

DRAFT

Focused Subsequent Environmental Impact Report for the UCP Update and VST Specific Plan

State Clearinghouse No. 2001021056



Prepared for:



Merced County Community and
Economic Development Department

April 2023

DRAFT

Focused Subsequent Environmental Impact Report for the UCP Update and VST Specific Plan

State Clearinghouse No. 2001021056

Prepared for:



**Merced County Community and
Economic Development Department**

2222 M Street, 2nd Floor
Merced, CA 95340

Contact:

Tiffany Ho

Planner III

209.385.7654 ext. 4407

tiffany.ho@countyofmerced.com

Prepared by:



Ascent Environmental

455 Capitol Mall, Suite 300
Sacramento, CA 95814

Contact:

Jessica Babcock

Project Manager

916.842.3163

April 2023

TABLE OF CONTENTS

Section	Page
LIST OF ABBREVIATIONS	IV
EXECUTIVE SUMMARY	ES-1
ES.1 Summary Description of the UCP Update and VST Specific Plan	ES-1
ES.2 Areas of Controversy and Issues to be Resolved	ES-3
ES.3 Project Alternatives Summary	ES-4
ES.4 Environmental Impacts and Review process.....	ES-4
1 INTRODUCTION	1-1
1.1 Type of Document.....	1-1
1.2 Project Requiring Environmental Analysis.....	1-3
1.3 Scope of the Environmental Analysis.....	1-4
1.4 Public Review Process.....	1-27
1.5 Document Organization	1-28
2 PROJECT DESCRIPTION	2-1
2.1 Location	2-1
2.2 Existing Conditions.....	2-1
2.3 Background and Purpose.....	2-1
2.4 Project Objectives.....	2-9
2.5 Plan Characteristics.....	2-12
2.6 Construction Assumptions.....	2-41
2.7 Required Discretionary Actions	2-41
3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	3-1
Format of the Environmental Analysis.....	3-1
3.1 Air Quality	3.1-1
3.2 Biological Resources	3.2-1
3.3 Tribal Cultural Resources.....	3.3-1
3.4 Greenhouse Gas Emissions and Climate Change.....	3.4-1
3.5 Hydrology and Water Quality	3.5-1
3.6 Noise and Vibration	3.6-1
3.7 Transportation and Circulation.....	3.7-1
3.8 Utilities and Service Systems	3.8-1
4 ALTERNATIVES	4-1
4.1 Introduction.....	4-1
4.2 Considerations for Selection of Alternatives.....	4-2
4.3 Alternatives Considered in the 2001/2004 UCP EIR.....	4-4
4.4 Alternatives to the UCP Update and VST Specific Plan.....	4-6
4.5 Environmentally Superior Alternative	4-8
5 SUMMARY OF SIGNIFICANT IMPACTS	5-1
5.1 Significant and Unavoidable Environmental Impacts.....	5-1
5.2 Significant and Irreversible Environmental Changes.....	5-5
6 REPORT PREPARERS	6-1
7 REFERENCES	7-1

Appendices

A	Notice of Preparation and Responses
B	VST Specific Plan
C	UCP Update and Policy Amendment
D	Air Quality and Greenhouse Gas Modeling
E	Transportation Impact Study
F	Noise Modeling
G	Review of Existing Noise Conditions
H	Vehicle Miles Traveled Analysis
I	Water Supply Assessment
J	Merced Wastewater Collection System Analysis 2021 Update

Figures

Figure 2-1	Regional Location	2-2
Figure 2-2	University Community Plan and Virginia Smith Trust Specific Plan Area.....	2-3
Figure 2-3	Adopted UCP: Draft Land Use Planning Sub-Areas Diagram; Area to Be Removed from UCP	2-6
Figure 2-4	2009 Long-Range Development Plan Area	2-8
Figure 2-5	2030 Merced County General Plan.....	2-10
Figure 2-6	Proposed UCP Land Use and Circulation Diagram.....	2-13
Figure 2-7	VST Specific Plan Land Use Diagram	2-21
Figure 2-8	VST Specific Plan Overall Circulation Plan.....	2-27
Figure 2-9	Off-Site Infrastructure.....	2-30
Figure 2-10	Water Master Plan	2-33
Figure 2-11	VST Specific Plan Phasing.....	2-39
Figure 3.2-1	Land Cover Types	3.2-5
Figure 3.5-1	Hydrology.....	3.5-7
Figure 3.5-2	Groundwater Basins	3.5-8

Tables

Table ES-1	Summary of Impacts and Mitigation Measures.....	ES-6
Table 2-1	Development Potential of the Adopted UCP and UCP Update.....	2-15
Table 2-2	Development Potential of the VST Specific Plan.....	2-18
Table 2-3	Development Potential of the VST Plan Area under the Adopted UCP and VST Specific Plan	2-36
Table 3-1	Adopted Mitigation Measures from the 2001/2004 UCP EIR	3-3
Table 3-2	Cumulative Project List.....	3-7
Table 3.1-1	National and California Ambient Air Quality Standards.....	3.1-2
Table 3.1-2	Sources and Health Effects of Criteria Air Pollutants	3.1-9
Table 3.1-3	Attainment Status Designations for Merced County	3.1-10
Table 3.1-4	Unmitigated Construction-Generated Emissions of Criteria Air Pollutants by Year for the UCP Update and VST Specific Plan (2025–2049).....	3.1-24
Table 3.1-5	Unmitigated Maximum Daily Emissions of Criteria Air Pollutants for the UCP Update and VST Specific Plan Under a Worst-Case Scenario (2025–2049)	3.1-25

Table 3.1-6	Unmitigated Construction-Generated Emissions of Criteria Air Pollutants by Year for the VST Specific Plan (2025–2039).....	3.1-27
Table 3.1-7	Unmitigated Maximum Daily Emissions of Criteria Air Pollutants for the VST Specific Plan Under a Worst-Case Scenario (2025–2039).....	3.1-28
Table 3.1-8	Mitigated Construction-Generated Emissions of Criteria Air Pollutants by Year for the UCP Update (2025–2049)	3.1-30
Table 3.1-9	Mitigated Maximum Daily Emissions of Criteria Air Pollutants Under a Worst-Case Scenario for the UCP Update (2025–2049)	3.1-31
Table 3.1-12	Maximum Daily and Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the UCP Update (2050)	3.1-33
Table 3.1-13	Maximum Daily and Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the VST Specific Plan (2039)	3.1-34
Table 3.2-1	Land Cover Types in the VST Specific Plan Area.....	3.2-3
Table MM 3.2-1	Normal Blooming Period for Special-Status Plants That are Known to Occur or May Occur within the UCP Area and VST Specific Plan Area	3.2-14
Table 3.4-1	Statewide GHG Emissions by Economic Sector (2020).....	3.4-8
Table 3.4-2	County of Merced Greenhouse Gas Emissions Inventory for 2005	3.4-8
Table 3.4-3	Greenhouse Gas Emissions of the UCP Update and VST Specific Plan	3.4-20
Table 3.4-4	GHG Emission Reductions Achieved from VST Specific Plan Project Design Commitments.....	3.4-21
Table 3.4-5	Operational Energy Consumption of UCP Update and VST Specific Plan.....	3.4-23
Table 3.6-1	Groundborne Vibration Impact Criteria for General Assessment.....	3.6-1
Table 3.6-2	Caltrans Recommendations Regarding Levels of Vibration Exposure	3.6-2
Table 3.6-3	Merced County Noise Standards for New Uses Affected by Traffic, Railroad, and Airport Noise ...	3.6-3
Table 3.6-4	Merced County Non-Transportation Noise Standards Median (L_{50}) / Maximum (L_{max})	3.6-3
Table 3.6-5	City of Merced Exterior Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Source.....	3.6-9
Table 3.6-6	City of Merced Maximum Allowable Noise Exposure Transportation Noise Sources.....	3.6-10
Table 3.6-7	Typical A-Weighted Noise Levels.....	3.6-12
Table 3.6-8	Human Response to Different Levels of Ground Noise and Vibration.....	3.6-13
Table 3.6-9	Summary of Existing Ambient Noise Measurements.....	3.6-15
Table 3.6-10	Summary of Modeled Existing Traffic Noise Levels.....	3.6-16
Table 3.6-11	Summary of Modeled Traffic Noise Levels under Existing and Existing Plus Project Conditions ...	3.6-27
Table 3.7-1	UCP Amendment VMT Analysis	3.7-19
Table 3.7-2	VST Specific Plan VMT Analysis	3.7-19
Table 3.8-1	Utilities Providers for the UCP Area.....	3.8-9
Table 3.8-2	Amount of Groundwater Pumped by the City.....	3.8-10
Table 3.8-3	Future Estimates of Groundwater Pumping from the Merced Subbasin by the City.....	3.8-10
Table 3.8-4	Comparison of City-wide Water Demand and VST Specific Plan Water Demand	3.8-20
Table 3.8-5	Comparison of Water Demand and Supply.....	3.8-21

LIST OF ABBREVIATIONS

°C	degrees Celsius
µmhos/cm	microsiemens per centimeter
2013 BTP	City of Merced 2013 Bicycle Transportation Plan
AAQS	ambient air quality standard
AB	Assembly Bill
ADT	average daily trips
AF	acre-feet
APCO	air pollution control officer
ATSF	Atchison, Topeka, and Santa Fe
BAAQMD	Bay Area Air Quality Management District
BAU	business-as-usual
BMP	best management practice
CA SDWA	California Safe Drinking Water Act
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCaIC	Central California Information Center
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranks
CVFPB	Central Valley Flood Protection Board

CVFPP	Central Valley Flood Protection Plan
CWA	federal Clean Water Act
dB	decibels
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
diesel PM	particulate matter exhaust from diesel engines
Draft SEIR	draft subsequent environmental impact report
DWR	California Department of Water Resources
EC	electromagnetic conductivity
EPA	U.S. Environmental Protection Agency
EPA	US Environmental Protection Agency
ESA	federal Endangered Species Act
EV	electric vehicles
FAR	floor area ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GAMAQI	<i>Guidance for Assessing and Mitigating Air Quality Impacts</i>
GBV	Ground-Borne Vibration
GHG	greenhouse gas
gpcd	gallons per capita per day
gpm	gallons per minute
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
GWP	global warming potential
HAP	hazardous air pollutant
HCP	habitat conservation plans
Hz	hertz
IDA	International Dark Sky Association
IPCC	Intergovernmental Panel on Climate Change
ITP	incidental take permit
LAFCo	Local Area Formation Commission
lb/day	pounds per day
L _{dn}	day-night average noise level
L _{eq}	average of the sound energy occurring over a specified period

L _{max}	maximum noise level (the maximum instantaneous noise level during a specific period)
LOS	level of service
LRA	local responsibility area
LRDP	Long Range Development Plan
L _x	represents the sound level exceeded for a given percentage of a specified period (e.g., L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time)
MCAG	Merced County Association of Governments
MCL	Maximum Contaminant Levels
MCOE	Merced County Office of Education
MEP	maximum extent practicable
MG	million-gallons
mg/L	milligram per liter
MGD	million gallons per day
MHOA	Master Homeowner Association
MID	Merced Irrigation District
MLD	most likely descendants
MOU	memorandum of understanding
mPa	micro-Pascals
MPO	metropolitan planning organizations
MS4	Municipal Separate Storm Sewer System
MSWG	Merced Storm Water Group
MTCO _{2e}	metric tons of carbon dioxide equivalent
MUHSD	Merced Union High School District
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plans
NHTSA	National Highway Traffic Safety Administration
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OPR Technical Advisory	<i>Technical Advisory on Evaluating Transportation Impacts in CEQA</i>
OPR	Governor's Office of Planning and Research
PD	Planned Developments
PG&E	Pacific Gas and Electric Company
PM	particulate matter

PM ₁₀	respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less
PM _{2.5}	fine particulate with an aerodynamic resistance diameter of 2.5 micrometers or less
PPV	peak particle velocity
PRC	Public Resources Code
PV	photovoltaic
RMS	root-mean-square
ROG	reactive organic gases
RTP	2022 Regional Transportation Plan Sustainable Communities Strategy
RTP	regional transportation plans
RWQCB	regional water quality control board
SB	Senate Bill
SCS	sustainable communities strategies
SGMA	Sustainable Groundwater Management Act
SGMA	Sustainable Groundwater Management Act of 2014
SIP	state implementation plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO _x	sulfur oxides
SPL	sound pressure level
sq ft	square feet
SR	State Route
SRA	state responsibility area
SUDP	Specific Urban Development Plan
SWMP	Storm Water Management Program
SWRCB-DDW	State Water Resources Control Board Division of Drinking Water
TAC	toxic air contaminant
TDM	Travel Demand Model
TDS	total dissolved solids
TIS	VST Transportation Impact Study
TISG	Caltrans Transportation Impact Study Guide
TISG	Transportation Impact Study Guide
TMDL	total maximum daily load
TPY	tons per year
UC	University of California
UCLC	University Community Land Company
UCP	University Community Plan
USACE	US Army Corps of Engineers

USFWS	U.S. Fish and Wildlife Service
USGS	US Geological Survey
UWMP	urban water management plan
UWMPA	Urban Water Management Planning Act
VdB	vibration decibels
VDE	visible dust emissions
VERA	voluntary emission reduction agreement
VMT Analysis	<i>Vehicle Miles Traveled Analysis</i>
VMT	vehicle miles traveled
VST	<i>Virginia Smith Charitable Trust</i>
WCS	Wastewater Collection System
WDR	Waste Discharge Requirements
WMP	Water System Master Plan
WWTF	Wastewater Treatment Facility
ZEV	zero-emission vehicle
ZNE	zero net energy

EXECUTIVE SUMMARY

The California Environmental Quality Act (CEQA) requires the preparation of an environmental impact report (EIR) when there is substantial evidence that a project could have a significant effect on the environment. The purpose of an EIR is to provide decision-makers, public agencies, and the general public with an objective and informational document that fully discloses the potential environmental effects.

