTING

FEDERAL

UNITED STATES DEPARTMENT OF INTERIOR

Review and Update of the 1995 Federal Wildland Fire Management Policy

1. **Safety**—Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
2. **Fire Management and Ecosystem Sustainability**—The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.
3. **Response to Wildland Fire**—Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.
4. **Use of Wildland Fire**—Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.
5. **Rehabilitation and Restoration**—Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure.
6. **Protection Priorities**—The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.

7. **Wildland Urban Interface**—The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, State, or local governments. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer, and may also enter into formal agreements to assist State and local governments with full structural protection.)
8. **Planning**—Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire Management Plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.
9. **Science**—Fire Management Plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.
10. **Preparedness**—Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.
11. **Suppression**—Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.
12. **Prevention**—Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.
13. **Standardization**—Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.
14. **Interagency Cooperation and Coordination**—Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.
15. **Communication and Education**—Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.
16. **Agency Administrator and Employee Roles**—Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.

17. **Evaluation**—Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects through implementation of the 2001 Federal Fire Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

STATE

CALIFORNIA GOVERNMENT CODE SECTION 65302

Government Code Section 65302, which establishes standards for developing and updating General Plans, includes fire hazard assessment and Safety Element content requirements. This section describes that a Safety Element shall include protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The Safety Element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

The Safety Element is also required to:

- Identify information regarding flood hazards;
- Establish a set of comprehensive goals, policies, and objectives for the protection of the community from the unreasonable risks of flooding;
- Establish a set of feasible implementation measures designed to carry out the applicable goals, policies, and objectives;
- Be reviewed and updated as necessary to address the risk of fire for land classified as state responsibility areas and land classified as very high fire hazard severity zones;
- Be reviewed and updated as necessary to address climate adaptation and resiliency strategies applicable to the city or county.

ASSEMBLY BILL 337

Per AB 337, local fire prevention authorities and the California Department of Forestry and Fire Protection (CAL FIRE) are required to identify “Very High Fire Hazard Severity Zones (VHFHSZ) in Local Responsibility Areas (LRA). Standards related to brush clearance and the use of fire-resistant materials in fire hazard severity zones are also established.

SENATE BILL 99

Senate Bill 99 (SB 99) requires jurisdictions, upon the next revision of the Housing Element on or after January 1, 2020, to review and update the safety element to include information identifying residential developments in hazard areas that do not have at least two emergency evacuation routes.

CALIFORNIA PUBLIC RESOURCES CODE

The State's Fire Safe Regulations are set forth in Public Resources Code Section 4290, which include the establishment of State Responsibility Areas (SRA). An SRA is the area of the state where the State of California is financially responsible for the prevention and suppression of wildfires. SRA does not include lands within Town boundaries or in federal ownership. Areas in federal ownership are under Federal Responsibility Areas (FRA), and areas within Town boundaries are included in Local Responsibility Areas.

Public Resources Code Section 4291 sets forth defensible space requirements, which are applicable to anyone that …*owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material* (Section 4291(a)). These requirements include:

- Maintenance of defensible space of 100 feet from each side and from the front and rear of the structure, not beyond the property line except as required by state law, local ordinance, rule, or regulation;
- An insurance company that insures an occupied dwelling or occupied structure may require a greater distance than that required under paragraph (1) if a fire expert, designated by the director, provides findings that the clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure.
- Removal of the portion of a tree that extends within 10 feet of the outlet of a chimney or stovepipe;
- Maintenance of a tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood;
- Maintenance of the roof of a structure free of leaves, needles, or other vegetative materials;
- Prior to constructing a new building or structure or rebuilding a building or structure damaged by a fire in an area subject to this section, 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.

CALIFORNIA FIRE CODE

The California Fire Code establishes standards related to the design, construction, and maintenance of buildings. The standards set forth in the California Fire Code range from designing for access by firefighters and equipment and minimum requirements for automatic sprinklers and fire hydrants to the appropriate storage and use of combustible materials.

CALIFORNIA CODE OF REGULATIONS TITLE 8

In accordance with California Code of Regulations Title 8, Sections 1270 and 6773 (*Fire Prevention* and *Fire Protection and Fire Equipment*), the Occupational Safety and Health Administration (Cal OSHA) establishes fire suppression service standards. The standards range from fire hose size requirements to the design of emergency access roads.

CALIFORNIA CODE OF REGULATIONS TITLE 14 (NATURAL RESOURCES)

Division 1.5 (Department of Forestry and Fire Protection), Title 14 of the CCR establishes a variety of wildfire preparedness, prevention, and response regulations.

CALIFORNIA CODE OF REGULATIONS TITLE 19 (PUBLIC SAFETY)

Title 19 of the CCR establishes a variety of emergency fire response, fire prevention, and construction and construction materials standards.

CALIFORNIA CODE OF REGULATIONS TITLE 24 (CA BUILDING STANDARDS CODE)

The California Fire Code is set forth in Part 9 of the Building Standards Code. The California Fire Code, which is pre-assembled with the International Fire Code by the International Code Council (ICC), contains fire-safety building standards referenced in other parts of Title 24.

CALIFORNIA HEALTH AND SAFETY CODE SECTION 13000 ET SEQ.

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code, which is divided into “Fires and Fire Protection” and “Buildings Used by the Public.” The regulations provide for the enforcement of the California Fire Code and mandate the abatement of fire hazards.

The code establishes broadly applicable regulations, such as standards for buildings and fire protection devices, in addition to regulations for specific land uses, such as childcare facilities and high-rise structures.

CALIFORNIA PUBLIC UTILITIES CODE SECTION 8387 ET SEQ.

State regulations relating to wildfire mitigation are set forth in Section 8387 of the California Public Utilities Code. The regulations provide that each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment. The local publicly owned electric utility or electrical cooperative is also required to prepare a wildfire mitigation plan.

LOCAL

MERCED COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Merced County, including the participating jurisdictions, prepared a multi-jurisdictional hazard mitigation plan (MJHMP) to guide hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. The plan demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. The plan was also developed to make Merced County and the participating jurisdictions eligible for certain federal disaster assistance, specifically, the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance (HMA) grants including the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) and Building resilient Infrastructure and Communities program, as well as to make the County and jurisdictions more disaster resistant. The plan demonstrates the County's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. Merced County and all of its unincorporated areas, plus the cities of Atwater, Dos Palos, Gustine, Livingston, Los Banos, and Merced are participants in the plan.

MERCED IRRIGATION DISTRICT WILDFIRE MITIGATION PLAN

The Merced Irrigation District (MID) constructs, maintains, and operates its electrical lines and equipment throughout its service area. To comply with California Public Utilities Code (PUC) § 8387(a), MID prepared a 2023-2025 Wildfire Mitigation Plan to describe MID's programs and initiatives aimed on reducing the risk of utility owned and operated facilities being the origin or contributing source for a catastrophic wildfire. MID does not own or operate any facilities, transmission nor distribution, within or abutting the California Public Utilities Commission (CPUC) defined High Fire Threat District (HFTD), and the majority of the MID distribution system is of underground construction. Nonetheless, the plan identifies wildfire risk factors and directs MID's emergency response in the event of a wildfire.[8]

MERCED FIRE DEPARTMENT 2023 STRATEGIC PLAN

The City of Merced prepared a Strategic Plan that identifies five overarching goals to focus the efforts of the Merced Fire Department.[9] Those goals are:

1. Keep the citizens of our city safe.
2. Enhance community safety through prevention.
3. Provide an effective and efficient response to all emergencies.
4. Fund a modern and well-maintained Fire Department for the city.
5. Educate the community and enhance the relationship with the Fire Department.

[8] Merced Irrigation District, 2023. Wildfire Mitigation Plan 2023-2025.

[9] City of Merced, 2023. Merced Fire Department 2023 Strategic Plan.

MERCED VISION 2023 GENERAL PLAN

The Merced Vision 2030 General Plan contains goals, policies, and implementing actions that apply to fire preparedness and response in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Safety Element are designed to ensure that wildfire impacts are minimized as development occurs in accordance with the Merced Vision 2030 General Plan.

SAFETY

Policy S-1.1 Develop and maintain emergency preparedness procedures for the City.

Implementing Action 1.1.a Keep up-to-date through annual review the City's existing Emergency Plan and coordinate with the countywide Emergency Plan.

Implementing Action 1.1.b Prepare route capacity studies and determine evacuation procedures and routes for different types of disasters, including means for notifying residents of a need to evacuate because of a severe hazard as soon as possible.

Implementing Action 1.1.c Require that all new annexation areas be incorporated into the City's emergency plan at the time of annexation.

Implementing Action 1.1.d Establish a process whereby the City of Merced systematically encourages review of and familiarity with the most current community disaster plan by those in local government and other local residents who hold responsible positions. Maintain a list of other public agencies that can be called upon for assistance**.**

Implementing Action 1.1.e Continue to adopt and respect agreements with the County and adjacent communities for mutual aid assistance.

Implementing Action 1.1.f Implement the policies and procedures recommended in the Incident Command System (ICS)/National Incident Management System (NIMS), including continued training for City staff in these practices.

Policy S-4.1 Promote the concept of fire protection master planning with fire safety goals, missions, and supporting objectives for the community.

Implementing Action 4.1.a Provide additional fire station locations as expansion of the City occurs in order to maintain a response objective of 4 to 6 minutes citywide, within the financial constraints of the City.

Implementing Action 4.1.b Work with the Fire Department and the Environmental Health Division to identify fire districts that will require specialized manpower and equipment, such as businesses that use hazardous materials, and request that land uses or structures with similar needs be confined to these districts.

Policy S-4.2 Maintain a reasonable level of accessibility and infrastructure support for fire suppression, disaster, and other emergency services.

Implementing Action 4.2.e Continue to enforce the present nuisance abatement program regarding a height limit on weeds during the dry season (mid-April through mid-November) in both vacant and developed lots, abandoned vehicles, and vacant buildings.

3.17.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to wildfire if it would:

- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires;
- If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:
    - Substantially impair an adopted emergency response plan or emergency evacuation plan;
    - 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;
    - 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; or
    - 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.

METHODOLOGY AND ASSUMPTIONS

Impacts related to wildfires resulting from the proposed Project are discussed below. The following impact analysis is based on an assessment of baseline conditions for eastern Merced County, including emergency response and evacuation plan requirements, wildland fire exposure risk, and post-fire hazards. The evaluation also includes a determination of whether changes to the physical environment caused by the Project to implement the UC Villages project impair or interfere with emergency response plans, expose people to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire, expose people/structures to downslope flooding or landslides, or include installation or maintenance of infrastructure that may exacerbate fire risk.

As described previously, neither the City of Merced nor the Project site are within a State Responsibility Area or located on or near lands classified as very high fire hazard severity zones (VHFHSZ) by CAL FIRE. However, because the Project site is located near a “moderate” Fire Hazard Severity Zone within a State Responsibility Aree, these impacts are discussed below for informational and disclosure purposes.

IMPACTS AND MITIGATION

Impact 3.18-1: Development of the proposed Project would not result in the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. (Less Than Significant)

The Project site is surrounded by rural residential homes, fallow agricultural land, open space grasslands used for grazing, active irrigated agricultural fields and orchards, and an urbanized college campus. Wildfires could occur east of the project site as the landscape changes from urbanized to open grasslands and rolling hills.