Merced County (hereinafter County) completed an extensive community planning process for the University Community Plan (UCP), including certification of an EIR, in 2004. As previously analyzed, the UCP consisted of a community plan for a 2,133-acre area that encompassed the UC Merced campus and the UCP area. As originally conceived, the UCP was to be physically intertwined and abutting the UC Merced campus center so that there would be a seamless transition between the campus to the supporting community area. The Adopted UCP established goals and policies for development of a community to support the UC Merced campus, and included conceptual land use, circulation, parks, and public facility plans for the area. In total, the Adopted UCP contemplated the development of 11,616 dwelling units and 2,022,900 square feet (sq ft) of commercial area.

Due to the proposed modifications to the Adopted UCP, the County has determined that preparation of a subsequent EIR (SEIR) is appropriate, per the requirements of State CEQA Guidelines Section 15162. This SEIR provides programmatic analysis of the potential environmental effects associated with future development that could result from implementation of the UCP Update and project-level analysis of the VST Specific Plan within the UCP area.

This Executive Summary is provided in accordance with the State CEQA Guidelines Section 15123. It contains an overview of the proposed project analyzed in this draft SEIR, plan alternatives, environmental impacts and mitigation, areas of known controversy, and issues to be resolved during environmental review.

ES.1 SUMMARY DESCRIPTION OF THE UCP UPDATE AND VST SPECIFIC PLAN

ES.1.1 Geographic Extent of the UCP Area

The UCP area is located in unincorporated Merced County, northeast of the city of Merced and within the City's sphere of influence. The UCP area is bounded by Lake Road on the west, UC Merced property (specifically the proposed UC Merced Campus Expansion Area) on the north, the Orchard Drive alignment (north of Cardella Road) and the Fairfield Canal (south of Cardella Road) on the east, and Yosemite Avenue on the south. As currently proposed, the UCP area would be divided by an extension of Cardella Road; the land north of Cardella Road to UC Merced would be the "UCP North" area and would contain the VST plan area, and the land south of Cardella Road to Yosemite Avenue would remain in the portion of the UCP area referred to as the "UCP South" area.

ES.1.2 Overview of the Proposed Changes to the UCP

As described in further detail in Chapter 2, "Project Description," proposed update to the Adopted UCP would modify the UCP boundary to exclude land within the planning boundary of UC Merced; revise the policy plan to reflect current conditions, regulations, and best practices; and update the land use and circulation diagram to reflect the land uses proposed within the VST Specific Plan and alignment of Campus Parkway.

ES.1.3 Overview of the VST Specific Plan

The VST Specific Plan is intended to satisfy the requirement for a specific plan for each "village" within the UCP. The proposed VST Specific Plan re-envisioned the portion of the UCP owned by VST so that it would be more responsive to

expected market conditions, while preserving the basic components of the UCP: commercial uses, the town center concept, and relatively high-density housing. The specific plan revises density and intensity of these uses compared to what was previously proposed. The specific plan includes a description of the overall land use plan and site design to provide 3,950 residential units at varying densities and supporting commercial uses. It also adjusts timing and phasing for installation of parks and public services to appropriately meet demand. Transportation facilities, including roads and bike paths, would be reconfigured in the VST Specific Plan to better serve the VST plan area and existing and planned surrounding land uses. Also, with the passage of AB 3312, VST is now seeking annexation into the City of Merced.

ES.1.4 Project Objectives

ADOPTED UCP OBJECTIVES

The purpose of the UCP is to provide a planning framework for how lands are to be developed and important resources are to be protected and conserved, in anticipation of the growth and development associated with UC Merced.

The established objectives of the Adopted UCP are to:

- To support the successful development of the University of California, Merced, campus by providing for a community that is physically contiguous to the campus and that includes appropriate and sufficient housing, commercial, industrial/business park, civic, and open space uses to meet the long-term needs of the campus and population;
- To provide adequate land and development opportunities to absorb the equivalent of 100 percent of the new growth demand generated by UC Merced over time;
- To provide a community that can be developed in an integrated fashion through a master developer rather than a fragmented subdivision process;
- To provide a community with patterns of land use and urban form that support principles of livable communities and environmental sustainability;
- To provide adequate circulation and utility infrastructure that supports the long-term sustainability of the UC Merced campus and University Community;
- To establish and support linkages and transitions that will integrate the University Community with greater Merced;
- To complement and support the economy on the City of Merced and the greater Merced region;
- To support the educational goals of the Virginia Smith Trust by enhancing its scholarship fund;
- To support regional programs to conserve and protect the County's important agricultural and natural resources as development of UC Merced and the University Community proceeds;
- To be configured and planned so that environmental permitting allows community development to proceed at the pace necessary to support campus development;
- To be affordable and financially feasible; and
- To support implementation of the Merced County General Plan.

UCP UPDATE OBJECTIVES

In addition, the proposed project modifications are intended to:

- amend the Adopted UCP boundaries to reflect current land ownership;
- reallocate the potential housing units attributed to land now owned exclusively by UC Merced to within the amended UCP boundaries without substantially changing the range of unit types;
- improve consistency between County, City, and UC planning documents;

- revise the Adopted UCP to conform to current development regulations;
- update the Adopted UCP land use plan to be compatible with adjacent development;
- update the Adopted UCP circulation plan to be compatible with current standards and plans for regional infrastructure, including Campus Parkway;
- update the phasing program to reflect current market conditions and changes to the UCP boundaries; and
- provide a “university community” that meets the needs of UC’s staff and students, as currently projected, including providing a range of housing opportunities appropriate for the local demographics and lifestyles.

VST SPECIFIC PLAN OBJECTIVES

The objectives of the VST Specific Plan are to:

- provide a mix of uses and a financially feasible phasing and implementation plan that will maximize the contribution to the VST scholarship endowment to provide college scholarships to county residents per the provisions of the VST;
- provide a master planned community with community amenities that will attract students and retain highly skilled and educated staff;
- provide diverse town and neighborhood centers to offer local shopping and service opportunities for people of different ages, income levels, cultures, and education levels;
- provide increased housing density next to town centers and overall housing densities in conformance with Adopted UCP policies;
- provide a diversity of housing sizes, prices, and types to serve the full range of employees, instructors, staff, and students at UC Merced, consistent with the vision of the Adopted UCP;
- comply with the City of Merced’s inclusionary housing standards by providing sufficient units that would be restricted for affordability;
- provide diverse multimodal and active transportation alternatives and a network of bike paths, pedestrian paths, and transit connections;
- connect to UC Merced’s existing and planned circulation facilities to provide a seamless connection between the VST plan area and the UC Merced campus for pedestrian, bicycle, vehicle, and transit modes;
- create a continuous network of parks and open spaces; and
- prioritize livability, activity, and shared community space, with neighborhoods centered around parks and schools.

ES.2 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

A notice of preparation (NOP) of a draft EIR was circulated to the public on January 14, 2022, in accordance with the State CEQA Guidelines. A public scoping meeting was held on January 20, 2022. The purpose of the NOP and the scoping meeting was to provide notification that an EIR for was being prepared for the project and to solicit input on the scope and content of the environmental document. The NOP and responses to the NOP are included in Appendix A of this draft SEIR. No areas of controversy were identified through this process.

However, growth-related impacts, including demand and capacity for City-provided water and sewer services are anticipated to be general areas of concern. In addition, the County will continue to coordinate with UC Merced and the City to facilitate integration of UCP infrastructure with regional planning efforts (e.g., the extension of Campus Parkway).

ES.3 PROJECT ALTERNATIVES SUMMARY

CEQA Guidelines Section 15126.6 require that an EIR describe a range of reasonable alternatives to the project, which could feasibly attain the basic objectives of the project and reduce the degree of environmental impact. Chapter 4, "Alternatives," summarizes the following onsite project alternatives evaluated in the 2001/2004 UCP EIR.

- No Loss of Prime Farmland Alternative
- No Loss of Prime Farmland/Reduced Community Size Alternative
- Limited Loss of Prime Farmland Alternative
- Reduced Residential Density Alternative
- Reduced Community Size and Population Alternative
- Increased Community Size and Population Alternative
- No Project Alternative:

As described further in Chapter 4, "Alternatives," the No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative would remain the environmentally superior alternatives.

ES.4 ENVIRONMENTAL IMPACTS AND REVIEW PROCESS

This draft SEIR has been prepared pursuant to the CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000, et seq.) to evaluate the physical environmental effects of the proposed amendments to the Adopted UCP. Merced County is the lead agency.

Pursuant to State CEQA Guidelines Section 15162, a SEIR should be prepared if an EIR has been certified for a project, but one or more of the following conditions are met.

- (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete shows any of the following:
 - A. The project will have one or more significant effects not discussed in the previous EIR.
 - B. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - C. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - D. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The existing conditions against which potential environmental impacts are evaluated are based on the environmental and regulatory setting information published in the 2001/2004 UCP EIR. Where changes to the environmental or regulatory setting (e.g., new information, regulatory changes) are relevant to understanding potential impacts, additional background information is provided in the draft SEIR resource section. The reader is referred to the 2001/2004 UCP EIR for all other setting information.

Table ES-1 provides a summary of potential environmental impacts, their level of significance without mitigation measures, any additional mitigation measures proposed, and the levels of significance following the implementation of new or revised mitigation measures. In approving a project, the lead or responsible agency must find, based on substantial evidence, that either: (a) the project has been changed to avoid or substantially reduce the magnitude of the impact; (b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or (c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (State CEQA Guidelines Section 15091). Per Public Resources Code Section 21061.1, feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account, economic, environmental, legal, social, and technological factors. If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision and explains why the project's benefits outweigh the significant environmental effects (State CEQA Guidelines Section 15093).