The SRA is approximately ¾-mile east of the Project site, immediately east of Lake Yosemite and UC Merced. The proposed Project would add urban uses to an area of mixed rural residential uses, and convert fallow grassland pasture to urban development. Development of the Project site could expose people or structures, either directly or indirectly, to a risk of loss, injury, or death involving wildland fires. However, it should be noted that the City and the County have already identified the Project site as transitioning to urban uses. As a result, the degree of exposure of people or structures, either directly or indirectly, to a risk of loss, injury, or death involving wildland fires would not substantially change with approval of the Project, and current hazards would not be significantly increased.

The Merced County MJHMP identifies the likelihood of wildfire occurring throughout the county at any given time. The eastern portion of the county, near the Project site, is identified as having moderate to high potential for wildfire activity in the future. The county experiences an average of one wildfire every 1.5 years and an average of 1,500 acres burned per year. As impacts of climate change such as increased temperatures and prolonged drought conditions continue in coming years, this frequency and intensity may increase. Powerlines and vehicle or equipment use present a significant source of ignitions. Past wildfires in the county have not resulted in a large number of fatalities; however, significant evacuations and sheltering have been required in past events.[10]

The Project site is within an Intermix WUI zone, meaning that residential units are spread throughout the area, without a concentration of urban uses adjacent to rural areas. Although the Project site is in an urbanizing part of the Merced SOI, the Project would include fire hydrants and adequate fire flow to support fire suppression efforts in the northeastern portion of the SOI.

Any population increases in the Merced SOI will continue to make wildfire vulnerability a growing issue, especially as future development expands into higher fire risk areas. These risks can however be managed with land use regulations and building code requirements. The Merced Vision 2030 General Plan establishes goals, policies, and implementing actions to ensure fire preparedness, adequate emergency response, and establishing and updating evacuation procedures. Future development would be required to comply with the provisions of federal, State, and local requirements related to wildland fire hazards, including State fire safety regulations associated with wildland-urban interfaces, fire-safe building standards, and defensible space requirements.

[10] Merced County, 2021. Multi-Jurisdictional Hazard Mitigation Plan 2021-2026. p. 4-150.

In conclusion, the proposed Project is within the City's SOI and in an urbanizing portion of the County. Although sites in the Bellevue Community Plan area, including the proposed Project site, are identified for urbanization, development could result in an incremental increase in exposure of people and structures to wildland fires and associated hazards as the Project would add more people and structures within the city. The Project site is not within or adjacent to VHFSZs as designated by CAL FIRE.

Therefore, through compliance with existing federal, State, and local laws and regulations related to wildland fire hazards and implementation of the Merced Vision 2030 General Plan policies and programs, and other local municipal code requirements described in the regulatory setting, impacts regarding the exposure of people or structures to significant loss, injury, or death involving wildland fires would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

Impact 3.18-2: Development of the proposed Project in or near State responsibility areas or lands classified as very high fire hazard severity zones would not substantially impair an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

The Project site is not located in an SRA nor in a FHSZ. Areas to the east of the Project site, including areas on the north and east of Lake Yosemite, and grasslands east of the UC Merced campus are in a Moderate FHSZ. As the county's topography rises to the east, the land enters a High FHSZ within an SRA. No areas within or adjacent to the Project site are categorized as containing a Very High FHSZ as designated by CAL FIRE.

The proposed Project would not materially overburden evacuation routes nor substantially impair any emergency response plans or emergency evacuation plans. The Project site is adjacent to two major roadways, Bellevue Road and Lake Road, both of which are undergoing, or will undergo, widening and enhancement. These roads also would serve as the primary evacuation routes for the Project, should an emergency evacuation be ordered.

The proposed Project would also provide new roadways on the Project site, particularly a new north-south connection from Bellevue Road through the Project site to the new Mandeville Lane. Mandeville Lane would also provide a new egress point to Lake Road. These new access points and roadways would improve emergency access to the area.

Furthermore, it should be noted that proposed Project would be substantially similar to the development types and developable areas as what was already planned for. Additionally, no changes to existing services or emergency evacuation routes are proposed. Development and growth associated with the Project would result in an incremental increase in demand for emergency evacuation routes within the city and

county, but the City has existing policies and practices in place that require emergency access to be analyzed during site plan reviews.

The proposed Project will demonstrate compliance with applicable codes and regulations, including the continued implementation of the MJHMP, the Merced Fire Department Strategic Plan, and City policies to assist in the implementation of emergency plans and responses. Further, the California Fire Code establishes requirements for emergency access for fire apparatus. Examples include requirements for multiple points for access for certain types of development, minimum street widths, and maximum acceptable grades for new roads. Chapter 8.42 of the Municipal Code requires development to demonstrate compliance with applicable fire safety measures prior to the issuance of building permits. Through implementation of these plans and polices, adequate emergency vehicle access to and from the Project site would be provided, ensuring that the Project site is designed and operated in a manner that minimizes fire hazards and maximizes the potential for responsive emergency services. Therefore, adequate emergency access would be provided, and the impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

Impact 3.18-3 Development of the proposed Project in areas located in or near State responsibility areas or lands classified as very high fire hazard severity zones would not 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 wildfire, due to slope, prevailing winds, and other factors. (Less Than Significant)

As stated previously, the Project site is not located in an SRA nor in a FHSZ. Areas to the east of the Project site, including areas on the north and east of Lake Yosemite, and grasslands east of the UC Merced campus are in a Moderate FHSZ. As the county's topography rises to the east, the land enters a High FHSZ within an SRA. No areas within or adjacent to the Project site are categorized as containing a Very High FHSZ as designated by CAL FIRE.

The Project site is located near sloping, rolling grasslands that rise to the east, where the fire hazards increase. However, the Project site is not near steep slopes, dense vegetation, or a heavy wind zone such that development of the Project would exacerbate wildfire risks.

Indirect effects from wildfire, including dense smoke and decreased air quality, can expose people to higher-than-normal pollutant concentrations. Wildfires in the past three years have decreased the air quality throughout Merced County.[11] Dense smoke poses a risk to both people with compromised health

[11] Merced County, 2021. Multi-Jurisdictional Hazard Mitigation Plan 2021-2026. p. 4-147.

as well as those considered healthy.[12] Wildfire smoke is known to settle in the Central Valley depending on where wildfires in the state are burning. These wildfire events could affect new residents of the proposed Project, including exposing them to increased air pollutants.

The Project site is anticipated for development by both the City of Merced and Merced County. Development of the Project site would not exacerbate wildfire risks either by the type of development proposed, presence of a unique feature that could increase wildfire risk or frequency, or the introduction of people to the site. Therefore, development of the proposed Project would not exacerbate wildfire risk and, thereby, would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. Therefore, the impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

Impact 3.18-4 Development of the proposed Project in areas located in or near State responsibility areas or lands classified as very high fire hazard severity zones would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) and would not substantially exacerbate fire risk or result in significant temporary or ongoing impacts to the environment. (Less Than Significant)

As stated previously, the Project site is not located in an SRA nor in a FHSZ, although those areas exist to the east of the Project site. The proposed Project would require the construction and operation of new roadways through the Project site, roadway improvements to Bellevue Avenue, and extension of City utility infrastructure to the site. The provision of new roadways and roadway improvements would not extend developed area closer to FHSZs or SRAs. These improvements would occur either in existing right-of-way adjacent to the Project site or within the boundary of the Project site. Installation of new City utility infrastructure, including electrical, water, and sewer lines, would occur underground; no overhead utility lines would be constructed. Therefore, wildfire risk associated with the installation or maintenance of infrastructure would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

[12] Merced County, 2021. Multi-Jurisdictional Hazard Mitigation Plan 2021-2026. p. 4-147.

MITIGATION MEASURE(S)

None Required

Impact 3.18-5 Development of the proposed Project in areas located in or near State responsibility areas or lands classified as very high fire hazard severity zones would not substantially 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. (Less Than Significant)

As stated previously, the Project site is not located in an SRA nor in a FHSZ, although those areas exist to the east of the Project site. The Project site is not located on or near an area subject to downstream flooding, landslides, or slope instability. Merced is generally flat, with some areas of rolling hills. The Project site descends from north to south, but is not on or near an area where there is significant slope or slope instability. The proposed Project does not include changing onsite or offsite drainage patterns in such a way as to cause downstream flooding, even in the event of fire-related erosion or runoff. Therefore, the impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required

CUMULATIVE IMPACTS

The cumulative context for wildfire includes areas within the City of Merced SOI and areas of the unincorporated County to the east of the Project site.

Impact 3.18-6 Development of the proposed Project, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to wildfire. (Less Than Significant)

A significant cumulative impact could occur if the proposed Project, in conjunction with other reasonably foreseeable projects in the area, results in indirect impacts that increases the risk of wildfire or post-fire effects.

Areas within the Merced SOI are largely anticipated for urban development. These areas could convert agricultural lands, rural residential areas, and open space grassland into urban uses, which would bring more occupants to the area. Areas identified for urbanized development in the City's SOI are not within a FHSZ or an SRA. However, cumulative development within the SOI could result in an incremental increase in exposure of people and structures to wildland fires and associated hazards as cumulative development would add more people and structures within the city.

All cumulative projects would be subject to similar fire protection development standards and be required to comply with Merced city or County ordinances, depending on whether land is annexed to the city, and General Plan policies to assist in protecting life and property in the event of a wildfire. In addition, all cumulative projects would be covered under the existing and regularly updated MJHMP by the County. Land annexed to the city would be served by the Merced Fire Department, and would remain reliant on established mutual aid agreements. Land developed outside of the City's SOI would continue to be governed by County policies, including those intended to reduce wildfire risk.

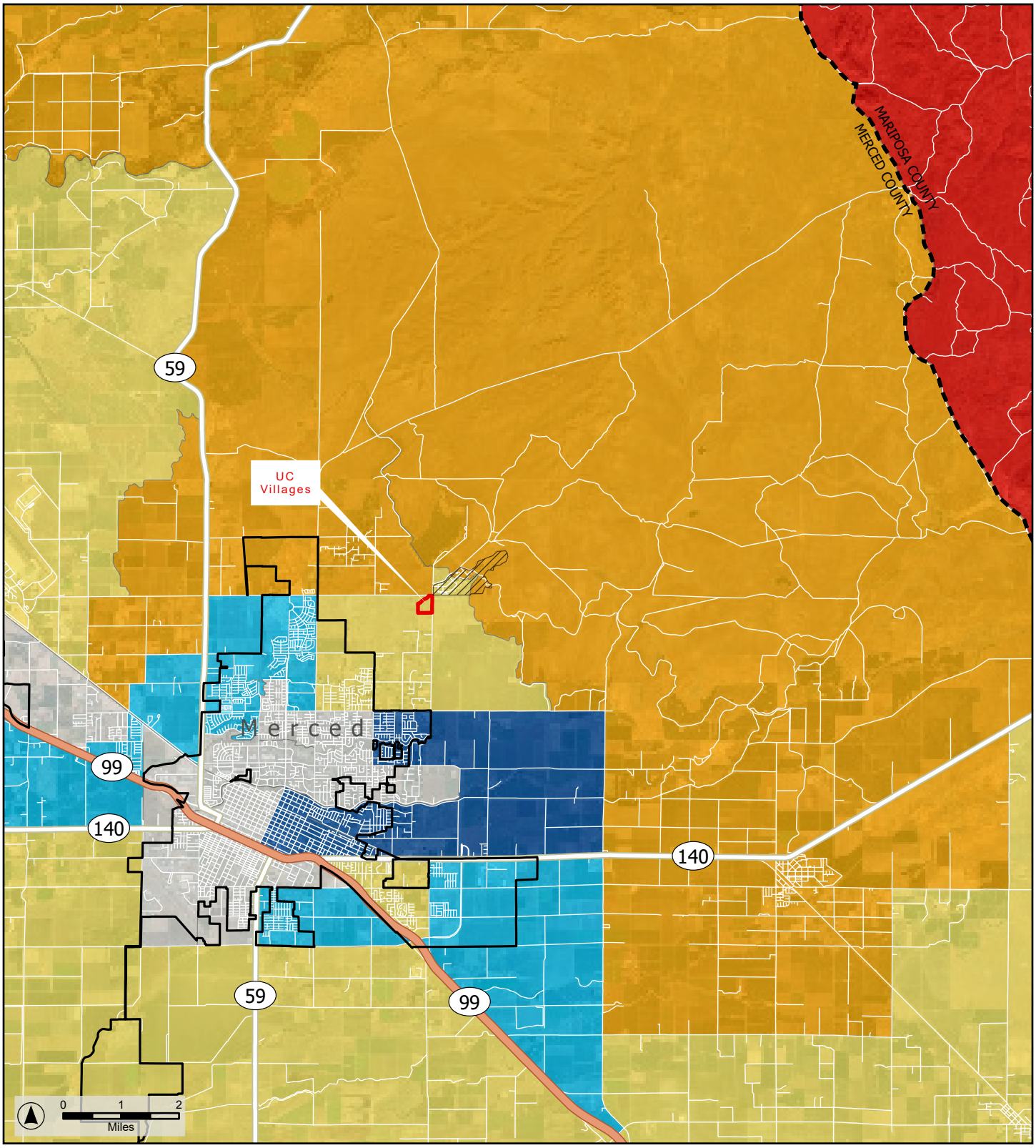
Therefore, cumulative development would not result in adverse cumulative impacts related to wildfire, and the cumulative impact would be ***less than significant***.

SIGNIFICANCE BEFORE MITIGATION

Less Than Significant

MITIGATION MEASURE(S)

None Required



Legend

- Project Boundary
- University Lands
- City of Merced
- County Boundary

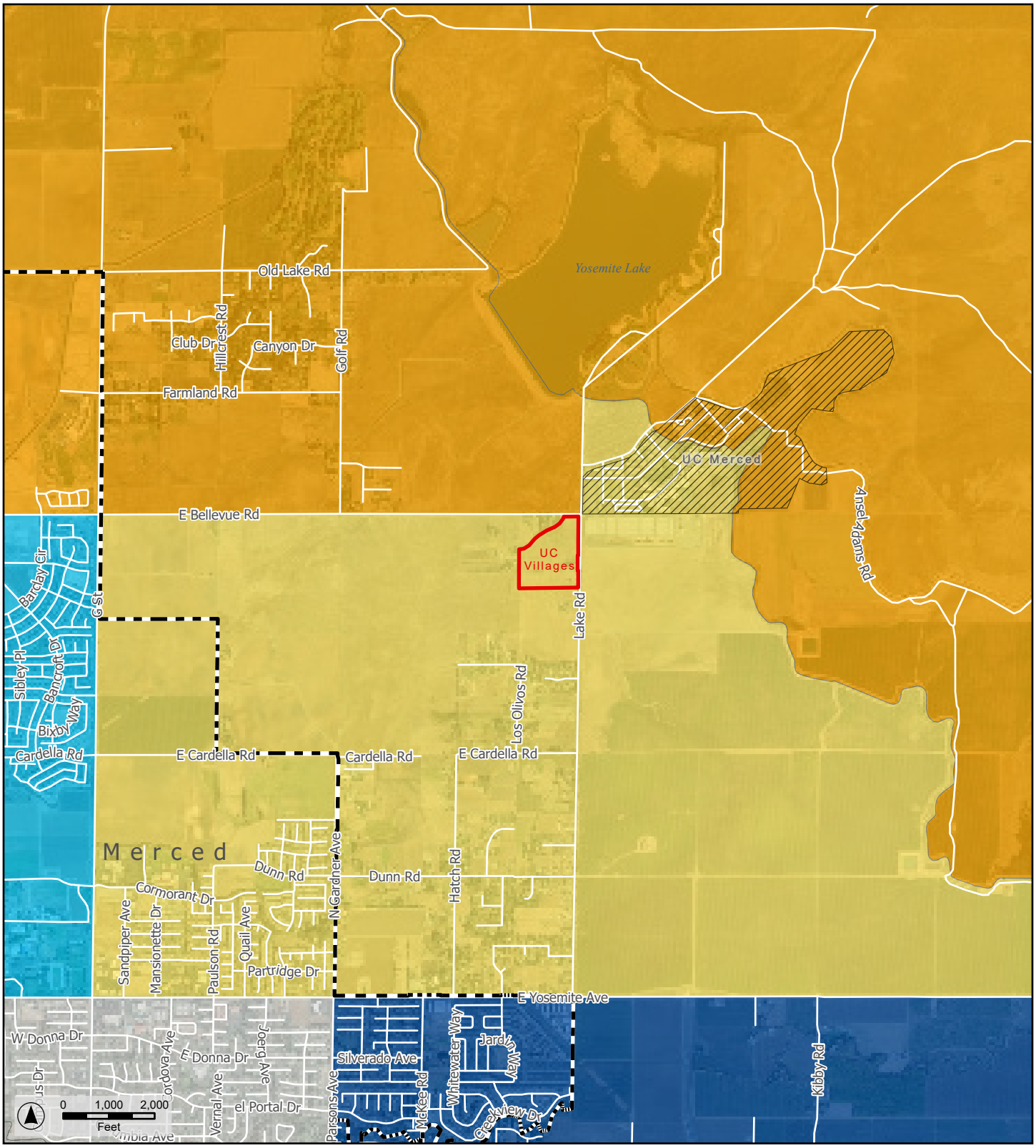
Wildfire Risk Index Rating

- Very High
- Relatively High
- Relatively Moderate
- Relatively Low
- Very Low
- No Rating

UC VILLAGES

Figure 3.18-1a. Wildfire Risk Index Wide View

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; FEMA National Risk Index, March 2023 (v1.19.0). Map date: October 1, 2024.



Legend

- Project Boundary
- University Lands
- City of Merced

Wildfire Risk Index Rating

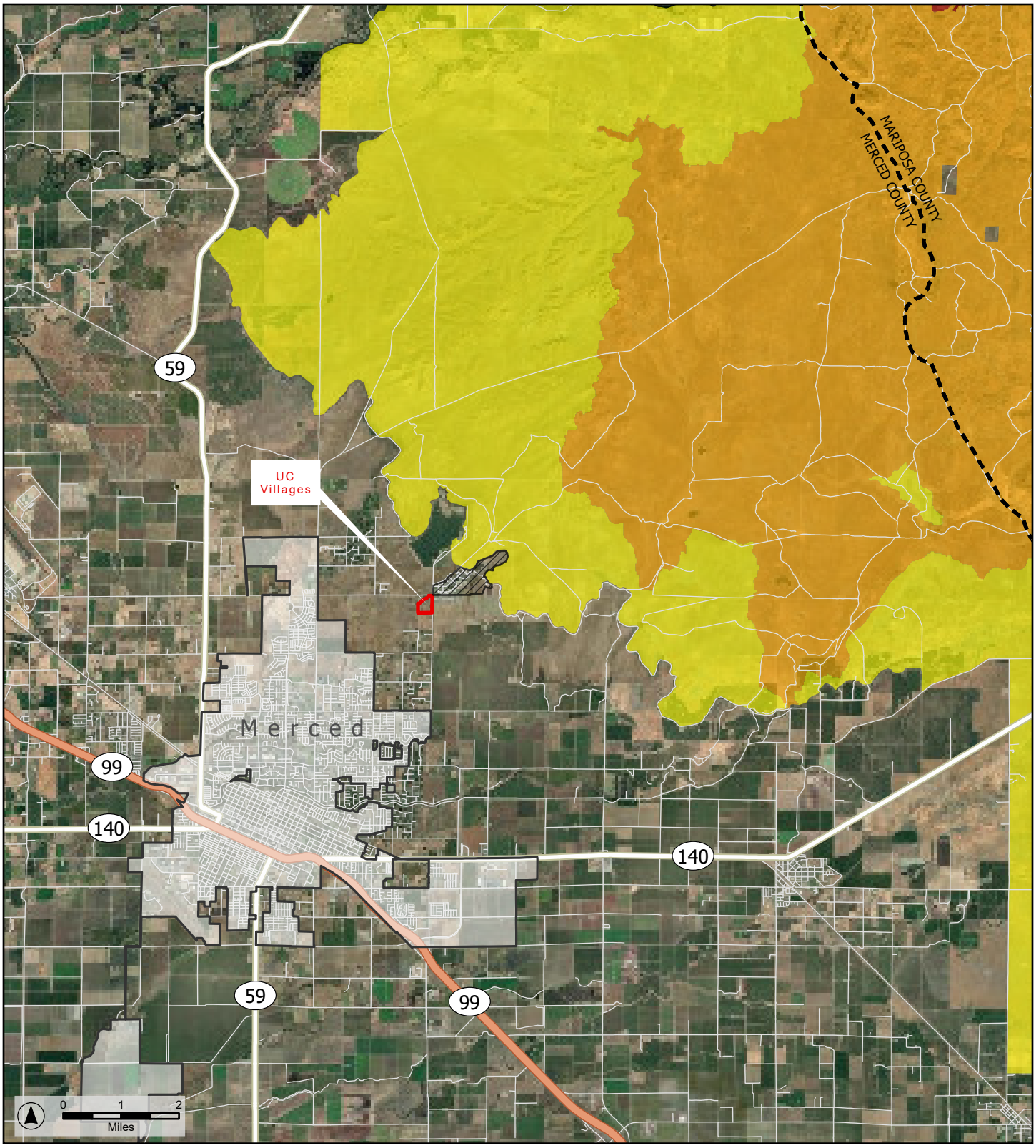
- Very High*
- Relatively High
- Relatively Moderate
- Relatively Low
- Very Low
- No Rating

** There are no census tracts rated Very High within the mapped extent*

UC VILLAGES

Figure 3.18-1b. Wildfire Risk Index Close View

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; FEMA National Risk Index, March 2023 (v1.19.0). Map date: October 1, 2024.