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
Air Quality					
<p>Impact 3.1.1: Generation of Short-Term, Construction-Related Emissions of ROG, NO_x, PM₁₀, and PM_{2.5} The 2001/2004 UCP EIR qualitatively evaluated construction emissions of criteria pollutants during construction of the Adopted UCP. Although emissions were not quantified, the 2001/2004 UCP EIR concluded that construction activities would generate substantial increases in ROG, NO_x, and PM₁₀ emissions from site grading and excavation, road paving, application of architectural coatings, motor vehicle exhaust, and operation and movement of heavy-duty construction equipment. The UCP Update and VST Specific Plan would entail similar types of construction activities over a similarly sized project site. Nonetheless, since certification of the 2001/2004 UCP EIR, SJVAPCD has updated its guidance for determining construction-related air quality analysis and recommends that emissions be quantified and evaluated against annual mass emissions thresholds and daily mass emissions screening criteria. In light of this new guidance, annual construction-generated emissions were quantified for the UCP Update and VST Specific Plan to determine whether construction of the UCP Update and</p>	<p>S (UCP Update) LTS (VST Specific Plan)</p>	<p>Adopted Mitigation Measure 4.3-1 Compliance with the following SJVAPCD mitigation measure listed in Table 6-3 of the GAAMAQD would further reduce dust created during construction activities:</p> <ul style="list-style-type: none"> • Limit traffic speeds on unpaved roads to 15 mph. <p>Adopted Mitigation Measure 4.3-2 Construction contracts shall include the following specifications:</p> <ul style="list-style-type: none"> • Minimize idling time to a maximum of ten minutes when construction equipment is not in use; • Employ construction activity management techniques such as extending the construction period outside the ozone season of May through October, reducing the number of hours of construction and scheduling activities during off peak hours; • Tuning engines to manufacturer’s specifications; • When feasible, schedule equipment usage to avoid simultaneous use of equipment. 	<p>Mitigation Measure 3.1-1a: Utilize the cleanest available off-road construction equipment, including the latest Tier diesel or electric equipment (e.g. scrapers, graders, trenchers, tractors, loaders, backhoes, etc.) (UCP South only) All construction specifications shall require use off-road construction equipment that meet EPA’s Tier 4 emission standards as defined in 40 CFR 1039 and comply with the appropriate test procedures and provisions as contained in 40 CFR Parts 1065 and 1068. Tier 3 models can be used if a Tier 4 version of the equipment type is not yet produced by manufacturers. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. Implementation of this measure shall be required in the contract the project applicant establishes with its construction contractors. The applicant shall demonstrate its plan to fulfill the requirements of this measure in a report or in project improvement plan details submitted to the discretionary land use authority (City of Merced or Merced County) prior to the use of any off-road, diesel-powered construction equipment.</p> <p>Mitigation Measure 3.1-1b: Preparation of an Ambient Air Quality Analysis (UCP South only) SJVAPCD recommends that construction and operational emissions that exceed 100 lb/day prepare an AAQA to assess whether a project would violate an AAQS. Prior to the approval of a Final Map, the project applicant shall prepare a project-level analysis of emissions for development in the UCP area that is subject to SJVAPCD oversight to confirm whether the particular land use development would result in emissions that exceed this 100 lb/day screening criterion. In cases where a project’s construction activity</p>	<p>LTS</p>	<p>SU</p>

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>VST Specific Plan would exceed the thresholds. Due to the differences in land uses compared to the Adopted UCP, the UCP Update and VST Specific Plan would result in fewer emissions of criteria air pollutants as compared to the Adopted UCP. The UCP Update emissions would exceed SJVACPD's daily mass emissions screening criteria, which could result in an exceedance of an AAQS, as concluded in the 2001/2004 UCP EIR. There is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would be less than significant with mitigation.</p>			<p>would generate emissions above this screening criterion (i.e., 100 lb/day) s, the project applicant shall prepare an AAQA. If, following the preparation of an AAQA, emissions are found to contribute to an exceedance of an AAQS, the project applicant shall either implement additional emission reduction measures as part of the project or, once all feasible on-site reduction measures have been exhausted, engage in regional programs that serve to reduce air pollution in the San Joaquin Valley. An example of a potential program includes the Valley Clean Air Now (Valley CAN) organization, which improves public health through investments in vehicle repair and replacement programs. Emissions reduction programs must demonstrate a quantifiable reduction and must be located within the SJVAB so air pollution reductions are realized in the basin. Alternatively, if regional air pollution reduction programs are unavailable, the project applicant may enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD to reduce emissions to below 100 lb/day for any pollutant that exceeds the screening criteria. If conditions warrant participation in a VERA, the VERA shall demonstrate a pound-for-pound reduction in emissions that exceed 100 lb/day through a process that funds and implements emissions reduction projects within the SJVAB. The types of emission reduction projects that could be funded include electrification of stationary internal combustion engines (such as well pumps), replacing old heavy-duty trucks with cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. If a VERA is found to be required to meet thresholds, and the applicant elects to enter into one, the project applicant shall engage in a discussion with SJVAPCD prior to the adoption of the VERA to ensure that feasible mitigation has been identified to reduce emissions to a less-than-significant level.</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>Impact 3.1-2: Long-Term, Operational (Regional) Emissions of Criteria Air Pollutants and Precursors</p> <p>The 2001/2004 UCP EIR evaluated the generation of long-term regional emissions of criteria air pollutants and ozone precursors and determined that emissions of ROG, NO_x, and CO would exceed SJVACPD’s thresholds of significance. Since certification of the 2001/2004 UCP EIR, SJVACPD has issued new guidance and thresholds of significance for determining long-term operational emissions of criteria air pollutants and ozone precursors. The UCP Update and VST Specific Plan would generate emissions of ROG, NO_x, CO, PM₁₀, and PM_{2.5} in exceedance of SJVACPD’s operational thresholds of significance, consistent with the findings of the 2001/2004 UCP EIR. However, the UCP Update would result in fewer total emissions of NO_x, ROG, SO₂, PM₁₀, and PM_{2.5} and greater total CO emissions as compared to the Adopted UCP (Table 4.3.6 of the 2001/2004 UCP EIR). Therefore, this impact would be less severe than the impact identified in the 2001/2004 UCP EIR. This impact would be less than significant with mitigation.</p>	<p>S</p>	<p>Adopted Mitigation Measure 4.3-4</p> <p>(a) Outdoor electrical outlets shall be installed in the front and backyards of all housing units.</p> <p>(b) Use solar or low emission water heaters.</p> <p>(c) Orient buildings to take advantage of solar heating and natural cooling and use passive solar design.</p> <p>(d) Increase wall and attic insulation.</p>	<p>Mitigation Measure 3.1-2a: Implement On-Site Project Design Features to Reduce Emissions of Criteria Air Pollutants (UCP South)</p> <p>Prior to the issuance of any development permits, the project applicant shall Implement the following measures to reduce the project’s emissions:</p> <ul style="list-style-type: none"> • Use low-VOC (50–100 grams per liter) paint for external residential applications on all construction drawings for review and approval by staff of the discretionary land use authority (City of Merced or Merced County). • Incorporate traffic calming measures including marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts, and on-street parking throughout the site plan. Specific calming measures and locations shall be identified by a qualified transportation specialist. • Electric water heaters in all residences (no gas storage tank heaters). • Electric heating, ventilation, and air conditioning (HVAC) units in residences (no gas units). • Meet Tier 2 electric vehicle charging standards of the most recent version of Part 11 of the Title 24 California Building Code (CalGreen Code) for all land use types. <p>Mitigation Measure 3.1-2b: Engage in Regional Programs to Offset Project Emissions of ROG, NO_x, CO, and PM₁₀ (UCP South and VST Specific Plan) UCP South</p> <p>Once the on-site reduction measures listed above under Mitigation Measure 3.1-2a have been incorporated, an air quality assessment shall be prepared to determine whether any SJVACPD annual mass emissions</p>	<p>LTS</p>	<p>SU</p>

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<p>thresholds are exceeded. If no thresholds are exceeded, no further action is necessary. If one or more thresholds are exceeded, prior to the issuance of Certificates of Occupancy, the project applicant shall enter into a VERA through coordination with SJVAPCD to reduce emissions to meet SJVAPCD's annual mass emissions thresholds for any pollutant that exceeds their respective threshold. The project applicant shall engage in a discussion with SJVAPCD prior to the adoption of the VERA to ensure that feasible mitigation has been identified to reduce emissions to a less-than-significant level consistent with the direction given in SJVAPCD's GAMAQI. As allowed by SJVAPCD, the project applicant shall be provided the opportunity to perform an additional quantification of the project's operational emissions following the implementation of the proposed measures listed above under Mitigation Measure 3.1-2a to estimate the TPY needed to reduce emissions to meet SJVAPCD's annual thresholds of significance.</p> <p>VST Specific Plan A project-level evaluation of potential emissions has been performed for the VST Specific Plan. Based on SJVAPCD's guidance, various project design features have been incorporated into the design of the VST Specific Plan to reduce emissions, such as transportation management strategies and the elimination of onsite natural gas infrastructure for residential land uses. Based on this data (see Table 3.1-13), the applicant shall enter into a VERA with SJVAPCD to fully compensate for ROG, NO_x, and CO emissions that exceed SJVAPCD's CEQA annual mass emissions thresholds of significance.</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>Impact 3.1-3: Increases in Local Mobile Source CO Concentrations The 2001/2004 UCP EIR evaluated the generation of CO from project-generated vehicle trips. The 2001/2004 UCP EIR concluded that the Adopted UCP would not contribute to CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. The proposed land uses under the UCP Update and VST Specific Plan would result in the redistribution of trips as compared to what was evaluated in the 2001/2004 UCP EIR. However, this redistribution would not result in a new impact. There is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain less than significant as identified in the 2001/2004 UCP EIR.</p>	LTS	None	No mitigation is required.	LTS	LTS
<p>Impact 3.1-4: Exposure to Sensitive Receptors to TACs The 2001/2004 UCP EIR did not evaluate potential TAC impacts from construction or mobile sources of TACs. The project's construction would be dispersed throughout the UCP area; at this programmatic level the specific locations of any impact cannot be assured. PM₁₀ exhaust emissions from the UCP Update (including the VST Specific Plan) would be approximately 88 lb/day, and PM₁₀ exhaust emissions for the VST Specific Plan would be 36</p>	LTS	None	No mitigation is required.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>lb/day, both of which are below SJVAPCD's 100 lb/day screening criteria. Additionally, the UCP Update and VST Specific Plan would result in 33,900 vehicles on Bellevue Road which comprises the greatest volume of ADT within the UCP Update and VST Specific Plan area. This level of ADT is below CARB's recommendations for siting sensitive receptors. The 2001/2004 UCP EIR evaluated the potential for sensitive receptors (e.g., residences, schools) to be exposed to TAC emissions from stationary sources. Onsite and offsite facilities that may emit TACs would be required to comply with established emission standards through the SJVAPCD permitting process. SJVAPCD permitting processes would continue to be applied to potential stationary sources of TACs, resulting in similar restrictions and controls on TAC emissions. The 2001/2004 UCP EIR concluded that since there is no anticipated construction of industrial or research and development facilities, future residents would not be exposed to substantial TAC emissions. The UCP Update does not propose industrial or research and development facilities. Therefore, there is no new significant impact, and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain less than significant as identified in the</p>					

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
Biological Resources					
<p>Impact 3.2-1: Result in Disturbance to or Loss of Special-Status Plant Species The 2001/2004 UCP EIR determined that implementation of the UCP could result in significant adverse effects on two special-status plant species: succulent owl's clover and shining navarretia. The 2001/2004 UCP EIR concluded that, although implementation of Adopted UCP policies would reduce impacts on these species, additional mitigation measures would be required to reduce impacts to a less-than-significant level. Consistent with the conclusion of the 2001/2004 UCP EIR, implementation of Adopted Mitigation Measures 4.4-2 and 4.4-6 would reduce impacts on these two special-status plants by requiring preservation of habitat suitable for succulent owl's clover and collection and dispersal of shining navarretia seeds to establish new populations of the species within suitable habitat.</p> <p>Impacts on additional special-status plant species were ruled out in the 2001/2004 UCP EIR based on habitat present in the UCP area and because these species were not detected during focused special-status plant</p>	<p>S</p>	<p>Adopted Mitigation Measure 4.4-2: The County shall ensure that at least 551 acres of upland annual grassland is preserved in conjunction with and to support at least 61.2 acres of vernal pool fairy shrimp habitat (for a total of 612 acres).</p> <p>Adopted Mitigation Measure 4.4-6: Seed collection from the shining navarretia located within the UCP area shall be conducted prior to the loss of the populations in the UCP area. Seed collection shall be conducted by a qualified botanist or restoration biologist. Collected seeds shall be dispersed within suitable habitat (i.e., seasonally moist clay flats in grassland). Seeds shall be dispersed only within suitable habitats where shining navarretia does not currently occur to avoid impacts on the genetic composition of existing populations. Seed from shining navarretia shall be dispersed in suitable habitat within the annual grassland preserved in conjunction with loss of vernal pool habitat (Impact 4.4.1) and/or Swainson's hawk habitat (Impact 4.4.4) if feasible. However, if mitigation lands to serve both purposes cannot be found, the applicant will be responsible for negotiating a conservation easement with a land owner in the vicinity such that a minimum of seven populations of shining navarretia receive long-term protection.</p>	<p>Mitigation Measure 3.2-1: Implement Avoidance Measure and Mitigation for Special-Status Plant Species Not Covered by the Existing CDFW Incidental Take Permit or USFWS Biological Opinion</p> <ul style="list-style-type: none"> • During implementation of preconstruction surveys required under the CDFW ITP and USFWS Biological Opinion Conservation Measures, a qualified botanist will target additional special-status plant species not covered by these permits. Surveys will follow survey methods from CDFW's Protocols for Surveying and Evaluating Impacts on Special-Status Native Plant Populations and Natural Communities (CDFW 2018) and will be conducted during the blooming period for these species (Table MM 3.2-1). • If special-status plant species are not found, the botanist will document the findings in a report to the discretionary land use authority (City of Merced or Merced County), and no further mitigation will be required. • If special-status plant species are found, the area occupied by special-status plants will be avoided completely, if feasible (i.e., project objectives can still be met). This may include establishing a no-disturbance buffer around the occupied habitat and demarcation of this buffer by a qualified biologist or botanist using flagging or high-visibility construction fencing. The size of the buffer will be determined by the qualified biologist or botanist and will be large enough to avoid direct or indirect impacts on the plant. 	<p>LTS</p>	<p>LTS</p>

Table MM 3.2-1 Normal Blooming Period for Special-Status Plants That are Known to Occur or May Occur within the UCP Area and VST Specific Plan Area

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Watershield												
Hoover's calycadenia (<i>Calycadenia hooveri</i>)												
Beaked clarkia (<i>Clarkia rostrata</i>)												
Dwarf downingia (<i>Downingia pusilla</i>)												
Forked hare-leaf												
Alkali-sink goldfields												
Pincushion navarretia (<i>Navarretia myersii</i> ssp. <i>myersii</i>)												
Shining navarretia												
California alkali grass												
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)												

Source: Data compiled by Ascent Environmental in 2022; CNPS 2021.