Legend

- Project Boundary
- University Lands
- City of Merced
- County Boundary

Fire Hazard Severity Zones in State Responsibility Areas

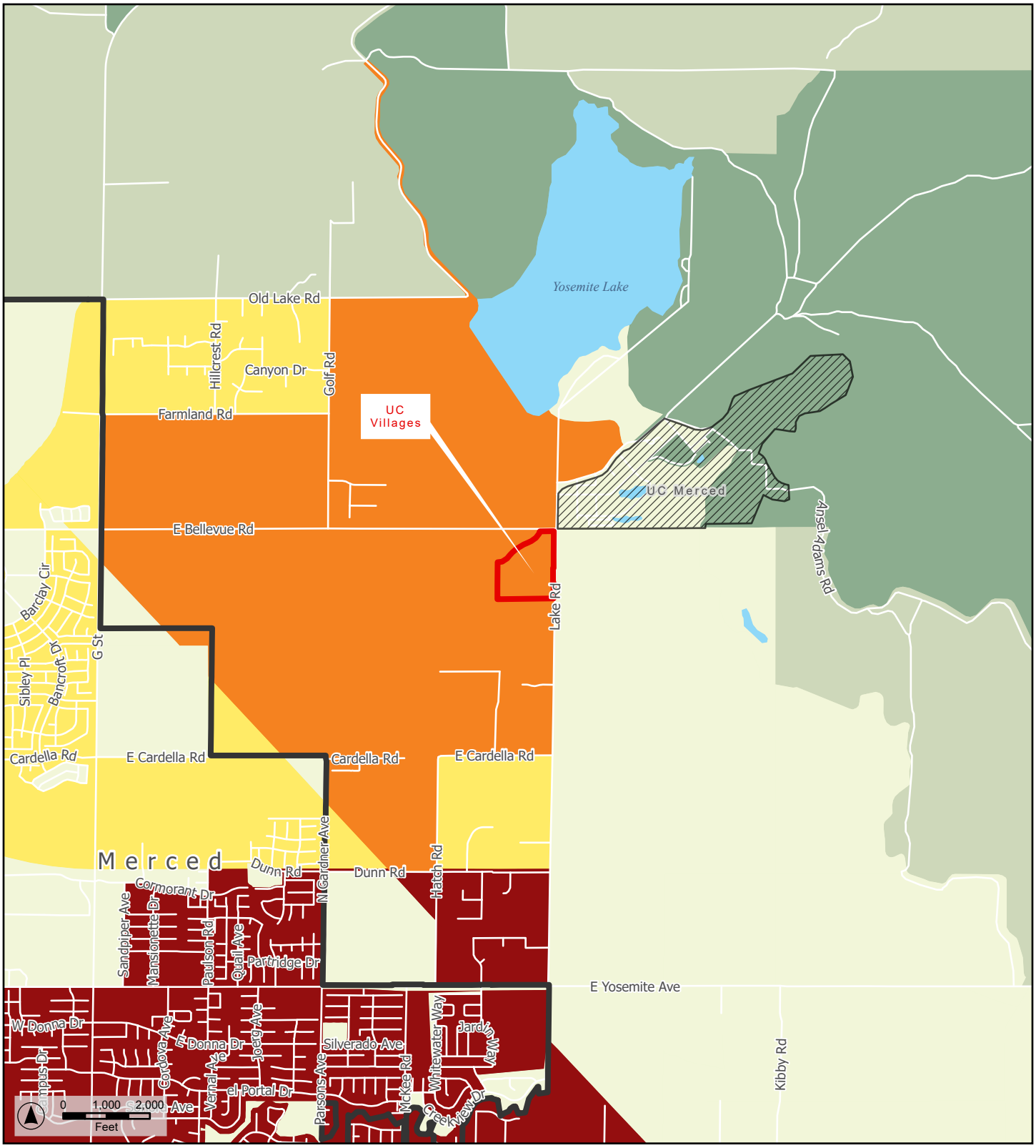
- Very High*
- High
- Moderate

** There are no Very High Fire Hazard Severity Zones within the mapped extent*

UC VILLAGES

Figure 3.18-2. Fire Hazard Severity Zones

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; CAL FIRE 2023 Fire Hazard Severity Zones, April 1, 2024. Map date: October 1, 2024.



Legend

- Project Boundary
- University Lands
- City of Merced

Wildland-Urban Interface (WUI)
- Interface
- Intermix

Non-WUI Vegetated
- No housing
- Very low housing density

Non-vegetated or Agriculture
- Low and very low housing density
- Medium and high housing density
- Water

UC VILLAGES

Figure 3.18-3.
Wildland-Urban Interface (WUI)

Sources: California State Geoportal; USGS Roads Database; Merced County GIS; USDA 1990-2020
Wildland-Urban Interface of the Conterminous US - geospatial data (4th edition). Map date: October 1, 2024.

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) to evaluate a project's effects in relationship to broader changes occurring, or that are foreseeable to occur, in the surrounding environment. Accordingly, this chapter presents a discussion of CEQA-mandated analysis for significant irreversible effects and significant and unavoidable impacts associated with the proposed Project.

4.1 INTRODUCTION

CEQA Guidelines Section 15126 requires that all phases of a project—planning, acquisition, development, and operation—be considered when evaluating the project's impact on the environment. Further, CEQA Guidelines Section 15126.2(a) requires that the evaluation of significant impacts consider direct and reasonably foreseeable indirect effects of the proposed project over the short term and long term. Section 15126 of the CEQA Guidelines also requires an EIR to identify all of the following:

- Significant environmental effects of the proposed project.
- Potentially feasible mitigation measures proposed to avoid or substantially lessen significant effects.
- Significant environmental effects that cannot be avoided if the proposed project is implemented.
- Significant irreversible environmental changes that would result from implementation of the proposed project.
- Growth-inducing impacts of the proposed project.
- Alternatives to the proposed project.[1]

The Executive Summary and Chapter 3, Environmental Impact Analysis, of this Draft EIR provide a comprehensive presentation of the proposed Project's environmental effects, potentially feasible mitigation measures, and conclusions regarding the level of significance of each impact both before and after mitigation. Chapter 5, Project Alternatives, presents a comparative analysis of alternatives to the proposed Project. The other CEQA-required analyses described above are presented below.

4.2 SIGNIFICANT UNAVOIDABLE IMPACTS

LEGAL CONSIDERATIONS

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The environmental effects of the proposed Project on various aspects of the environment are discussed in detail in Chapter 3, Environmental Impact Analysis. There are no project-specific or cumulative impacts that cannot be avoided if the Project is approved.

[1] CEQA Guidelines Sections 15126.2(a), 15126.2(c), 15126.2(d), 15126.2(e), 15126.4, and 15126.6

4.3 SIGNIFICANT IRREVERSIBLE EFFECTS

LEGAL CONSIDERATIONS

Under CEQA, an EIR must analyze the extent to which a project's primary and secondary effects would generally commit future generations to the allocation of nonrenewable resources and to irreversible environmental damage (CEQA Guidelines Sections 15126.2(d) and 15127). Section 15126.2(d) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project.

CEQA Section 15126.2(c) and Public Resources Code Sections 21100(b)(2) and 21100.1(a), require that the EIR include a discussion of significant irreversible environmental changes which would be involved in the proposed action, should it be implemented. Irreversible environmental effects are described as:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing of the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

Determining whether the proposed Project would result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed such that there would be little possibility of restoring them. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Long-Term Commitment of Resources

The proposed Project would consist of an approximately 34-acre phased development of mixed-use commercial and housing that would include up to 700 multi-family and/or student housing residential units with approximately 18,000 square feet of amenity buildings, approximately 30,000 square feet of commercial/retail and an approximately 75,000 square foot hotel with up to 200 guest rooms, which are within the projections anticipated in the City of Merced General Plan.

Construction would include use of building materials such as petroleum-based products and metals that cannot reasonably be recreated. Construction also would involve significant consumption of energy, usually petroleum-based fuels that deplete supplies of nonrenewable resources.

Construction of structures and infrastructure would consume energy and water. Construction debris recycling practices would be expected to allow for recovery and reuse of building materials such as concrete, lumber, and steel, and would limit disposal of these materials, some of which are non-renewable. Additionally, construction equipment would have to meet San Joaquin Valley Air Pollution Control District (SJVAPCD) standards as described in Section 3.2, Air Quality. Section 3.6, Energy, addresses appropriate consumption of energy for development construction.

Once construction is complete, which is expected to be approximately 12 to 18 years, land uses associated with buildout of the proposed Project would use some nonrenewable fuels to heat and light structures and would consume water. New land uses would be required to be built and adhere to the latest adopted edition of the California Green Building Standards Code, which would reduce energy demand, water consumption, and wastewater and solid waste generation that would collectively reduce demand for resources. This would lessen emissions and generation of pollution and effluent, and so the severity of corresponding environmental effects.

As discussed in Section 3.4, Biological Resources, all impacts would be less than significant or less than significant with implementation of mitigation measures. As a result, the proposed Project will minimize the potential for impacts to the nonrenewable resources on the project site, including biological resources and water resources, to the greatest extent feasible. More detailed and focused discussions of potential impacts to these nonrenewable resources are contained throughout this Draft EIR.

Nonrenewable agricultural resources such as agricultural land, farmland, and agricultural soils, would be converted during the construction and operation of the Project. The City's General Plan includes a variety of policies that seek to conserve and protect agricultural resources. These include policies that encourage the development of vacant lands within City boundaries prior to conversion of agricultural lands and ensure that urban development near existing agricultural lands will not unnecessarily constrain agricultural practices or adversely affect the economic viability of nearby agricultural operations. The conversion of agricultural land to urban uses would result in a long-term commitment of that resource, which is a slowly renewable resource.

Commitment of the Project Site for Future Generations

Development allowed under the proposed Project would dedicate the Project site to urbanized land uses, thereby precluding other uses for the life span of the proposed Project, generally estimated to be for the foreseeable future. The most notable impacts would be increased generation of pollutants from vehicle travel and stationary operations and conversion of the land from agriculture to urban, and the short-term commitment of nonrenewable and/or slowly renewable natural and energy resources, such as water resources, during construction activities. Operations associated with future uses would also consume natural gas and electrical energy. The environmental consequences of the proposed Project are described in the appropriate sections of Chapter 3, Environmental Setting, Impacts, and Mitigation Measures.

Irreversible Environmental Damage

Development of the proposed Project would result in irretrievable commitments by introducing development onto the site which is presently undeveloped. The conversion of agricultural lands to urban uses would result in an irretrievable loss of agricultural land, wildlife habitat, and open space.

A variety of resources, including land, energy, water, construction materials, and human resources would be irretrievably committed for development and infrastructure installation associated with development and operation of the proposed Project. Buildout of the Project would require the commitment of a variety of other non-renewable or slowly renewable natural resources such as lumber and other forest products, sand and gravel, asphalt, petrochemicals, and metals.

Additionally, a variety of resources would be committed to the ongoing operation and life of the Project. The introduction of new residential and non-residential uses to the project site will result in an increase energy demand associated with building operations, vehicle travel, equipment operation, and other activities. Fossil fuels are the principal source of energy and the Project will increase consumption of available supplies, including gasoline and diesel fuel. These energy resource demands relate to initial construction, operation, maintenance and the transport of people and goods to and from the project site that would occur with development of the proposed Project.

Development will also physically change the environment in terms of aesthetics, air emissions, noise, traffic, open space, and natural resources. These physical changes are irreversible after development occurs.

Implementation of the proposed Project may have the potential to cause significant environmental accidents through hazardous material releases into the environment during construction activities, or through operation of new commercial or mixed-use land uses. However, compliance with State law and implementation of a Stormwater Pollution Prevention Plan (SWPPP) during construction activities would ensure that future development would not create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving release of hazardous materials (see Section 3.9, Hazards and Hazardous Materials).

Over the past decade, the understanding of global climate change and the role that communities can play in addressing it has grown tremendously. There is a scientific consensus that recent increases in global temperatures are associated with corresponding increases of greenhouse gases (GHGs). This temperature increase is beginning to affect regional climates and is expected to result in impacts on the Central Valley region and the world. Climate change has profound implications for the availability of the natural resources on which economic prosperity and human development depend.

As discussed in detail in Section 3.8, Greenhouse Gas Emissions, GHG emissions are known to have long-term effects on atmospheric conditions that affect the global climate, with resultant changes in sea level and hydrologic conditions in rivers, heat island effects, and a range of other conditions. These changes are not considered irreversible, but they could last for generations. As described further in Section 3.8, the proposed Project could result in short-term increases in GHG emissions.

However, compliance with the City's General Plan policies and programs, adherence to the development standards in the Merced Municipal Code, as well as consistency with California Buildings Standards and the latest version of the CALGreen Code would ensure that potential new development associated with implementation of the Project would not directly or indirectly generate GHG emissions that may have a significant impact on the environment.

Unjustified Consumption of Resources

Resources that would be permanently and continually consumed by implementation of the proposed Project include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in the unnecessary, inefficient, or wasteful use of resources (see Section 3.6, Energy, and Section 3.17, Utilities and Service Systems). The Project's operational activities would comply with all applicable building codes, including the most current version of the Title 24 Energy Efficiency Standards as well as planning policies and standard conservation features. Such compliance would ensure that natural resources are conserved to the maximum extent required under existing regulations.

It is possible that, over time, new technologies or systems will emerge, or will become more cost-effective or user-friendly, to further reduce reliance on nonrenewable natural resources. Nonetheless, construction activities for the proposed Project would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobiles and construction equipment.

MANDATORY FINDINGS OF SIGNIFICANCE

CEQA Guidelines Section 15065 states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects that are individually limited, but cumulatively considerable. As defined in CEQA Guidelines Section 15065(a)(3), cumulatively considerable means "that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Cumulative impacts are addressed in each technical section of this EIR.

CEQA Guidelines Section 15065(a)(1) states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to (1) substantially reduce the habitat of a fish or wildlife species; (2) cause a fish or wildlife population to drop below self-sustaining levels; or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species. These impacts are discussed below.

Additionally, as required by CEQA Guidelines Section 15065(a)(4), a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to cause substantial adverse effects on human beings, either directly or indirectly. These impacts are discussed below.

Substantial Adverse Effects on Fish, Wildlife, and Plant Species

Section 3.4 (Biological Resources) of this Draft EIR fully addresses any impacts that might relate to the reduction of the fish or wildlife habitat, the reduction of fish or wildlife populations, and the reduction or restriction of the range of special-status species as a result of Project development. As described throughout the analysis in this Draft EIR, the proposed Project would not result in any significant impacts that would substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal to the environment. As described in greater detail in Section 3.4 (Biological Resources), any potentially significant impacts related to plant and animal species would be reduced to a less-than-significant level through implementation of goals, policies and implementation measures provided in the City's General Plan as well as through adherence to state and federal regulations. Therefore, this is considered a less-than-significant impact.

4.4 GROWTH-INDUCING IMPACTS

There are two types of growth-inducing impacts: direct and indirect. To assess potential for growth-inducing impacts, General Plan Elements that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated (CEQA Guidelines Section 15126.2(e)). CEQA Guidelines, as interpreted by the City, state that a significant growth-inducing impact may result if implementation of the proposed Project would:

- Induce substantial population growth in an area (for example, by proposing new homes and commercial or industrial businesses beyond the land use density/intensity envisioned in the general plan);
- Substantially alter the planned location, distribution, density, or growth rate of the population of an area; or
- Include extensions of roads or other infrastructure not assumed in the general plan or adopted capital improvements project list, when such infrastructure exceeds the needs of the project and could accommodate future developments.

Direct growth-inducing impacts occur when development imposes new burdens on a community by directly inducing population growth, or by leading to construction of additional developments in the same area. Secondary impacts can include the removal of physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure cannot be considered isolated from the development they facilitate and serve. Physically removing obstacles to growth, or indirectly inducing growth may provide a catalyst for future unrelated development in an area, such as a new residential community that requires additional commercial uses to support residents.

Implementing the proposed Project would continue the planned for growth in the City in a manner consistent with the designated land use of the City General Plan.

The US Census estimated the total population of the City of Merced to be 91,572 as of 2022.[2] The City projects a population of 125,454 by 2035 based on buildout of the General Plan. The proposed Project would result in the construction of 700 dwelling units. Using an average household size of 3.0 people[3] the proposed Project would result in the addition of approximately 2,100 residents to the City, or 1.7 percent of the total projected 2035 population. Therefore, direct population growth as a result of the proposed Project would occur, but was anticipated as part of the city's overall growth pattern and planning in the Vision 2030 General Plan. The potential environmental impacts resulting from this direct population growth is analyzed in Sections 3.1 through 3.18 of this EIR.

The proposed Project would also not significantly or adversely affect the permanent jobs/housing balance. Implementation of the proposed Project would allow for creation of approximately 29,320 square feet of nonresidential uses for neighborhood retail/commercial, plus 75,000 square feet of hotel space. Development associated with the Project would provide for employment opportunities, particularly during construction phases. Therefore, implementing the proposed Project would help the city achieve a more even job/housing balance by providing much-needed housing, particularly for students.

Implementing the proposed Project would not require extensions of electrical, natural gas, or water utility infrastructure beyond the needs of the proposed Project, but would require connections to existing infrastructure on and adjacent to the Project site. The proposed Project would be served by a 16-inch water main in Bellevue Road and a future 16-inch water main in Lake Road, which is a separate project anticipated as part of the City of Merced Water Master Plan. The Project site would connect to an existing sewer line in Bellevue Road. The proposed Project would not extend urban infrastructure beyond that needed to serve the proposed Project, and thus would not induce growth in other areas outside the city limits. The proposed Project would not oversize or extend infrastructure to areas beyond the Project site, and would not induce growth beyond that anticipated under the City's General Plan.

Furthermore, the proposed Project would be compatible with other planned growth within the city and the Bellevue Community Plan area. Areas within the Bellevue Community Plan area would develop as anticipated, and be within the growth projected in the General Plan. Other projects in the vicinity of the Project site are already proposed or approved, and consistent with the City's growth projections. Although there are a few existing residential units immediately east and south of the proposed Project site, neither the proposed Project nor further development within the area would require nearby residents to relocate as residential uses are compatible with the uses anticipated in the Bellevue Community Plan and General Plan. Therefore, the proposed Project would not remove a barrier to growth nor create an indirect population increase.

Infrastructure and services would be expanded as necessary to serve City growth, without significant excess capacity, and thus would not encourage additional growth beyond that already planned for

2 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-DP05.
3 United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.

in the proposed Project. As a result, the proposed Project would create minimal to no indirect growth, and the planned buildout would be consistent with City projections.

Since the proposed Project would not result in indirect growth, negatively alter the existing jobs/housing balance, or be inconsistent with the City General Plan, growth-inducing impacts would be less than significant.

Pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this environmental impact report (EIR) must describe a range of reasonable alternatives to the proposed Project that might feasibly accomplish most of the basic objectives of the proposed Project and avoid or substantially lessen one or more of the significant effects of the project. The feasibility of an alternative is determined by the lead agency based on a variety of factors including but not limited to site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site accessibility and control (CEQA Guidelines Section 15126.6(f)(1)).

The chapter discloses the comparative effects of each of the alternatives relative to the UC Villages Project, and evaluates the relationship of the alternatives to the objectives of the Project. As required under Section 15126.6(e) of the CEQA Guidelines, an environmentally superior alternative for the proposed Project is identified at the end of this chapter.

5.1 FACTORS IN THE SELECTION OF ALTERNATIVES

PROJECT OBJECTIVES

CEQA Guidelines Section 15124(b) requires that an EIR include a statement of the objectives from an applicant intended to be achieved by the project. The objectives describe the purpose of the Project and are intended to assist the lead agency in developing a reasonable range of alternatives for consideration in the EIR, and to assist the decision makers in assessing the feasibility of mitigation measures and alternatives. The objectives of UC Villages Project are:

1. Provide a mix of residential and commercial land uses that can be implemented in financially-feasible phases that will support the projected growth of the UC Merced campus and surrounding community;
2. Provide a mixed-use master planned community, including apartments, retail, and a hotel, with community amenities that will attract and serve students, UC employees, campus visitors, and the general public;
3. Provide quality student and/or multi-family housing units and on-site recreational amenities (such as fitness centers, work/study areas, and areas for recreational activities) that will appeal to residents;
4. Create a cohesive, easily comprehensible circulation system that supports project phasing and on- and off-site circulation, and to the extent feasible, aligns with UC Merced's existing and planned circulation facilities;
5. Take advantage of the proximity to UC Merced and existing transit to promote alternative modes of transportation (e.g., bicycles, pedestrian, scooters, etc.) which allow for a reduced number of off-street parking for the Master Plan;
6. Create clearly defined routes for bicycle and pedestrian networks to improve on- and off-site safety and connectivity to UC Merced;
7. Provide a gateway to the UC Merced campus on the corner of Bellevue Road and Campus Parkway; and

8. Accommodate the planned improvements to Campus Parkway Segment 4, Bellevue Road, Mandeville Road and the signalized intersection of Bellevue Road and Campus Parkway (Lake Road), consistent with the City of Merced General Plan.

5.2 SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The environmental effects of the proposed Project on various aspects of the environment are discussed in detail in Chapter 3, Environmental Impacts, Setting, and Mitigation Measures. There would be no project-specific or cumulative significant and unavoidable impacts if the proposed Project is approved.

5.3 ALTERNATIVES NOT SELECTED FOR FURTHER ANALYSIS

A Notice of Preparation (NOP) was circulated to the public to solicit recommendations for a reasonable range of alternatives to the proposed Project. Additionally, a public scoping meeting was held during the public review period to solicit recommendations for a reasonable range of alternatives to the proposed Project. No specific alternatives were submitted by commenting agencies or general public during the NOP public review process.

The City of Merced considered alternative locations early in the public scoping process. The City's key considerations in identifying an alternative location were as follows:

- Is there an alternative location where significant effects of the Project would be avoided or substantially lessened?
- Is there a site available within the City's Sphere of Influence with the appropriate size and characteristics such that it would meet the basic Project objectives?

The City's consideration of alternative locations for the Project included a review of previous City land use planning and environmental documents, including the General Plan. The search included a review of land in Merced that is located within the Sphere of Influence, suitable for development, available for purchase by the Project Applicant, of sufficient size to accommodate the Project, and not already approved for or pending development. It was found that there are numerous approved projects and proposed projects that are currently under review in Merced. These approved and proposed project sites are not available for acquisition by the Project applicant and are not considered feasible alternative sites. The City has found that there are no feasible alternative locations that exist within the City's Sphere of Influence with the appropriate size and characteristics that would meet the basic Project objectives and avoid or substantially lessen a significant effect. For these reasons, the City determined that there are no feasible alternative locations for the Project.

5.4 ALTERNATIVES CONSIDERED IN THIS EIR

This section describes the range of alternatives to the proposed Project that are analyzed in this Draft EIR and examines how specific environmental impacts would differ in severity compared to

those associated with the proposed Project. For the most part, significant impacts of the alternatives can be mitigated to less-than-significant levels through adoption of the mitigation measures identified in Chapter 3, which contains the environmental analysis of the proposed Project. To varying degrees, the following alternatives would also avoid and/or lessen impacts, including some or all of the significant and unavoidable impacts, of the proposed Project.

CEQA requires consideration of a "no project" alternative, which addresses the impacts of not moving forward with the proposed Project. The No Project Alternative can take many forms, including doing nothing, depending on what may likely occur if a project is not developed.

The following alternatives are considered in this section:

- Alternative 1 – No Project
- Alternative 2 – Medium Density
- Alternative 3 – Increased Residential Intensity

Table 5-1 presents an overview of the proposed alternatives, which are analyzed below.