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact		LTS = Less than significant	PS = Potentially significant	S = Significant	SU = Significant and unavoidable
surveys conducted in 1999, 2000, and 2001. However, take coverage for state and federally listed plant species was obtained from CDFW and USFWS, respectively after certification of the 2001/2004 UCP EIR. CDFW ITP conditions and USFWS Biological Opinion Conservation Measures require surveys, avoidance, and compensation for impacts on several special-status plant species. However,			<ul style="list-style-type: none"> If special-status plants are found during special-status plant surveys and cannot be avoided, the project applicant shall, in consultation with CDFW or USFWS as appropriate depending on species status, develop and implement a site-specific mitigation strategy to achieve no net loss of occupied habitat or individuals. It is likely that existing mitigation efforts for state and federally listed plant species required under the ITP and USFWS Biological Opinion would be sufficient to 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact		LTS = Less than significant	PS = Potentially significant	S = Significant	SU = Significant and unavoidable
<p>because the Adopted UCP policies, Adopted Mitigation Measures, ITP conditions, and USFWS Biological Opinion Conservation Measures do not include specific measures to avoid or compensate for loss of additional special-status plant species for which habitat is present in the UCP area (including several plant species not analyzed in the 2001/2004 UCP EIR that are now considered special-status species), impacts on these species would not necessarily be reduced to a less-than-significant level with implementation of these measures. Thus, there would be potential for new significant impacts not identified in the 2001/2004 UCP EIR. Mitigation Measure 3.2-1 would require avoidance and mitigation for special-status plant species not covered by the existing CDFW incidental take permit or USFWS Biological Opinion. This impact would be less than significant with mitigation.</p>			<p>reduce impacts on non-listed special-status plant species to a less-than-significant level.</p> <p>Mitigation measures shall include, at a minimum, preserving and enhancing existing populations, establishing populations through seed collection or transplantation from the site that is to be affected, and/or restoring or creating habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Purchase of credits from an agency-mitigation bank that contains the affected species may also be used to offset loss of occupied habitat. Potential mitigation sites could include suitable locations within or outside of the UCP area or VST Specific Plan area. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, considering acreage as well as function and value. Success criteria for preserved and compensatory populations will include:</p> <ul style="list-style-type: none"> ▪ The extent of occupied area and plant density (number of plants per unit area) in compensatory populations will be equal to or greater than the affected occupied habitat. ▪ Compensatory and preserved populations will be self-producing. Populations will be considered self-producing when: <ul style="list-style-type: none"> • plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and • reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity. <p>If offsite mitigation includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			details of these measures will be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.		
<p>Impact 3.2-2: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat</p> <p>The 2001/2004 UCP EIR determined that implementation of the Adopted UCP could result in significant adverse effects on several special-status wildlife species. Implementation of Adopted UCP policies would reduce impacts on these species; however, additional mitigation measures would be required to reduce impacts to a less-than-significant level.</p> <p>Implementation of Adopted Mitigation Measures 4.4-2, 4.4-4(a), 4.4-4(b), and 4.4-5 would reduce impacts on these species by requiring preservation of habitat and implementation of preconstruction surveys.</p> <p>After certification of the 2001/2004 UCP EIR, take coverage for state and federally listed wildlife species was obtained from CDFW and USFWS, respectively. CDFW ITP conditions and USFWS Biological Opinion Conservation Measures require surveys, avoidance, and compensation for impacts on several special-status wildlife species. However, because the</p>	<p>S</p>	<p>Adopted Mitigation Measure 4.4-2: The County shall ensure that at least 551 acres of upland annual grassland is preserved in conjunction with and to support at least 61.2 acres of vernal pool fairy shrimp habitat (for a total of 612 acres).</p> <p>Adopted Mitigation Measure 4.4-4(a): The County shall ensure that Swainson’s hawk foraging habitat is preserved offsite in sufficient quality and quantity, as determined through consultation with the CDFG, to mitigate for the loss resulting from the proposed UCP.</p> <p>The preservation of annual grasslands (through Policy PA 2.3) that are suitable as foraging habitat for Swainson’s hawk shall be located within 10 miles of a current or historic Swainson’s hawk nest site (consistent with CDFG guidance).</p> <p>Adopted Mitigation Measure 4.4-4(b): The County shall require pre-construction surveys to identify active raptor nests prior to the onset of construction activities within 1,000 feet of any ground disturbing activities (i.e., construction site). The pre-construction surveys will be conducted in accordance with USFWS and/or CDFG guidelines. If no active raptor nests are identified within 1,000 feet of the construction site, no further mitigation would be necessary.</p> <p>If active nests are found within 1,000 feet of the construction site, the CDFG shall be consulted to</p>	<p>Mitigation Measure 3.2-2a: Conduct Preconstruction Surveys for Western Spadefoot, Implement Avoidance Measures, and Relocate Individuals</p> <ul style="list-style-type: none"> • Within 7 days before commencement of project activities that would result in ground disturbance, vegetation removal, or use of vehicles, a qualified biologist familiar with the life history of western spadefoot and experienced in performing surveys for western spadefoot will conduct a focused preconstruction survey of habitat suitable for the species within the UCP area. The qualified biologist will inspect the project site in the UCP area for adult western spadefoot toads, eggs and tadpoles within aquatic breeding habitat, as well as suitable burrow habitat. • If western spadefoot adults, tadpoles, or eggs are not detected during the focused survey, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and further mitigation will not be required. • If western spadefoot adults, tadpoles, or eggs are detected, a qualified biologist with an appropriate CDFW Scientific Collecting Permit that allows handling of amphibians will relocate individual adults, tadpoles, or eggs to nearby suitable habitat with prior approval of CDFW. The qualified biologist will also be present during initial ground 	<p>LTS</p>	<p>LTS</p>

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation	
NI = No impact		LTS = Less than significant	PS = Potentially significant	S = Significant	SU = Significant and unavoidable	
<p>Adopted UCP policies, adopted mitigation measures, ITP conditions, and USFWS Biological Opinion Conservation Measures do not include specific measures to avoid direct injury or mortality of several non-listed special-status wildlife species (i.e., western spadefoot, western pond turtle, American badger, crotch bumble, western red bat, burrowing owl), impacts on these species would not necessarily be reduced to a less-than-significant level with implementation of these measures. Thus, new mitigation is proposed that would address the potentially significant effects not identified in the 2001/2004 UCP EIR and impacts on special-status wildlife would be less than significant with mitigation.</p>		<p>determine appropriate mitigation measures to minimize the effect. At a minimum, construction shall be delayed within an appropriate buffer zone, as determined by consultation with CDFG, until the young have fledged.</p> <p>Adopted Mitigation Measure 4.4-5: Project applicants shall conduct surveys for dens/burrows that could be occupied by vagrant San Joaquin kit fox prior to any ground-disturbing activities within the UCP area. The surveys shall be conducted within two weeks or less of any ground-disturbing activities. If dens/burrows meeting the criteria suitable for use by San Joaquin kit fox are found, the dens/burrows shall be cleared using the methodologies that are consistent with those described in the June 1999 Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance.</p>	<p>disturbance activities and will inspect the project site in the UCP area before initiation of project activities. If additional western spadefoot are detected, the qualified biologist will relocate individuals into suitable habitat for western spadefoot (i.e., vernal pool grasslands) that will be preserved in perpetuity.</p> <p>Mitigation Measure 3.2-2b: Conduct Preconstruction Surveys for Western Pond Turtle, Implement Avoidance Measures, and Relocate Individuals</p> <ul style="list-style-type: none"> • Within 48 hours before commencement of project activities that would result in ground disturbance, vegetation removal, or use of vehicles, a qualified biologist familiar with the life history of western pond turtle and experienced in performing surveys for western pond turtle will conduct a focused survey of habitat suitable for the species within the UCP area. If aquatic habitat potentially suitable for the species is present within a project site in the UCP area (e.g., streams, ponds, drainages), upland habitat within approximately 1,600 feet of this aquatic habitat will also be surveyed. The qualified biologist will inspect the project site for western pond turtles as well as suitable burrow habitat. • If western pond turtles are not detected during the focused survey, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and further mitigation will not be required. • If western pond turtles are detected, a no-disturbance buffer of at least 100 feet will be established around any identified nest sites or overwintering sites. A qualified biologist with an appropriate CDFW Scientific Collecting Permit that 			