TABLE 5-1: COMPARISON OF PROJECT ALTERNATIVES

	PROPOSED PROJECT	*ALTERNATIVE 1 NO PROJECT*	*ALTERNATIVE 2 MEDIUM RESIDENTIAL*	*ALTERNATIVE 3 INCREASED RESIDENTIAL INTENSITY*
NON-RESIDENTIAL USES				
Retail/Commercial Square Footage	104,320	0	30,000	29,320
Hotel Keys	200	0	0	0
Amenities Square Footage	17,360	0	0	22,000
DWELLING UNITS				
Single-Family Residential	0	35 – 105	300	0
Multi-Family Residential	654	0	0	800
Dwelling Units Total	**654**	**35 – 105**	**300**	**800**

SOURCE: CITY OF MERCED 2024; DE NOVO PLANNING GROUP 2024.

ALTERNATIVE 1 – NO PROJECT

CEQA Guidelines Section 15126.6(e) requires an EIR to evaluate a "no project" alternative, which is defined as what would be reasonably expected to occur in the foreseeable future if the project were not approved. Under Alternative 1, the Project site would remain under Merced County's jurisdiction and would not be annexed to the City of Merced. The Project site would remain as a Rural Residential Center as defined in the Merced County General Plan. Development of the Project site would occur through Merced County pursuant to the Development Standards of the Rural Residential/Single Family Residential Zoning District. The Rural Residential Center designation includes existing areas with concentrations of suburban residential parcels on a minimum of one acre, and up to three units per acre, which are typically adjacent to cities. These

areas lack public sewer and/or water systems, have a stable or slowly increasing population, and have no commercial services.

Approximately 35 to 105 single-family dwelling units could be constructed on the site. Only minor infrastructure improvements would be made to serve the site. Roadway improvements along Bellevue Road and Lake Road would not be included under this alternative.

Comparative Analysis of Environmental Effects

IMPACTS IDENTIFIED AS BEING THE SAME AS OR SIMILAR TO THOSE OF THE PROPOSED PROJECT

Because Alternative 1 would develop the same total area as the proposed Project, approximately 35 acres, impacts determined by the development footprint of future projects would be substantially the same as the proposed Project. These impacts would include the conversion of agricultural land to non-agricultural use (Impacts 3.2-1 and 3.2-3); disturbance to special-status species including invertebrates (Impacts 3.4-1 and 3.4-7), reptiles and amphibians (Impacts 3.4-2 and 3.4-7), birds (Impacts 3.4-3 and 3.4-7), and mammals (Impacts 3.4-4 and 3.4-7); impacts to special-status plants (Impacts 3.4-5 and 3.4-7); damage to historic, archaeological, and human remains (Impacts 3.5-1, 3.5-2, 3.5-3, 3.5-4); damage to paleontological or geologic resources (Impacts 3.7-5 and 3.7-10); accidental exposure of hazardous materials (Impact 3.9-2); and disturbance of or damage to tribal cultural resources (Impacts 3.16-1 and 3.16-2).

The site currently consists of vacant agricultural land surrounded by scattered residential uses, agricultural uses, and UC Merced. Development of the site under Alternative 1 would not divide and established community as the types of development would be similar in nature to the surrounding uses and would not extend infrastructure to divide the community (Impacts 3.11-1 and 3.11-3).

Transportation impacts related to compliance with programs and plans addressing the circulation system including transit, roadway, pedestrian, bicycle, and pedestrian facilities (Impact 3.15-1) would be the same under Alternative 1 as under the proposed Project because the Project site would remain in the County's jurisdiction and would comply with County policies regarding the provision and design of those facilities. As such, Alternative 1 would not create a hazard due to a geometric design feature or incompatible use (Impact 3.15-3). Alternative 1 would not adversely affect emergency access (Impact 3.15-4) as appropriate roadway access would be provided for each residential unit under Alternative 1.

IMPACTS IDENTIFIED AS BEING LESS SEVERE THAN THOSE OF THE PROPOSED PROJECT

As fewer residential units would be constructed at a lower density that the proposed Project, Alternative 1 would have less aesthetics impacts including less impactful effects on vistas and scenic quality (Impacts 3.1-1, 3.1-2, 3.1-4, and 3.1-5). Further, development of the Project site as low density residential uses would result in less light and glare impacts as development would be less concentrated across the entirety of the site (Impacts 3.1-3 and 3.1-6).

No land use changes or annexations would be required to develop the site under Alternative 1. Therefore, Alternative 1 would not conflict with an existing plan or policy adopted for the purpose of avoiding or mitigating and environmental effect (Impacts 3.11-2 and 3.11-4).

Growth projections would be lower under Alternative 1 compared to the proposed Project as only 35-105 units would be constructed. Population growth would be within the County's growth projections as it would be developed according to the existing General Plan designation and zoning, both would be regulated by the County. Therefore, impacts to growth and housing would be less under Alternative 1 than under the Project (Impacts 3.13-1 through 3.13-4).

Because fewer housing units could be constructed on the site, there would also be less population growth on the site. Therefore, population demand-related impacts would be less under Alternative 1, including for public infrastructure and utility systems (Impacts 3.17-1 through 3.17-10); public services and recreation (Impacts 3.14-1 through 3.14-4); and energy (Impacts 3.6-1 through 3.6-2).

As fewer residential units would be constructed, there would be fewer vehicular tips, and therefore, transportation-related noise would be less under Alternative 1 (Impact 3.12-1). Fewer vehicular trips means that mobile air emissions (Impacts 3.3-1, 3.3-3, 3.3-5, 3.3-6, 3.3-7, and 3.3-8) and greenhouse gas emissions (Impact 3.8-1) would be less under Alternative 1). Fewer homes would be constructed, and the noise and vibration resulting from construction activities would be less (Impacts 3.12-1, 3.12-2, and 3.12-3), as would construction-related air emissions (Impacts 3.3-2 and 3.3-4).

Exposure of residents to potential hazards would also be slightly less under Alternative 1 because there would be fewer residents as compared to the proposed Project. Impacts related to geology and seismicity (Impacts 3.7-1 through 3.7-4 and Impacts 3.7-6 through 3.7-9), hazards and hazardous materials (Impacts 3.9-1 through 3.9-13), and hydrology and water quality (Impacts 3.10-1 through 3.10-9) would be less under Alternative 1 as compared to the proposed Project.

The Project site's location in the eastern portion of the county places it outside of a State Responsibility Area (SRA) and not within an area classified as a very high fire hazard severity zone. However, Alternative 1 would have fewer residents who could be exposed to impacts related to wildfire hazards, and wildfire hazards would be less under Alternative 1 as compared to the proposed Project (Impacts 3.18-1 through 3.18-6).

IMPACTS IDENTIFIED AS BEING MORE SEVERE THAN THOSE OF THE PROPOSED PROJECT

Due to the single-family residential, low density nature of Alternative 1, it is possible that Alternative 1 could have higher VMT impacts as compared to the proposed Project, depending on the low density housing that could be built on the site (Impacts 3.15-2 and 3.15-5).

Relationship to Significant and Unavoidable Impacts

There are no significant and unavoidable impacts of the proposed Project, and there would be none under Alternative 1.

Relationship to Project Objectives

Development under Alternative 1 would not achieve the Project objectives as the alternative would not provide a mix of residential and commercial uses, nor a mixed-use master planned community, intended to support the projected growth of the UC Merced campus and surrounding

community (Objectives 1 and 2). Alternative 1 would not provide student and/or multi-family housing units and recreational amenities as the site would be developed solely with single-family residential uses (Objective 3). Development of the site with single-family residential units would likely result in the development of an internal circulation network to support the residences, but may not be comprehensive enough to connect to and compliment roadway improvements planned for Bellevue Road and Lake Road (Objective 4). Development of single-family residential uses on the Project site could result in some transit ridership, but the introduction of so few residents close to UC Merced and its transit hub would not result in a meaningful reduction of single-passenger vehicles or increase in transit usage (Objective 5). Further, while Alternative 1 would likely result in the construction of sidewalks and bike lanes consistent with County development standards, their use would be less under Alternative 1 than the proposed Project due to the reduction in onsite residents (Objectives 5 and 6).

Alternative 1 would not result in the development of commercial or recreational uses, and a gateway to the UC Merced campus would not be created (Objective 7). Although development of Alternative 1 may allow for planned improvements along Bellevue Road and the signalization of the Bellevue Road/Lake Road intersection, it may not construct Mandeville Road or further provide support to planned improvements for Campus Parkway (Objective 8).

ALTERNATIVE 2 – MEDIUM RESIDENTIAL

Under this Alternative, the Project would be modified to allow for the development of a single-family detached residential subdivision, consistent with the Low-Medium Density Residential (LMD) Land Use Designation in the Bellevue Community Plan (BCP) and a Commercial retail shopping center with an average Floor Area Ratio (FAR) of 0.35, consistent with the Neighborhood Commercial (CN) Land Use Designation in the BCP. Under Alternative 2, it is assumed that up to 300 single-family units would be developed with a density of 9.5 dwelling units per acre. Additionally, the Commercial site would be reduced in acreage from 4.1 acres to 2 acres and would allow for the development of up to 30,000 square feet of Neighborhood Commercial uses. The site would be annexed to the City of Merced.

Comparative Analysis of Environmental Effects

IMPACTS IDENTIFIED AS BEING THE SAME AS OR SIMILAR TO THOSE OF THE PROPOSED PROJECT

Because Alternative 2 would develop the same total area as the proposed Project, approximately 35 acres, impacts determined by the development footprint of future projects would be substantially the same as the proposed Project. These impacts would include the conversion of agricultural land to non-agricultural use (Impacts 3.2-1 and 3.2-3); disturbance to special-status species including invertebrates (Impacts 3.4-1 and 3.4-7), reptiles and amphibians (Impacts 3.4-2 and 3.4-7), birds (Impacts 3.4-3 and 3.4-7), and mammals (Impacts 3.4-4 and 3.4-7); impacts to special-status plants (Impacts 3.4-5 and 3.4-7); damage to historic, archaeological, and human remains (Impacts 3.5-1, 3.5-2, 3.5-3, 3.5-4); damage to paleontological or geologic resources (Impacts 3.7-5 and 3.7-10); accidental exposure of hazardous materials (Impact 3.9-2); and disturbance of or damage to tribal cultural resources (Impacts 3.16-1 and 3.16-2).

The site currently consists of vacant agricultural land surrounded by scattered residential uses, agricultural uses, and UC Merced. Development of the site under Alternative 2 would not divide and established community as the types of development would be similar in nature to the surrounding uses and would not extend infrastructure to divide the community (Impacts 3.11-1 and 3.11-3).

Transportation impacts related to compliance with programs and plans addressing the circulation system including transit, roadway, pedestrian, bicycle, and pedestrian facilities (Impact 3.15-1) would be the same under Alternative 2 as under the proposed Project because development of Alternative 2 would comply with City policies regarding the provision and design of those facilities. As such, Alternative 2 would not create a hazard due to a geometric design feature or incompatible use (Impact 3.15-3). Alternative 2 would not adversely affect emergency access (Impact 3.15-4) as appropriate roadway access would be provided for each residential unit and commercial use under Alternative 2.

IMPACTS IDENTIFIED AS BEING LESS SEVERE THAN THOSE OF THE PROPOSED PROJECT

As fewer residential units would be constructed at a lower density that the proposed Project and less commercial square footage would be developed, Alternative 2 would have less aesthetics impacts including less impactful effects on vistas and scenic quality (Impacts 3.1-1, 3.1-2, 3.1-4, and 3.1-5). Further, development of the Project site as low density residential uses and less commercial uses would result in less light and glare impacts as development would be less concentrated across the entirety of the site (Impacts 3.1-3 and 3.1-6).

Although Alternative 2 would result in annexation to the City of Merced, the uses anticipated under Alternative 2 would comply with the Low-Medium Density Residential (LMD) Land Use Designation and Neighborhood Commercial (CN) Land Use Designation in the Bellevue Community Plan (BCP). Therefore, Alternative 2 would not conflict with an existing plan or policy adopted for the purpose of avoiding or mitigating and environmental effect (Impacts 3.11-2 and 3.11-4).

Growth projections would be lower under Alternative 2 compared to the proposed Project as only 300 single-family units and 30,000 sf of commercial uses would be constructed. With an average household size of 3.0 people,[1] it is projected that the 300 housing units under Alternative 2 could generate up to 900 new residents for the City of Merced, or approximately 1,200 fewer residents than the proposed Project. Population growth would be within the City's growth projections as it would be developed according to the existing General Plan and BCP designation and zoning, both would be regulated by the City. Therefore, impacts to growth and housing would be less under Alternative 2 than under the Project (Impacts 3.13-1 through 3.13-4).

Because fewer housing units could be constructed on the site, there would also be less population growth on the site. Therefore, population demand-related impacts would be less under Alternative 2, including for public infrastructure and utility systems (Impacts 3.17-1 through 3.17-

[1] United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.

10); public services and recreation (Impacts 3.14-1 through 3.14-4); and energy (Impacts 3.6-1 through 3.6-2).

As fewer residential units would be constructed, there would be fewer vehicular tips, and therefore, transportation-related noise would be less under Alternative 2 (Impact 3.12-1). Fewer vehicular trips means that mobile air emissions (Impacts 3.3-1, 3.3-3, 3.3-5, 3.3-6, 3.3-7, and 3.3-8) and greenhouse gas emissions (Impact 3.8-1) would be less under Alternative 2. Fewer homes and less commercial square footage would be constructed, and the noise and vibration resulting from construction activities would be less (Impacts 3.12-1, 3.12-2, and 3.12-3), as would construction-related air emissions (Impacts 3.3-2 and 3.3-4).

Exposure of residents to potential hazards would also be slightly less under Alternative 2 because there would be fewer residents as compared to the proposed Project. Impacts related to geology and seismicity (Impacts 3.7-1 through 3.7-4 and Impacts 3.7-6 through 3.7-9), hazards and hazardous materials (Impacts 3.9-1 through 3.9-13), and hydrology and water quality (Impacts 3.10-1 through 3.10-9) would be less under Alternative 2 as compared to the proposed Project.

IMPACTS IDENTIFIED AS BEING MORE SEVERE THAN THOSE OF THE PROPOSED PROJECT

Alternative 2 is likely to have higher VMT per capita than the proposed Project since the commercial uses would be reduced, lessening job opportunities and reducing the proximity of the Project site to larger shopping opportunities. In addition, single family homes tend to have higher automobile usage and thus, higher VMT than multi-family housing (Impacts 3.15-2 and 3.15-5).

The Project site's location in the eastern portion of the county places it outside of a State Responsibility Area (SRA) and not within an area classified as a very high fire hazard severity zone. However, Alternative 2 would have fewer residents who could be exposed to impacts related to wildfire hazards, and wildfire hazards would be less under Alternative 2 as compared to the proposed Project (Impacts 3.18-1 through 3.18-6).

Relationship to Significant and Unavoidable Impacts

There are no significant and unavoidable impacts of the proposed Project, and there would be none under Alternative 2.

Relationship to Project Objectives

Development under Alternative 2 would provide a mix of residential and commercial uses intended to support the projected growth of the UC Merced campus and surrounding community, though perhaps to a lesser degree because single-family residential, not multi-family residential uses, would be constructed (Objectives 1 and 2). The lack of student and/or multi-family housing units and recreational amenities would not support the UC Merced community and student population as well as the proposed Project would (Objective 3). Development of the site with single-family residential units and commercial uses would likely result in the development of an internal circulation network to support those uses, but may not be comprehensive enough to connect to and compliment roadway improvements planned for Bellevue Road and Lake Road (Objective 4). Development of single-family residential uses on the Project site could result in

some transit ridership, but the introduction of so few residents close to UC Merced and its transit hub would not result in a meaningful reduction of single-passenger vehicles or increase in transit usage (Objective 5). Further, while Alternative 2 would likely result in the construction of sidewalks and bike lanes consistent with City development standards, their use would be less under Alternative 2 than the proposed Project due to the reduction in onsite residents (Objectives 5 and 6).

Alternative 2 would result in the development of commercial uses at the corner of Bellevue Road/Lake Road, and could serve as a gateway to the UC Merced campus (Objective 7) , although no hotel use would be constructed under Alternative 3. Although development of Alternative 2 may allow for planned improvements along Bellevue Road and the signalization of the Bellevue Road/Lake Road intersection, it may not construct Mandeville Road or further provide support to planned improvements for Campus Parkway (Objective 8).

ALTERNATIVE 3 – INCREASED RESIDENTIAL INTENSITY

Under Alternative 3, the same types of commercial and multi-family and/or student housing uses as described under the proposed Project would be developed, yielding 654 residential units and approximately 30,000 square feet of commercial uses. The 200-key hotel included in the proposed Project would be replaced with additional residential buildings and an amenity building. Specifically, Phase 6 would include the development of two multi-family and/or student housing buildings approximately 100,000 square feet in size each, and would include approximately 54 units each. An additional amenity building would be developed in Phase 6, approximately 4,000 square feet in size. Alternative 3 would result in up to 800 multi-family and/or student housing residential units, approximately 30,000 square feet of commercial uses, and 22,000 square feet of Amenity buildings. A hotel is not included.

The circulation and utility infrastructure would remain largely the same as under the proposed Project, making minor onsite changes to provide access to each of the residential buildings. Alternative 3 would result in annexation of the Project site to the City of Merced.

Comparative Analysis of Environmental Effects

IMPACTS IDENTIFIED AS BEING THE SAME AS OR SIMILAR TO THOSE OF THE PROPOSED PROJECT

Because Alternative 3 would develop the same total area as the proposed Project, approximately 35 acres, impacts determined by the development footprint of future projects would be substantially the same as the proposed Project. These impacts would include the conversion of agricultural land to non-agricultural use (Impacts 3.2-1 and 3.2-3); disturbance to special-status species including invertebrates (Impacts 3.4-1 and 3.4-7), reptiles and amphibians (Impacts 3.4-2 and 3.4-7), birds (Impacts 3.4-3 and 3.4-7), and mammals (Impacts 3.4-4 and 3.4-7); impacts to special-status plants (Impacts 3.4-5 and 3.4-7); damage to historic, archaeological, and human remains (Impacts 3.5-1, 3.5-2, 3.5-3, 3.5-4); damage to paleontological or geologic resources (Impacts 3.7-5 and 3.7-10); accidental exposure of hazardous materials (Impact 3.9-2); and disturbance of or damage to tribal cultural resources (Impacts 3.16-1 and 3.16-2).

The site currently consists of vacant agricultural land surrounded by scattered residential uses, agricultural uses, and UC Merced. Development of the site under Alternative 3 would not divide and established community as the types of development would be similar in nature to the surrounding uses and would not extend infrastructure to divide the community (Impacts 3.11-1 and 3.11-3).

Transportation impacts related to compliance with programs and plans addressing the circulation system including transit, roadway, pedestrian, bicycle, and pedestrian facilities (Impact 3.15-1) would be the same under Alternative 3 as under the proposed Project because development of Alternative 3 would comply with City policies regarding the provision and design of those facilities. As such, Alternative 3 would not create a hazard due to a geometric design feature or incompatible use (Impact 3.15-3). Alternative 3 would not adversely affect emergency access (Impact 3.15-4) as appropriate roadway access would be provided for each residential unit and commercial use under Alternative 3.

Alternative 3 would result in annexation to the City of Merced, and the uses on the site would comply with the City's Planned Development (P-D) zoning requirements, which allow for a mix of uses. Therefore, Alternative 3 would not conflict with an existing plan or policy adopted for the purpose of avoiding or mitigating and environmental effect (Impacts 3.11-2 and 3.11-4).

IMPACTS IDENTIFIED AS BEING LESS SEVERE THAN THOSE OF THE PROPOSED PROJECT

Alternative 3 is likely to have lower VMT per capita than the proposed Project since it would add even more dense housing types, which typically produce fewer VMT than a hotel would generate (Impacts 3.15-2 and 3.15-5).

IMPACTS IDENTIFIED AS BEING MORE SEVERE THAN THOSE OF THE PROPOSED PROJECT

More multi-family residential units would be constructed across the Project site compared to the proposed Project. The single hotel building proposed under the Project would be replaced by two residential buildings and one Amenity building. The construction of more buildings on site would result in more aesthetics impacts, including more impactful effects on vistas and scenic quality (Impacts 3.1-1, 3.1-2, 3.1-4, and 3.1-5). Further, development of the Project site with intensified residential uses would result in more light and glare impacts as development would be more concentrated across the entirety of the site (Impacts 3.1-3 and 3.1-6).

Growth projections would be higher under Alternative 3 compared to the proposed Project as up to 800 multi-family units and 30,000 sf of commercial uses would be constructed. With an average household size of 3.0 people,[2] it is projected that the 800 housing units under Alternative 3 could generate up to 2,400 new residents for the City of Merced, or approximately 300 more residents than the proposed Project. Population growth would be within the City's growth projections as it would be developed according to the existing General Plan and BCP designation and zoning, both would be regulated by the City. However, due to the higher population growth under Alternative

[2] United States Census Bureau, 2022. American Community Survey 1-Year Estimate, 2022-City of Merced-S1101.

3, impacts to growth and housing would be more under Alternative 3 than under the Project (Impacts 3.13-1 through 3.13-4).

Because more housing units could be constructed on the site, there would also be more population growth on the site as compared to the proposed Project. Therefore, population demand-related impacts would be higher under Alternative 3, including for public infrastructure and utility systems (Impacts 3.17-1 through 3.17-10); public services and recreation (Impacts 3.14-1 through 3.14-4); and energy (Impacts 3.6-1 through 3.6-2).

As more residential units would be constructed, there would be more vehicular tips, and therefore, transportation-related noise would be higher under Alternative 3 (Impact 3.12-1). Additional vehicular trips means that mobile air emissions (Impacts 3.3-1, 3.3-3, 3.3-5, 3.3-6, 3.3-7, and 3.3-8) and greenhouse gas emissions (Impact 3.8-1) would be more under Alternative 3. More residential units and less commercial square footage would be constructed as compared to the proposed Project, and the noise and vibration resulting from construction activities would be higher (Impacts 3.12-1, 3.12-2, and 3.12-3), as would construction-related air emissions (Impacts 3.3-2 and 3.3-4).

Exposure of residents to potential hazards would also be slightly higher under Alternative 3 because there would be more residents as compared to the proposed Project. Impacts related to geology and seismicity (Impacts 3.7-1 through 3.7-4 and Impacts 3.7-6 through 3.7-9), hazards and hazardous materials (Impacts 3.9-1 through 3.9-13), and hydrology and water quality (Impacts 3.10-1 through 3.10-9) would be higher under Alternative 3 as compared to the proposed Project.

The Project site's location in the eastern portion of the county places it outside of a State Responsibility Area (SRA) and not within an area classified as a very high fire hazard severity zone. However, Alternative 3 would have more residents who could be exposed to impacts related to wildfire hazards, and wildfire hazards would be more under Alternative 3 as compared to the proposed Project (Impacts 3.18-1 through 3.18-6).

Relationship to Significant and Unavoidable Impacts

There are no significant and unavoidable impacts of the proposed Project, and there would be none under Alternative 3.