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact		LTS = Less than significant	PS = Potentially significant	S = Significant	SU = Significant and unavoidable
			<p>allows handling of reptiles will be present during initial ground disturbance activities and will inspect the project site before initiation of project activities. If western pond turtles are detected, the qualified biologist will move the turtles downstream and out of harm's way.</p> <p>Mitigation Measure 3.2-2c: Conduct Focused American Badger Survey and Establish Protective Buffers</p> <ul style="list-style-type: none"> • Within 30 days before commencement of project activities that would result in ground disturbance, vegetation removal, or use of vehicles, a qualified wildlife biologist with familiarity with American badger and experience using survey methods for the species will conduct focused surveys of habitat suitable for the species within the UCP area to identify any American badger dens. • If occupied dens are not found, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and further mitigation will not be required. • If occupied dens are found, impacts on active badger dens will be avoided by establishing exclusion zones around all active badger dens, the size of which will be determined by the qualified biologist. No project activities (e.g., vegetation removal, ground disturbance, staging) will occur within the exclusion zone until denning activities are complete or the den is abandoned, as confirmed by a qualified biologist. The qualified biologist will monitor each den once per week to track the status of the den and to determine when it is no longer occupied. When it is no longer occupied, project activities within the exclusion zone may occur. 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<p>Mitigation Measure 3.2-2d: Conduct Focused Surveys for Crotch Bumble Bee and Implement Avoidance Measures If Listed under CESA</p> <p>Prior to implementation of project activities that could result in loss of crotch bumble bees (e.g., ground disturbance, vegetation removal), the following measures will be implemented.</p> <ul style="list-style-type: none"> • The project applicant will retain a qualified biologist familiar with bumble bees in California, with experience using survey methods for bumble bees, and with approval from CDFW to conduct focused surveys of suitable habitat within the project site in the UCP area. Because a survey protocol for this species has not been established, survey methods will be developed and approved in consultation with CDFW, and will generally include but not be limited to the following elements (included in survey protocols for other bumble bee species in the United States [USFWS 2018]): <ul style="list-style-type: none"> ▪ Surveys will be conducted during the active flight season (typically March through September). ▪ Surveys will be conducted by walking transects through suitable habitat, or by surveying a minimum of one person-hour per 3 acres of suitable habitat without transects. ▪ Bumble bees within the project site will be identified through passive, non-lethal methods (e.g., visual surveys using binoculars, photographic documentation), as approved by CDFW. • If crotch bumble bees are detected during focused surveys, the survey results will be submitted to the discretionary land use authority (City of Merced or Merced County) and CDFW. The project applicant will consult 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<p>with CDFW to determine whether there are additional avoidance measures available that would reduce the likelihood of injury or mortality of crotch bumble bee. The project applicant will consult with CDFW to determine whether authorization for take of crotch bumble bees would be required by obtaining an incidental take permit pursuant to California Fish and Game Code Section 2081. If required, the project applicant will implement measures required under the permit which may include compensatory mitigation to fully mitigate impacts on crotch bumble bee.</p> <ul style="list-style-type: none"> If no crotch bumble bees are detected during focused surveys, the survey results will be submitted to the discretionary land use authority (City of Merced or Merced County). The project applicant will consult with CDFW to determine whether the negative survey results are sufficient to conclude that crotch bumble bees (including underground overwintering and nesting colonies) are absent from the project site, and that authorization for take of crotch bumble bees would not be required. If CDFW concurs, then further mitigation would not be required. <p>Mitigation Measure 3.2-2e: Conduct Focused Bat Surveys and Implement Avoidance Measures Within 30 days before commencement of project activities, a qualified biologist familiar with bats and bat ecology and experienced in conducting bat surveys will conduct surveys for bat roosts in suitable habitat (e.g., trees, crevices, cavities, exfoliating bark, bridges, unoccupied buildings) within and adjacent to the UCP area.</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant		S = Significant SU = Significant and unavoidable			
			<ul style="list-style-type: none"> • Surveys will consist of a daytime pedestrian survey looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats within potential roosts. • If no evidence of bat roosts is found, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and no further study will be required. • If evidence of bat roosts is observed, the species and number of bats using the roost will be determined. Bat detectors shall be used if deemed necessary to supplement survey efforts by the qualified biologist. • If an active western red bat maternity roost is detected, a qualified biologist shall determine an appropriate avoidance buffer to be maintained from April 1 until young are capable of flight (typically through August). Project activities will not occur within this buffer until after the roosts are unoccupied. • If roosts of western red bat are determined to be present and must be removed, the bats will be excluded from the roosting site before the tree, building, or other roost structure is removed. A program addressing compensation, exclusion methods, and roost removal procedures will be developed in consultation with CDFW before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<p>young). The loss of each roost (if any) will be replaced in consultation with CDFW and may require construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. If determined necessary during consultation with CDFW, replacement roosts will be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site by a qualified biologist, the roost tree, building, or roost other structure may be removed.</p> <p>Mitigation Measure 3.2-2f: Conduct Protocol-Level Surveys for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows</p> <p>This mitigation measure would remove the requirements of Adopted Mitigation Measure 4.4-4(b) and implement the following protocol-level survey requirements.</p> <p>A qualified biologist will conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of habitat suitable for the species identified during the reconnaissance-level survey (e.g., grassland, agricultural land) on and within 1,640 feet (500 meters) of the UCP area. Surveys will be conducted before the start of project activities and in accordance with Appendix D of the <i>CDFW Staff Report on Burrowing Owl Mitigation</i> (CDFW 2012; CDFW Staff Report).</p> <ul style="list-style-type: none"> • If no occupied burrows are found, the qualified biologist will submit a report documenting the survey methods and results to the discretionary land use authority (City of Merced or Merced County), and no further mitigation will be required. 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<ul style="list-style-type: none"> <li>• If an active burrow is found within 1,640 feet of pending construction activities that would occur during the nonbreeding season (September 1 through January 31), a minimum protection buffer of 164 feet (50 meters) shall be established and maintained around the occupied burrow throughout construction. The protection buffer may be adjusted if, in consultation with CDFW, a qualified biologist determines that an alternative buffer will not disturb burrowing owl use of the burrow because of particular site features or other buffering measures. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan will be developed, as described in Appendix E of the CDFW Staff Report. Burrowing owls will not be excluded from occupied burrows until the project burrowing owl exclusion plan is approved by CDFW. The exclusion plan will include a compensatory habitat mitigation plan (see below). <li>• If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a protective buffer at a minimum of 164 feet unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted depending on the time of year and level of disturbance as outlined in the CDFW Staff Report. The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented so that burrowing owls are not adversely affected. Once the fledglings are capable of independent survival, the owls can be 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact		LTS = Less than significant	PS = Potentially significant	S = Significant	SU = Significant and unavoidable
			<p>evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW Staff Report.</p> <ul style="list-style-type: none"> • If burrowing owls are evicted from burrows and the burrows are destroyed by implementation of project activities, the project applicant will mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW Staff Report, which states that permanent impacts on nesting, occupied and satellite burrows, and burrowing owl habitat (i.e., grassland habitat with suitable burrows) will be mitigated such that habitat acreage and number of burrows are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The project applicant will retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards: <ul style="list-style-type: none"> ▪ Mitigation lands will be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species throughout its range. ▪ If feasible, mitigation lands will be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of injury or mortality. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient habitat 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<p>to support displaced owls that may be preserved in perpetuity.</p> <ul style="list-style-type: none"> ▪ If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the project site, mitigation lands can be secured offsite and will aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Mitigation may also be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW. ▪ If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan will include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success will be based on the number of adult burrowing owls and pairs using the site and if the numbers are maintained over time. Measures of success, as suggested in the CDFW Staff Report, will include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors. 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>Impact 3.2-3: Result in Degradation or Loss of Riparian Habitat or Other Sensitive Natural Communities</p> <p>The 2001/2004 UCP EIR determined that implementation of the UCP could result in significant adverse effects on a riparian wooded channel. Implementation of UCP policies would reduce impacts on riparian habitat by requiring appropriate permits and regulatory approvals, protection of avoided on-site wetlands and offsite adjacent wetlands, and development of habitat mitigation plans to achieve no net loss of wetland function and values. These UCP policies would also address potential impacts resulting from UCP amendments. Further, riparian habitat is not present in the VST Specific Plan area. Thus, implementation of the UCP amendments and VST Specific Plan would not result in a new significant effect and the impact on riparian habitat and other sensitive natural communities would not be more severe than the impact identified in the 2004 UCP EIR. This impact would be less than significant.</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS
<p>Impact 3.2-4: Result in Degradation or Loss of State or Federally Protected Wetlands</p> <p>The 2001/2004 UCP EIR determined that implementation of the Adopted UCP could result in significant adverse effects on state or federally protected</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
wetlands. Implementation of Adopted UCP policies would reduce impacts on these resources by requiring appropriate permits and regulatory approvals, protection of avoided on-site wetlands and offsite adjacent wetlands, and development of habitat mitigation plans to achieve no net loss of wetland function and values. These policies would also address potential impacts resulting from UCP Update and implementation of the VST Specific Plan. Thus, implementation of the UCP Update would not result in a new significant effect and the impact on state or federally protected wetlands would not be more severe than the impact identified in the 2001/2004 UCP EIR. However, implementation of the VST Specific Plan would include realignment and straightening of the Fairfield Canal which would result in effects on state and federally protected wetlands not analyzed in the 2001/2004 UCP EIR. However, potentially significant impacts would be reduced to less than significant through implementation of Adopted UCP policies requiring appropriate permits and regulatory approvals, protection of avoided on-site wetlands and offsite adjacent wetlands, and development of habitat mitigation plans to achieve no net loss of wetland function and values.					

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>Impact 3.2-5: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries</p> <p>The 2001/2004 UCP EIR determined that implementation of the UCP could result in significant indirect impacts on wildlife movement. Implementation of Adopted UCP policies would reduce these impacts by requiring environmentally sensitive project siting and design, protection of offsite adjacent wildlife habitats, implementation of an agency-coordinated mitigation and monitoring plan, limiting construction noise during nighttime hours, establishment of programs to control feral pet populations, and implementation of public education programs. The 2001/2004 UCP EIR also determined that impacts on San Joaquin kit fox movement resulting from implementation of the UCP would be less than significant because the UCP area does not provide an important habitat linkage for the species. These policies would also address potential impacts resulting from UCP Update and implementation of the VST Specific Plan. Thus, implementation of the UCP Update and the VST Specific Plan would not result in a new significant effect and the impact on wildlife movement corridors and wildlife nursery sites would not be more severe than the</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
impact identified in the 2001/2004 UCP EIR. This impact would be less than significant.					
<p>Impact 3.2-6: Cumulative Impacts to Biological Resources The 2001/2004 UCP EIR identifies a potentially significant cumulative condition due to effects on non-listed species that could be associated with the loss of grassland habitat that is not subject to permitting requirements. The UCP Update and VST Specific Plan would result in habitat conversion that is similar to the Adopted UCP, although the VST Specific Plan area currently supports less grassland habitat than evaluated in the 2001/2004 UCP EIR. This impact would be significant and unavoidable.</p>	S	Adopted Mitigation Measures 4.4-2(a), 4.4-4(a), and 4.4-4(b).	No additional mitigation is available to address this impact.	SU	SU
Tribal Cultural Resources					
<p>Impact 3.3-1: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource No tribes that are culturally affiliated with Merced County have formally requested notification under AB 52. Therefore, there is no trigger for consultation, and no resources have been identified as tribal cultural resources as described under PRC Section 21074. Therefore, even though tribal cultural resources were not evaluated in the 2001/2004 UCP EIR there is no new significant effect, and the impact is not more severe. The</p>	LTS	None	No new mitigation is required for this impact.	LTS	Not evaluated

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
project would result in a less-than-significant impact to tribal cultural resources.					
Impact 3.3-2: Cumulative Tribal Cultural Resources Impacts The project would not contribute to cumulative impacts associated with damage or loss of tribal cultural resources. Cumulative impacts would be less than significant.	LTS	None	No new mitigation is required for this impact.	LTS	Not evaluated
Greenhouse Gas Emissions and Climate Change					
Impact 3.4-1: Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases Construction of the UCP Update and VST Specific Plan would generate a total of 167,000 MTCO ₂ e during the 2025 through 2049 construction period. Operational emissions associated with the UCP Update would result in GHG emissions associated with transportation, electricity, and natural gas combustion, water consumption, and wastewater and solid waste generation. Operation of the UCP Update would generate approximately 40,912 MTCO ₂ e per year. Operation of the VST Specific Plan would generate approximately 14,833 MTCO ₂ e per year with all project design elements included as a part of the project. Although the VST Specific Plan would include some	S (UCP Update) LTS (VST Specific Plan)	None	Mitigation Measure 3.4-1: Implement the Bay Area Air Quality Management District’s On-Site Project Design Features to Demonstrate the Project’s Fair Share in Meeting the State’s Long-Term GHG Reduction Targets (UCP South only) The following mitigation measure shall be applied to the UCP South portion of the project site. Prior to the issuance of building permits, the project applicant shall include the following elements in all construction drawings. <ul style="list-style-type: none"> • Eliminate all on-site natural gas infrastructure for all land uses. • Adherence to the most recent Tier 2 requirements of Part 11 of the Title 24 California Buildings Code’s (CALGreen Code’s) electric vehicle (EV) charging standards. • Demonstrate consistency with OPR’s SB 743 regional VMT standards (i.e., residential projects meeting a 15 percent below the existing VMT per capita, office projects meeting a 15 percent below the existing VMT per employee, and retail projects attaining a no net increase in existing VMT) 	SU (UCP Update) LTS (VST Specific Plan)	Not evaluated

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
natural gas, the project would prohibit natural gas for all residential projects, and other project commitments would be sufficient to reduce emissions from on-site natural gas including waste diversion protocols, water conservation practices, incorporation of EV chargers, and VMT-reducing measures. Because the VST Specific Plan would implement sufficient GHG reducing commitments that would offset the emissions from on-site natural gas, this impact would be less than significant. However, the UCP South portion of the UCP Update would not meet this standard, therefore, this impact would be significant and unavoidable for the UCP Update overall.			<ul style="list-style-type: none"> • If the aforementioned project design features cannot be incorporated into the project’s design, the applicant shall include other relevant project design characteristics such that any additional emissions generated from natural gas, insufficient EV charging, or excessive VMT can be fully offset. Examples of measures that could be applied to individual projects in UCP South include, but are not limited to, the following: <ul style="list-style-type: none"> ▪ Implementation of a solid waste diversion program. ▪ Exceedance of the most recent version of Part 6 of the Title 24 California Building Code (California Energy Code). ▪ Use of low-flow appliances. ▪ Use of energy star appliances. ▪ Implementation of ZNE buildings. 		
Impact 3.4-2: Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation The 2001/2004 UCP EIR did not evaluate impacts related to energy consumption. Energy would be consumed during construction of the UCP Update and VST Specific Plan from the use of heavy-duty construction equipment and commute trips to and from the project site. Energy would be consumed from electricity and natural gas serving the UCP Update and VST Specific Plan; however, the development proposed for the UCP Update and VST Specific Plan would comply with the relevant	LTS	None	No mitigation is required for this impact.	LTS	Not evaluated

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
mandatory portions of the California Energy Code. Moreover, the VST Specific Plan includes various project design features that would reduce natural gas combustion and decrease reliance on non-renewable electricity. The UCP Update and VST Specific Plan would provide housing and other services that would align with the projections of the General Plan. Moreover, had the 2001/2004 UCP EIR evaluated energy impacts, the current description of the UCP Update and VST Specific Plan would result in less energy consumption because of the newest project design commitments of the VST Specific Plan as compared to what was proposed in the 2001/2004 UCP EIR. Therefore, this impact would be less than significant.					
Impact 3.4-3: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency The 2001/2004 UCP EIR did not evaluate impacts related to energy consumption. Energy would be consumed from electricity and natural gas serving the UCP Update and VST Specific Plan; however, the development proposed for the UCP Update and VST Specific Plan would comply with the relevant mandatory portions of the California Energy Code. Moreover, the VST Specific Plan includes various project design features that would reduce natural gas	S (UCP Update) LTS (VST Specific Plan)	None	Mitigation Measure 3.4-3: Implement On-Site Project Design Features that that Address Building Carbonization and Energy Efficiency (UCP South) Implement the project design features in Mitigation Measure 3.4-1 that address building carbonization and energy efficiency.	SU (UCP Update) LTS (VST Specific Plan)	Not evaluated

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
combustion and decrease reliance on non-renewable electricity consistent with the guidance in the 2022 Scoping Plan. Because the VST Specific Plan would implement measures to decarbonize buildings, promote energy efficiency, and install renewable energy infrastructure, this impact would be less-than-significant. However, the UCP South portion of the UCP Update would not implement these measures; therefore, this impact would be significant and unavoidable for the UCP Update overall.					
Hydrology and Water Quality					
Impact 3.5-1: Substantially Degrade Surface Water or Groundwater Quality The 2001/2004 UCP EIR determined that the proposed residential and commercial development projects would be required to comply with State and local regulations that would minimize the potential for construction and operational water quality impacts. Construction and operation of the proposed development area and subsequent development projects under the UCP Update and VST Specific Plan project would be required to comply with the same requirements and regulations. Thus, implementation of the amendments and proposed subsequent development would not result in a new significant effect and the impact is	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
not more severe than the impact identified in the 2001/2004 UCP EIR. Compliance with existing State and local regulations would reduce potential construction and operational water quality impacts for the project and proposed development to less than significant.					
<p>Impact 3.5-2: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin</p> <p>The UCP Update and VST Specific Plan project would be constructed in the same location as the Adopted UCP and would result in a similar potential to decrease groundwater supplies or interfere with groundwater recharge as disclosed in the 2001/2004 UCP EIR. However, the Merced groundwater basin is now identified by DWR as critically overdrafted. Total estimated water usage for the VST Specific Plan area at full buildout is 1,535 acre-feet annually. Overall, the project would require approximately 2 acre-feet of groundwater, in conformance with draft GSP regulations. Project implementation is not expected to substantially prohibit groundwater recharge, and anticipated groundwater demand would be reduced as a result of the proposed change in current conditions for the VST Specific Plan area. Therefore,</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
impacts to groundwater recharge for the UCP Update and VST Specific Plan project would be less than significant.					
<p>Impact 3.5-3: Substantially Alter the Existing Drainage Pattern of Project Area The UCP area is not within a mapped 100-year or 500-year flood zone. Development under the UCP Update and VST Specific Plan project would slightly increase the amount of impervious pavement in project areas. A drainage report performed for the plan demonstrates that the hydrology for the project site complies with state and local regulations, including pre-development runoff and flooding, post-development runoff and flooding, and compliance with various City, State and Federal drainage regulations (rrm design group 2020). The UCP Update and VST Specific Plan project would be subject to all the same requirements and regulations referenced in the 2001/2004 UCP EIR. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR due to the proposed UCP Update. This impact remain less than significant. Although the UCP area is not prone to flooding, the proposed VST Specific Plan could result in a greater impact than identified in the 2001/2004 UCP EIR due to a proposed modification of the Fairfield Canal and Dunn Lateral. Modifications to MID infrastructure</p>	LTS (UCP Update) S (VST Specific Plan)	None	<p>Mitigation Measure 3.5-3: Implement Altered Channel Cross Section Subject to MID Approval (VST Specific Plan Only) Prior to initiation of infrastructure improvements for Phase 2 of the VST Specific Plan, the project applicant or subsequent developer shall submit evidence to the discretionary land use authority (City of Merced or Merced County) that:</p> <ul style="list-style-type: none"> the proposed modification of the Fairfield Canal is designed such that no change would occur in the hydraulic flow rates and velocities of the canal, and necessary permits have been obtained from MID. <p>Specific features that can be incorporated into the design to effectively control flowrate and velocity include (but are not limited to) adjusting the channel cross section, use of construction material that has higher roughness coefficient (i.e., river rock, rip rap, gabions), incorporating roughness baffles, and energy dissipaters at the downstream end of the canal.</p>	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
would be approved by MID through an established permit process. Mitigation Measure 3.5-3 would require documentation that the final design of the modified Fairfield Canal cross section would not substantially change the hydraulic flow rates or velocities within the canal such that there would be a substantial increase in the potential for erosion within, or downstream of, the VST Specific Plan area. This impact would be less than significant with mitigation.					
Impact 3.5-4: Water Quality Control Plan Compliance The project would comply with all federal, state, and local regulations and requirements for construction and implementation of the UCP Update and VST Specific Plan project as well as the Merced Groundwater Subbasin GSP and the Water Quality Control Plan for the Central Valley Region of the Sacramento River Basin and the San Joaquin River Basin. The UCP Update and VST Specific Plan project would not conflict with or obstruct implementation of a water quality control plan or GSP and, therefore, impacts would be less than significant.	LTS	None	No new mitigation is required for this impact.	LTS	LTS
Impact 3.5-5: Cumulative Impacts to Water Quality The 2001/2004 UCP EIR identifies the potential for regional impacts to water quality, which are addressed through	LTS	Adopted Mitigation Measure 4.8-12: The County shall develop Best Management Practices and prepare a Stormwater Pollution Prevention Plan and a stormwater monitoring program consistent	No new mitigation is required for this impact. In light of changes to the cumulative condition and current regulations, Adopted Mitigation Measure 4.8-12 is no longer applicable or required to address the	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
an adopted mitigation measure. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR. and the UCP Update and VST Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts to water quality would be less than significant.		with National Pollution Discharge System Phase 2 Permit Criteria.	cumulative impacts of the UCP Update. The mitigation requirement would be removed as follows: Adopted Mitigation Measure 4.8-12 The County shall develop Best Management Practices and prepare a Stormwater Pollution Prevention Plan and a stormwater monitoring program consistent with National Pollution Discharge System Phase 2 Permit Criteria.		
Impact 3.5-6: Cumulative Impacts to Hydrology and Flooding The 2001/2004 UCP EIR identifies the potential for regional impacts to hydrology, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR. The UCP Update and VST Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts to hydrology would be less than significant.	LTS	Adopted Mitigation Measure 4.8-15: The County shall work with the Merced County Flood Control District, MID, and the City of Merced to update the Merced County Critical Area Flooding and Drainage Plan to identify a strategy for managing storm drainage runoff associated with future development within the Merced area. The plan update shall include at a minimum: existing hydrologic and hydraulic conditions, identification of base flood elevations that meet FEMA 44 CFR part 60 requirements, if such data have not been developed, and a process to evaluate the one-foot cumulative increase criteria; estimates of future peak flows and volumes based on anticipated land uses; performance standards for new development that address both peak flows and volumes while downstream conditions are not worsened; strategies to coordinate the development of local storm drainage and flood protection improvements with Merced County Streams Group projects; and mechanisms to update or revise the plan as needed as new information becomes available. Adopted Mitigation Measure 4.8-16: MID and the County shall coordinate to ensure that additional	No new mitigation is required for this impact. In light of changes to the cumulative condition and current regulations, Adopted Mitigation Measures 4.8-15 and 4.8-16 are no longer applicable or required to address the cumulative impacts of the UCP Update. The mitigation requirement would be removed as follows: Adopted Mitigation Measure 4.8-15: The County shall work with the Merced County Flood Control District, MID, and the City of Merced to update the Merced County Critical Area Flooding and Drainage Plan to identify a strategy for managing storm drainage runoff associated with future development within the Merced area. The plan update shall include at a minimum: existing hydrologic and hydraulic conditions, identification of base flood elevations that meet FEMA 44 CFR part 60 requirements, if such data have not been developed, and a process to evaluate the one-foot cumulative increase criteria; estimates of future peak flows and volumes based on anticipated land uses; performance standards for new development that address both peak flows and volumes while downstream conditions are not worsened; strategies to coordinate the development of local storm	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
		stormwater drainage systems do not add flows into the Fairfield Canal that would exceed the canal's capacity restrictions, potentially creating levee failure or overtopping conditions downstream of the UCP area.	drainage and flood protection improvements with Merced County Streams Group projects; and mechanisms to update or revise the plan as needed as new information becomes available. Adopted Mitigation Measure 4.8-16: MID and the County shall coordinate to ensure that additional stormwater drainage systems do not add flows into the Fairfield Canal that would exceed the canal's capacity restrictions, potentially creating levee failure or overtopping conditions downstream of the UCP area.		
Noise and Vibration					
Impact 3.6-1: Short-Term Construction-Generated Noise Levels The 2001/2004 UCP EIR disclosed that construction within the UCP area has the potential to expose noise-sensitive land uses to excessive noise levels and noticeable noise level increases relative to existing conditions. The UCP Update and VST Specific Plan would generally result in similar types of construction activities (e.g., grading, site preparation, building construction) using similar types of equipment to those discussed in the 2001/2004 UCP EIR, and thus, would generate similar levels of noise which could result in the exposure of off-site noise-sensitive receptors to excessive noise levels. Adopted Mitigation Measure 4.10-4 from the 2001/2004 UCP EIR applies to the UCP and VST Specific Plan areas and would minimize levels of construction-generated noise at off-	S	Adopted Mitigation Measure 4.10-4: Construction contractors shall comply with the following or an equivalent noise control program: <ul style="list-style-type: none"> All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with exhaust mufflers and air-inlet silencers where appropriate, in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment. All mobile or fixed noise producing equipment used on the project, that is regulated for noise output by local, state or federal agency, shall comply with such regulation while engaged in project-related activities. Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable. 	Mitigation Measure 3.6-1: Revise Policy N 2.6 for Managing Noise from Construction Activities of the Adopted UCP Revise Policy N 2.6 of the Adopted UCP as follows: Policy N 2.6 Manage noise from construction activities by: <ul style="list-style-type: none"> Limiting the hours of construction activities that generate noise, when adjacent to housing and other "sensitive" uses. Typically, Construction is limited to the hours of 7:00 a.m. to 6:00 p.m., 10:00 p.m., weekdays and Saturday, and prohibited on Saturdays, Sundays, and legal holidays, except for emergency work. Requiring that all construction vehicles or equipment, fixed or stationary, be equipped with properly operating and maintained mufflers. <u>All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.</u> 	SU	SU