Relationship to Project Objectives

Development under Alternative 3 would provide a mix of residential and commercial uses intended to support the projected growth of the UC Merced campus and surrounding community, even though a hotel would not be constructed (Objectives 1 and 2). The increase in student and/or multi-family housing units and recreational amenities would support the UC Merced community and student population better than the proposed Project would as it could house more students in close proximity to the campus (Objective 3). Development of the site with multi-family residential units and commercial uses would result in the same, or very similar, internal circulation network to support those uses, including the construction of Mandeville Lane, and would connect

to and compliment roadway improvements planned for Bellevue Road and Lake Road (Objective 4). Development of more multi-family residential uses on the Project site could result in more transit ridership as transit usage tends to be higher in more dense areas. Further, Alternative 3 would place more residents in closer proximity to UC Merced and its transit hub (Objective 5). Further, Alternative 3 would likely result in the construction of sidewalks and bike lanes consistent with City development standards and similar to the proposed Project, likely resulting in robust use of alternative modes of transportation by onsite residents (Objectives 5 and 6).

Alternative 3 would result in the development of commercial uses at the corner of Bellevue Road/Lake Road, and could serve as a gateway to the UC Merced campus (Objective 7), although no hotel use would be constructed under Alternative 3. Because the roadway network proposed under Alternative 3 would be similar to the proposed Project, planned improvements along Bellevue Road, the signalization of the Bellevue Road/Lake Road intersection, construction of Mandeville Road, and further support to planned improvements for Campus Parkway would be provided under Alternative 3, similar to the proposed Project (Objective 8).

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The qualitative environmental effects of each alternative in relation to the proposed Project are summarized in **Table 5-2**.

Based on the analysis of alternatives and the proposed Project, the environmentally superior alternative would be Alternative 1 No Project because it would expose the fewest number of residents to hazards such as wildfire, geologic hazards, and hydrologic hazards.

CEQA Guidelines Section 15126(e)(2) requires an EIR to identify an environmentally superior alternative. If the No Project Alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives.

Overall, Alternative 2 would be the environmentally superior alternative because it would have the least severe impacts as compared to the other alternatives. However, Alternative 2 would meet few of the Project objectives.

TABLE 5-2: COMPARISON OF ALTERNATIVES

ENVIRONMENTAL TOPIC AREA	*UC VILLAGES SIGNIFICANCE LEVEL*	*ALTERNATIVE 1 NO PROJECT*	*ALTERNATIVE 2 MEDIUM RESIDENTIAL*	*ALTERNATIVE 3 INCREASED RESIDENTIAL INTENSITY*
Aesthetics, Light, and Glare	LTS	Less	Less	More
Agricultural Resources	SU	Same	Same	Same
Air Quality	LTS	Less	Less	More
Biological Resources	LTSWM	Same	Same	Same
Cultural Resources	LTSWM	Same	Same	Same
Energy	LTS	Less	Less	More
Geology and Soils	LTSWM	Less	Less	More

ENVIRONMENTAL TOPIC AREA	*UC VILLAGES SIGNIFICANCE LEVEL*	*ALTERNATIVE 1 NO PROJECT*	*ALTERNATIVE 2 MEDIUM RESIDENTIAL*	*ALTERNATIVE 3 INCREASED RESIDENTIAL INTENSITY*
Greenhouse Gas Emissions	LTS	Less	Less	More
Hazards and Hazardous Materials	LTSWM	Less	Less	More
Hydrology and Water Quality	LTS	Less	Less	More
Land Use	LTS	Less	Less	Same
Noise	LTSWM	Less	Less	More
Population, Housing, and Employment	LTS	Less	Less	More
Public Services and Recreation	LTS	Less	Less	More
Transportation	LTS	More	More	More
Tribal Cultural Resources	LTSWM	Same	Same	Same
Utilities and Service Systems	LTS	Less	Less	More
Wildfire	LTS	Less	Less	Less

Notes:
NI = No Impact
LTS = Less than Significant
LTSWM = Less than Significant with Mitigation
SU = Significant and Unavoidable
Source: De Novo Planning Group, 2024.

This section presents information about the proposed Project's impact on specific environmental topic areas that were determined to have no impact. During this evaluation, certain impacts of the Project were found to have no impact or be less than significant due to the inability of the Project to create such impacts or the absence of Project characteristics producing effects of this type. CEQA Guidelines Section 15128 requires an EIR to briefly indicate 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. In accordance with CEQA Guidelines Section 15128, the following section includes criteria from Appendix G of the CEQA Guidelines that were found to be less than significant.

6.1 AESTHETICS AND VISUAL RESOURCES

Impacts to aesthetic resources are discussed in Section 3.1, Aesthetics and Visual Resources. However, there is one issue related to aesthetics where UC Villages project would have no impact. This analysis uses the CEQA Guidelines Appendix G questions as thresholds to determine the significance of the Project. A significant effect on aesthetics and visual resources would occur if implementation of UC Villages project would:

1. Have a substantial adverse effect on a scenic vista;
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
3. In non-urbanized areas, substantially degrade the existing visual character or quality 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, conflict with applicable zoning and other regulations governing scenic quality;
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Thresholds 1, 3, and 4 are discussed in Section 3.1, Aesthetics and Visual Resources. Threshold 2 is discussed below.

STATE SCENIC HIGHWAYS

According to the County of Merced General Plan EIR, officially designated state scenic highways within Merced County include State Highway 152 west of Interstate 5, and Interstate 5 from the Stanislaus County line south to Highway 152. State Route 140 is an officially designated state scenic highway and is located approximately 27 miles northeast of the Project site.[1] This portion of State Route 140 is located outside of the County; however, it is the closest officially designated state scenic highway to the Project site.

The Project site is not visible from State Route 140. Therefore, the proposed Project would have ***no impact*** on scenic resources located within a State Scenic Highway.

[1] Caltrans, 2019. Scenic Highways, California State Scenic Highways. List of eligible and officially designated State Scenic Highways. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed June 20, 2024.

6.2 AGRICULTURAL RESOURCES

Impacts to agricultural resources are discussed in Section 3.2, Agricultural Resources. However, there are some issues related to agricultural resources where UC Villages project would have no impact. This analysis uses the CEQA Guidelines Appendix G questions as thresholds to determine the significance of the project. A significant effect on agricultural resources would occur if implementation of UC Villages project would:

1. 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;
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract;
3. 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));
4. Result in the loss of forest land or conversion of forest land to non-forest use; or
5. 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.

Thresholds 1 and 5 are discussed in Section 3.2, Agricultural Resources. Thresholds 2, 3, and 4 are discussed below.

AGRICULTURAL ZONING AND WILLIAMSON ACT CONTRACTS

The Project site is designated in the Merced County General Plan as "Merced Rural Residential Center" No. 1 Rural-Residential (R-R) and zoned in the County as Rural Residential/Single Family Residential. The project site is designated in the City of Merced's General Plan as "Community Plan," which has been established in the form of the Bellevue Community Plan. The Bellevue Community Plan designates the project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office. Although the project site has not been zoned by the City of Merced, it is proposed to be pre-zoned Planned Development (P-D), which calls for development, as anticipated and planned for in the City's Bellevue Community Plan. Thus, the Project would not involve the conversion of farmland to non-agricultural use or conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, ***no impact*** would occur in this regard.

FOREST ZONING

The Project site is designated in the Merced County General Plan as "Merced Rural Residential Center" No. 1 Rural-Residential (R-R) and zoned in the County as Rural Residential/Single Family Residential. The project site is designated in the City of Merced's General Plan as "Community Plan," which has been established in the form of the Bellevue Community Plan. The Bellevue Community Plan designates the project site as "Mixed-Use TOD Character," which is characterized by a mix of uses ranging from multi-family residential to community retail to office. Although the project site has not been zoned by the City of Merced, it is proposed to be pre-zoned Planned Development (P-D). Thus, the project site does not

contain any land dedicated as, or zoned for, forest or timberland use. As such, the proposed Project would not conflict with existing zoning for, or cause the rezoning of, forest land or timberland. ***No impact*** would occur.

FOREST LAND

In accordance with the definition provided in California Public Resources Code Section 12220(g), "forest land" is land that can support, under natural conditions, 10 percent native tree cover of any species, including hardwoods, and that allows for the preservation or management of forest-related resources such as timber, aesthetic value, fish and wildlife, biodiversity, water quality, recreational facilities, and other public benefits.

The project site is located in a rural-residential and urbanized area and does not support forest land use activities. According to the US Forest Service Lands Map by the United States Department of Agriculture Forest Service, there are no National Forest lands within the City of Merced and the project site.[2] Therefore, UC Villages Project would not result in the loss of forest land or conversion of forest land to non-forest use, and ***no impact*** would occur.

6.3 GEOLOGY AND SOILS

Impacts to geology and soil resources are discussed in Section 3.7, Geology and Soils. However, there are some issues related to geology and soil resources where UC Villages project would have no impact. This analysis uses the CEQA Guidelines Appendix G questions as thresholds to determine the significance of the project. A significant effect on geology and soil resources would occur if implementation of UC Villages Project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving;
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42;
    - Strong seismic ground shaking;
    - Seismic-related ground failure, including liquefaction; and
    - Landslides.
2. Result in substantial soil erosion or the loss of topsoil;
3. 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;
4. Be located on expansive soil, as defined in Tables 18-1-D of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

[2] U.S. Department of Agriculture, Forest Service, 2023. *USA Forest Service Lands*. Website: https://services.arcgis.com/P3ePLMYs2RVChkJx/arcgis/rest/services/USA_Forest_Service_Lands/FeatureServer. Accessed June 20, 2024.

5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; or
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Thresholds 1, 2, 3, 4, and 6 are discussed in Section 3.7, Geology and Soils. Threshold 5 is discussed below.

IMPACTS TO SEPTIC TANKS OR ALTERNATIVE WASTEWATER SYSTEMS

The Project site is within the area served by the City of Merced's North Merced Sewer Master Plan. Currently a 21-inch sewer main exists in Bellevue Road servicing UC Merced which is tributary to the G Street sewer trunk line. A recent flow analysis was performed for the City of Merced and determined there was excess capacity in the G Street trunk line which would service the proposed project. Development within the project site would be required to connect to the City's existing sewer system and would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, ***no impact*** would occur related to the use of septic tanks or alternative wastewater disposal systems.

6.4 MINERAL RESOURCES

In accordance with California's Surface Mining and Reclamation Act of 1975 (SMARA), the State Geologist, through the California Department of Conservation, California Geological Survey (formerly Division of Mines and Geology), is responsible for identifying and mapping the non-fuel mineral resources of the State. Economically significant mineral deposits are classified based on the known and inferred mineral resource potential of the land using the California Mineral Land Classification System, which includes the following four mineral resource zones.

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- MRZ-3 sg: Areas containing known or inferred concrete aggregate resources of undetermined mineral resource significance (sand and gravel).
- MRZ-4: Areas where available information is inadequate for assignment to any other zone.

The County of Merced has all four mineral resource zone classifications within its county boundaries (MRZ-1, MRZ-2, MRZ-3, and MRZ-4). As shown on the Mineral Classification Map prepared by the California Division of Mines and Geology, the Project site lies within an area classified MRZ-3 sg, indicating the areas containing known or inferred concrete aggregate resources of undetermined mineral resource significance (sand and gravel).[3] Therefore, ***no impact*** to mineral resources would occur as a result of the proposed Project.

[3] California Department of Conservation, Division of Mines and Geology. 2021. *Mineral Land Classification Map of Concrete Aggregate in the Merced County*.

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