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant		S = Significant SU = Significant and unavoidable			
<p>site receptors. Construction-generated noise under the proposed UCP Update and VST Specific Plan would remain significant and unavoidable with implementation of Adopted Mitigation Measure 4.10-4 from the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP, as proposed for revision through Mitigation Measure 3.6-1.</p>		<ul style="list-style-type: none"> Material stockpiles and mobile equipment staging, parking and maintenance areas shall be located as far as practicable from noise-sensitive receptors. The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only. No project-related public address loudspeaker, two-way radio, or music system shall be audible at any adjacent noise-sensitive receptor except for emergency use. The erection of temporary noise barriers will be considered where project activity is unavoidably close to noise-sensitive receptors. 	<ul style="list-style-type: none"> Requiring that construction vehicle staging areas be located as far as practical from existing residential uses Requiring that construction vehicle trips be routed as far as practical from existing residential uses <u>Construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. Self-adjusting backup alarms shall automatically adjust to 5 dB over the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels.</u> <u>Locate any trailers and materials used during construction capable of breaking the line of sight between the noise-sensitive receptors and construction-noise generating equipment such that they would serve as noise barriers in order to protect noise-sensitive receptors from noise generated by off-site construction activity.</u> <u>For construction occurring within 600 feet of an existing noise sensitive receptor, install temporary noise curtains as close as possible to the noise-generating activity such that the curtains obstruct the direct line of sight between the noise-generating construction activity and the nearby sensitive receptors. Temporary noise curtains shall consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer shall consist of rugged, impervious, material with a surface weight of at least one pound per square foot.</u> 		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
			<ul style="list-style-type: none"> Noise-reducing enclosures and techniques shall be used around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors). Operate heavy-duty construction equipment at the lowest operating power possible. Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable. 		
<p>Impact 3.6-2: Long-Term, Operational Noise (Stationary and Area Sources) Although the 2001/2004 UCP EIR did not evaluate the potential long-term effects of operational noise on existing offsite sensitive receptors, through the cumulative impact discussion the 2001/2004 UCP EIR demonstrates that the non-traffic operational noise impacts would be less than significant. The UCP Update and VST Specific Plan would generally result in similar non-traffic noise sources (e.g., e.g., HVAC units, delivery docks) to those analyzed in the 2001/2004 UCP EIR and thus would generate similar levels of noise. Additionally, the implementation of UCP Update Policies N 1.1, 2.1, 2.4, 2.5, 3.2, 3.3, and 3.4 would reduce operational non-traffic noise levels at nearby noise sensitive receptors. However, the City of Merced has adopted exterior noise level standards for non-transportation noise sources (i.e., stationary and area noise sources) which were not</p>	PS	None	<p>Mitigation Measure 3.6-2: Amend the UCP to Include Provisions for Operational Stationary Source Noise Generating Activities The County of Merced shall revise the following policies in the UCP Update as follows:</p> <ul style="list-style-type: none"> Policy N 1.1 Buildings and noise generating appliances and activities shall be set back, designed and constructed so that new noise-generating land uses in a manner that does not cause excessive exterior or interior noise for noise-sensitive land uses on any location of nearby residential properties. The exterior noise standard for noise-sensitive land uses is 60 dBA L_{dn} and the interior noise standard for residential structures and other noise-sensitive land uses is 45 dB L_{dn}; provided, however, that residential uses within and immediate adjacent to the Town Village Center shall be considered commercial mixed uses for the purposes of determining noise compatibility. Additionally, exterior stationary source noise standards for noise-sensitive land uses are 60dB Leq between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB Leq and 50 Lmax between the hours of 10:00 p.m. and 7:00 a.m. Noise reduction features shall be included in the design of any land use that has noise sources affecting residential land uses. 	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation	
NI = No impact		LTS = Less than significant	PS = Potentially significant	S = Significant	SU = Significant and unavoidable	
<p>analyzed in the 2001/2004 UCP EIR. Depending on the type of HVAC equipment and level of activity at delivery docks, the project could result in an exceedance of the applicable City of Merced stationary noise source standards. Because this impact was not analyzed previously, there could be new significant effects not identified in the 2001/2004 UCP EIR. This impact would be potentially significant. Implementation of Mitigation Measure 3.6-2 would ensure that any loading docks and delivery areas be oriented, located, and designed in such a way that noise exposure at nearby sensitive receptors would comply with City of Merced stationary noise source criteria (i.e., exterior noise levels of 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB L_{eq} and 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m.). This impact would be less than significant with mitigation.</p>			<p>These noise reduction features shall include structure design and layout, site planning, and other measures; block walls and barriers (including berms) shall only be used where such measures are deemed infeasible or ineffective.</p> <ul style="list-style-type: none"> • <u>Policy N 1.19 Loading docks shall be located and designed such that noise generated by activity at the loading dock would not exceed the City's stationary noise source criteria (i.e., exterior noise levels of 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB L_{eq} and 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m.) at any existing noise sensitive receptor. As part of the design-build process for uses that include loading docks, a specialized noise study will be completed to evaluate the specific design and ensure compliance with City of Merced noise standards. Reduction of loading dock noise can be achieved by locating loading docks as far away as possible from noise sensitive land uses, constructing noise barriers between loading docks and noise-sensitive land uses, or using buildings and topographic features to provide acoustic shielding for noise-sensitive land uses. Final design, location, and orientation shall be dictated by findings in the noise study.</u> 			
<p>Impact 3.6-3: Long-Term, Operational Noise (Traffic) The 2001/2004 UCP EIR determined that the impact from traffic noise would be significant and unavoidable because multiple roadway segments within the Adopted UCP area would experience increases in noise levels of more than 5 dB, and the ambient</p>	SU	<p>Adopted Mitigation Measure 4.10-3(a): The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 Ldn interior noise level.</p> <p>Adopted Mitigation Measure 4.10-3(b): For development within the UCP area, noise considerations should be taken into account during</p>	<p>No new feasible mitigation available for this impact. Mitigation Measure 4.10-3(a) is now considered to be legally and technically infeasible. This mitigation measure assumes that the County would have unlimited access to private property, and that all affected parties would consent to the referenced improvements. The necessity for this mitigation is limited by the fact that traffic from the UCP and VST Specific Plan would be along Campus Parkway,</p>	SU	SU	

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>noise level would still increase to levels that exceed adopted standards with mitigation. New modeling was conducted to analyze traffic noise as the baseline scenario (existing conditions) has changed. The UCP Update would include the reconfiguration and extension of Campus Parkway. New sensitive receptors located along Campus Parkway would be required to comply with Adopted Mitigation Measure 4.10-3(b). Although Bellevue Avenue between G Street and Lake Road would exceed the City's incremental noise increase of 1.5 dB for roadway segments with an existing noise level of 65 dB L_{dn}, the difference in noise would be far below that which was analyzed under the 2001/2004 UCP EIR (16 dB as opposed to 2.8 dB). Additionally, the overall noise level along this segment with implementation of the UCP Update and VST Specific Plan (i.e., 68dB L_{dn}) would be less than what was anticipated with implementation of the Adopted UCP (i.e., 70 dB L_{dn}). Therefore, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain significant and unavoidable.</p>		<p>initial site planning, in order to maximize shielding by the planned structures or other on-site features.</p>	<p>Bellevue Avenue, G Street, and Yosemite. Development along these roads is designed with appropriate noise attention or mitigation features, and these areas are primarily non-residential uses which are not considered noise sensitive land uses. For these reasons, Adopted Mitigation Measure 4.10-3(a) would be revised as follows: Adopted Mitigation Measure 4.10-3(a): The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>Impact 3.6-4: Generate Excessive Groundborne Vibration or Groundborne Noise Levels</p> <p>The 2001/2004 UCP EIR analyzed the project’s effects on groundborne vibration from construction activities as it pertains to structural damage and determined the impact to be less than significant with the implementation of Adopted Mitigation Measure 4.10-5. Human response from vibration was not analyzed in the 2001/2004 UCP EIR. Modeling for the UCP Update identified that pile driving within approximately 630 feet of residential uses would result in an exceedance of the County’s 70 VdB threshold. Because project-specific details are not available at this time, it cannot be guaranteed that pile driving would not occur within 630 feet of sensitive receptors, and thus the impact would be potentially significant. Mitigation Measure 3.6-3 would amend the Adopted UCP to include provisions for potential vibration-inducing activities; however, it is not possible to ensure that potential impacts would be reduced sufficiently without project-specific information. Therefore, the UCP Update could potentially generate excessive groundborne vibration. There would be new significant effects or more severe impacts than identified in the</p>	<p>S (UCP Update) LTS (VST Specific Plan)</p>	<p>Adopted Mitigation Measure 4.10-5: Limit groundborne vibration due to construction activities to 0.2 in/sec velocity (limit of potential for damage to structures) in the vertical direction at sensitive receptors. For construction adjacent to highly sensitive uses, apply additional measures as feasible, including advance notice to occupants of sensitive facilities to ensure precautions are taken in those facilities to protect ongoing activities from the effects of vibration.</p>	<p>Mitigation Measure 3.6-4: Amend the UCP to Include Provisions for Potential Vibration-Inducing Activities</p> <p>The County of Merced shall include the following policy in the UCP Update:</p> <ul style="list-style-type: none"> • Policy N 1.20: Construction Vibration. All potential vibration-inducing activities shall comply with the following measures, setback distances, precautions, monitoring programs, and alternative methods to traditional construction activities: <ul style="list-style-type: none"> ▪ <u>Ground vibration-producing activities, such as pile driving and blasting, shall be limited to the daytime hours between 7:00 a.m. to 6:00 p.m. on weekdays and shall not occur on weekends and holidays consistent with County of Merced Municipal Code Section 10.60.040.</u> ▪ <u>If pile driving is used and would occur within 630 feet of existing residential receptors, pile holes shall be predrilled to the maximum feasible depth to reduce the number of blows required to seat a pile.</u> ▪ <u>All construction equipment on construction sites shall be operated as far away from vibration-sensitive sites as reasonably possible.</u> ▪ <u>Earthmoving and ground-impacting operations shall be phased so as not to occur simultaneously in areas close to sensitive receptors, to the extent feasible. The total vibration level produced could be significantly less when each vibration source is operated at separate times.</u> ▪ <u>Minimum setback requirements for different types of ground vibration producing activities (e.g., pile driving and blasting) for the purpose of preventing negative human response shall be established based on the specific nature of the vibration producing activity (e.g., type and</u> 	<p>SU (UCP Update) LTS (VST Specific Plan)</p>	<p>LTS</p>

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
2001/2004 UCP EIR, and the impact would be significant and unavoidable.			<p><u>duration of pile driving), local soil conditions, and the type of sensitive receptor. Established setback requirements (i.e., 630 feet) can be breached only if a project-specific, site-specific, technically adequate ground vibration study indicates that the buildings would not be exposed to ground vibration levels in excess of 70 VdB, and ground vibration measurements performed during the construction activity confirm that the buildings are not being exposed to levels in excess of 70 VdB.</u></p> <ul style="list-style-type: none"> ▪ <u>All vibration-inducing activity within the distance parameters described above shall be monitored and documented for ground vibration noise and vibration noise levels at the nearest sensitive land use and associated recorded data submitted to the County of Merced so as not to exceed 70 Vdb.</u> ▪ <u>Alternatives to traditional pile driving (e.g., sonic pile driving, jetting, cast-in-place or auger cast piles, nondisplacement piles, pile cushioning, torque or hydraulic piles) shall be considered and implemented where feasible to reduce vibration levels.</u> 		
<p>Impact 3.6-5: Cumulative Noise Impacts The 2001/2004 UCP EIR identifies the potential for regional impacts associated with noise, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR and the UCP Update and VST</p>	SU	<p>Adopted Mitigation Measure 4.10-3(a): The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.</p> <p>Adopted Mitigation Measure 4.10-3(b): For development within the UCP area, noise considerations should be taken into account during initial site planning, in order to maximize shielding by the planned structures or other on-site features.</p>	No new mitigation is available for this impact. Mitigation Measure 4.10-3(a) is now considered to be legally and technically infeasible. This mitigation measure assumes that the County would have unlimited access to private property, and that all affected parties would consent to the referenced improvements. The necessity for this mitigation is limited by the fact that traffic from the UCP and VST Specific Plan would be along Campus Parkway, Bellevue Avenue, G Street, and Yosemite. Development along these roads is designed with	SU	SU

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts associated with noise would remain significant and unavoidable.		<p>Adopted Mitigation Measure 4.10-4: Construction contractors shall comply with the following or an equivalent noise control program:</p> <ul style="list-style-type: none"> • All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with exhaust mufflers and air-inlet silencers, where appropriate, in good operating condition that meet or exceed original factory specification. • Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment. • All mobile or fixed noise-producing equipment used on the project, that is regulated for output by local, state or federal agency, shall comply with such regulation while engaged with project-related activities. • Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable. • Material stockpiles and mobile equipment staging, parking and maintenance areas shall be located as far as practicable from noise-sensitive receptors. • The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. No project-related public address loudspeaker, two-way radio, or music system shall be audible at any adjacent noise-sensitive receptor except for emergency use. • The erection of temporary noise barriers will be considered where project activity is unavoidably close to noise-sensitive receptors. 	<p>appropriate noise attention or mitigation features, and these areas are primarily non-residential uses which are not considered noise sensitive land uses. For these reasons, Adopted Mitigation Measure 4.10-3(a) would be revised as follows:</p> <p>Adopted Mitigation Measure 4.10-3(a): The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
		Adopted Mitigation Measure 4.10-5: Limit groundborne vibration due to construction activities to 0.2 in/sec velocity (limit of potential for damage to structures) in the vertical direction at sensitive receptors. For construction adjacent to highly sensitive uses, apply additional measures as feasible, including advance notice to occupants of sensitive facilities to ensure precautions are taken in those facilities to protect ongoing activities from the effects of vibration.			
Transportation					
Impact 3.7-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle and Pedestrian Facilities Implementation of the UCP Update and VST Specific Plan would develop a transportation network for all modes of transportation including pedestrians, bicycles, and transit. Policies proposed under the UCP Update and VST Specific Plan encourage the construction of a fully integrated bicycle and pedestrian system with supportive amenities and transit improvements. Additionally, the VST Specific Plan would locate new transit bus stops throughout the plan area and design Class I bicycle paths and Class IV bicycle lanes to meet or exceed the minimum standards established by the California Department of Transportation Highway Design Manual and City	LTS	Adopted Mitigation Measure 4.14-4: Merced County will, and the City of Merced should, ensure adequate maintenance of the existing path along Lake Road and other regional bicycle and pedestrian facilities that provide access to the proposed UCP.	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
design standards. The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The impact to would be less than significant.					
<p>Impact 3.7-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) The 2001/2004 UCP EIR did not evaluate the Adopted UCP's impact on VMT because it was not required under CEQA at the time. The UCP Update and VST Specific Plan intends to develop the circulation network in the project area to accommodate all modes of transportation including pedestrians, bicycles, and transit. Additionally, development consistent with the UCP Update would contain higher densities and locate various land uses within closer proximity to one another. Thus, implementation of the UCP Update and VST Specific Plan would encourage the use of alternative modes of transportation, reducing vehicular travel and would not result in exceedances of the established VMT per capita or VMT per employee significance thresholds. Therefore, there would not be new or more severe significant effects beyond those identified in the 2001/2004 UCP</p>	LTS	None	No new mitigation is required for this impact.	LTS	Not evaluated

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
EIR. The impact to would be less than significant.					
<p>Impact 3.7-3: Substantially Increase Hazards Due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)</p> <p>The 2001/2004 UCP EIR evaluated transportation hazards only associated with increased bicycle and pedestrian activity on existing facilities. Subsequent projects under the UCP Update and VST Specific Plan would be required to meet all applicable design standards and would be subject to review by County and/or City staff to ensure these regulations are met. Additionally, proposed policies under the UCP Update and VST Specific Plan intended to create an integrated circulation system that accommodates all modes of transportation would increase safety. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The impact to would be less than significant.</p>	LTS	<p>Adopted Mitigation Measure 4.14-4: Merced County will, and the City of Merced should, ensure adequate maintenance of the existing path along Lake Road and other regional bicycle and pedestrian facilities that provide access to the proposed UCP.</p>	No new mitigation is required for this impact.	LTS	LTS
<p>Impact 3.7-4: Result in Inadequate Emergency Access</p> <p>Subsequent projects and transportation improvements under the UCP Update and VST Specific Plan would be required to meet State and local standards pertaining to</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
emergency access. Additionally, UCP Policies T 1.1, T 1.3, T 1.4, T 2.1, T 2.2, T 3.1, T 3.2, and T 8.1, which were determined to reduce the impact to less than significant in the 2001/2004 UCP EIR and would still pertain to the UCP Update and VST Specific Plan. The project would not result in inadequate emergency access. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The impact to would be less than significant.					
Impact 3.7-5: Cumulative Transportation Impacts The 2001/2004 UCP EIR identifies the potential for increased congestion on local and regional roads, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR and the UCP Update and VST Specific Plan would not change the potential for the project to contribute to cumulative impacts. However, since adoption of the 2001/2004 UCP EIR VMT has generally replaced LOS as the most appropriate measure of potential effects on regional transportation. Project-generated VMT would not exceed the established efficiency threshold, which is aligned	LTS	Adopted Mitigation Measure 4.14-7(a): UCP development shall contribute its fair share toward the following Tier road improvements which are shown in Figure 4.14-3 [in the 2001/2004 UCP EIR]: <ul style="list-style-type: none"> ● Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road ● Highway 59, new segment between Highway 99 and 140 ● Yosemite Avenue, extend from R Street to Highway 59 ● Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street ● Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway ● R Street, extend from Yosemite Avenue to Bellevue Road ● Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road 	No new mitigation is required for this impact. Based on financing commitments in the VST Specific Plan, Adopted Mitigation Measures 4.14-7(a) through 4.14-7(d) and 4.14-8(a) and 4.14-8(b) are updated as follows: Adopted Mitigation Measure 4.14-7(a): UCP development shall contribute its fair share toward the following Tier road improvements which are shown in Figure 4.14-3 [in the 2001/2004 UCP EIR]: <ul style="list-style-type: none"> ● Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road ● Highway 59, new segment between Highway 99 and 140 ● Yosemite Avenue, extend from R Street to Highway 59 ● Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street ● Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway 	LTS	SU

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
with long-term goals and relevant plans. Cumulative impacts to transportation would be less than significant.		<ul style="list-style-type: none"> • Highway 59, new alignment along Mission Avenue • Mission Avenue, widen to 4 lanes, Highway 99 to Highway 59 • Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 59 <p>Adopted Mitigation Measure 4.14-7(b): For development through year 2025, UCP development shall only contribute its fair share toward the following Tier road improvements, which are shown on Figure 4.14-4:</p> <ul style="list-style-type: none"> • Yosemite Avenue, extend from R Street to Highway 59 • Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street • R Street, extend from Yosemite Avenue to Bellevue Avenue • Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road • Bellevue Road, widen to 4 lanes, Highway 59 to Campus Parkway <p>Adopted Mitigation Measure 4.14-7(c): For development through Year 2015, the County shall analyze the expected future operations of the Lake/Yosemite intersection at the following milestone points: (1) determination of conceptual alignment for Campus Parkway, (2) preparation of the Geometric Approval Drawings for Campus Parkway, and (3) each October, beginning in the opening year of the UC Merced Campus. If any of these analyses determine that the Lake/Yosemite intersection will operate at unacceptable LOS, the proposed UCP shall contribute its fair share toward</p>	<ul style="list-style-type: none"> • R Street, extend from Yosemite Avenue to Bellevue Road • Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road • Highway 59, new alignment along Mission Avenue • Mission Avenue, widen to 4 lanes, Highway 99 to Highway 59 • Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 59 <p>Adopted Mitigation Measure 4.14-7(b): For development through year 2025, UCP development shall only contribute its fair share toward the following Tier road improvements, which are shown on Figure 4.14-4:</p> <ul style="list-style-type: none"> • Yosemite Avenue, extend from R Street to Highway 59 • Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street • R Street, extend from Yosemite Avenue to Bellevue Avenue • Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road • Bellevue Road, widen to 4 lanes, Highway 59 to Campus Parkway <p>Adopted Mitigation Measure 4.14-7(c): For development through Year 2015, the County shall analyze the expected future operations of the Lake/Yosemite intersection at the following milestone points: (1) determination of conceptual alignment for Campus Parkway, (2) preparation of the Geometric Approval Drawings for Campus Parkway, and (3) each October, beginning in the opening year of the UC Merced Campus. If any of these analyses determine that the Lake/Yosemite intersection will operate at unacceptable LOS, the proposed UCP shall contribute</p>		

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
		the cost of any improvements deemed necessary at the intersection. Monitoring of the Lake/Yosemite intersection shall end upon completion of the Campus Park extension from Yosemite Avenue to Belleview Road. Adopted Mitigation Measure 4.14-7(d): The County shall work with the City of Merced, Caltrans and MCAG to establish rights-of-way and access management requirements along the routes identified above. Adopted Mitigation Measure 4.14-8(a): Implement Mitigation Measure 4.14-7(a). In addition, UCP development shall contribute its fair share toward intersection improvement along G Street between Highway 99 and Childs Avenue. Adopted Mitigation Measure 4.14-8(b): Implement Mitigation Measure 4.14-7(d).	its fair share toward the cost of any improvements deemed necessary at the intersection. Monitoring of the Lake/Yosemite intersection shall end upon completion of the Campus Park extension from Yosemite Avenue to Belleview Road. Adopted Mitigation Measure 4.14-7(d): The County shall work with the City of Merced, Caltrans and MCAG to establish rights-of-way and access management requirements along the routes identified above. Adopted Mitigation Measure 4.14-8(a): Implement Mitigation Measure 4.14-7(a). In addition, UCP development shall contribute its fair share toward intersection improvement along G Street between Highway 99 and Childs Avenue. Adopted Mitigation Measure 4.14-8(b): Implement Mitigation Measure 4.14-7(d).		
Utilities and Service Systems					
Impact 3.8-1: Environmental Effects due to Construction of New or Expanded Infrastructure The 2001/2004 UCP EIR evaluated whether the project would require construction of new or expanded utility infrastructure with potential to result in significant environmental effects. Future development under the UCP Update and VST Specific Plan would require new utility infrastructure that was not previously evaluated in the 2001/2004 UCP EIR. The impacts associated with new infrastructure were evaluated as part of the project in Sections 3.1 through 3.8 of this SEIR. As disclosed in those sections, the UCP	LTS	None	No mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
Update and VST Specific Plan would not result in new significant impacts or impacts that are substantially more severe than the impacts identified in the 2001/2004 UCP EIR. This impact would remain less than significant as identified in the 2001/2004 UCP EIR.					
Impact 3.8-2: Insufficient Water Supply in Normal, Dry, and Multiple Dry Years The 2001/2004 UCP EIR and the City's UWMP did not evaluate whether the City has sufficient available water supply to serve future development in the VST Specific Plan. However, a WSA prepared for the VST Specific Plan determined that the City has adequate water supply available to serve the project through the year 2040 under the sustainable condition described in the Merced Groundwater Subbasin Groundwater Sustainability Plan. Therefore, there would not be new significant effects or more severe impacts than what would have occurred with the Adopted UCP, and this impact is less than significant.	LTS	None	No new mitigation is required for this impact.	LTS	LTS
Impact 3.8-3: Wastewater Treatment Capacity The 2001/2004 UCP EIR evaluated whether the project would result in the need for new wastewater collection facilities and whether the project would be adequately served by the City's WWTF. While the VST Specific Plan could result in greater wastewater	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
generation, the WWTF has available capacity to serve buildout of the VST Specific Plan and necessary wastewater infrastructure would be constructed prior to future development. Therefore, there is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain less than significant as identified in the 2001/2004 UCP EIR.					
<p>Impact 3.8-4: Generate Solid Waste that Exceeds the Capacity of Local Infrastructure or Conflicts with Waste Reduction Regulations</p> <p>The project would result in an increase in the generation of solid waste and a corresponding need for disposal facilities. The Merced County Highway 59 Landfill has capacity to serve the project over the next 15 to 20 years. There would be no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain less than significant as identified in the 2001/2004 UCP EIR.</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS
<p>Impact 3.8-5: Cumulative Water Demand Impacts</p> <p>The UCP Update is anticipated to reduce water demand compared to the Adopted UCP. The water supply</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
analyses prepared for the VST Specific Plan, which account for anticipated cumulative development, demonstrate adequate capacity in the cumulative condition. Cumulative impacts to water supply would remain less than significant.					
Impact 3.8-6: Cumulative Impacts to Wastewater and Stormwater Systems The UCP Update is anticipated to reduce utility demand compared to the Adopted UCP. Utility capacity analyses prepared for the VST Specific Plan, which account for anticipated cumulative development, demonstrate adequate capacity in the cumulative condition. Cumulative impacts to wastewater and stormwater systems would remain less than significant.	LTS	None	No new mitigation is required for this impact.	LTS	LTS
Impact 3.8-7: Cumulative Impacts to Electric Power, Natural Gas, and Communications Infrastructure The UCP Update is anticipated to reduce utility demand compared to the Adopted UCP. Demand for electric power, natural gas, and communication infrastructure would not contribute to an adverse cumulative condition. Cumulative impacts to utilities and service systems would remain less than significant.	LTS	None	No new mitigation is required for this impact.	LTS	LTS

Impacts	Significance before Mitigation	Adopted Mitigation Measures	New Mitigation Measures	Significance after Mitigation	2001/2004 UCP EIR Significance after Mitigation
NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable					
<p>Impact 3.8-8: Cumulative Impacts to Solid Waste The UCP Update is anticipated to reduce solid waste generation compared to the Adopted UCP. Utility capacity analyses prepared for the VST Specific Plan, which account for anticipated cumulative development, demonstrate adequate capacity in the cumulative condition. Cumulative impacts to solid waste facilities would remain less than significant.</p>	LTS	None	No new mitigation is required for this impact.	LTS	LTS

1 INTRODUCTION

This draft subsequent environmental impact report (Draft SEIR) evaluates the environmental impacts of the proposed University Community Plan (UCP) Update and Virginia Smith Trust (VST) Specific Plan. This Draft SEIR has been prepared under the direction of Merced County (County) in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines. This chapter of the Draft SEIR provides information on the following:

- type, purpose, and intended uses of the Draft SEIR;
- project requiring environmental analysis (synopsis);
- scope of the Draft SEIR;
- public review process; and
- document organization.

1.1 TYPE OF DOCUMENT

The County, acting as lead agency, has prepared this Draft SEIR to provide the public and responsible and trustee agencies with information about the potential environmental effects of the proposed project. As described in State CEQA Guidelines Section 15121(a), an EIR is a public, informational document used in the planning and decision-making process that assesses the potential environmental effects of a proposed project. An EIR also discloses significant environmental impacts that cannot be avoided; any growth-inducing impacts of a project; effects found not to be significant; and significant cumulative impacts of past, present, and reasonably foreseeable future projects in combination with the impacts of a project. Public agencies are charged with the duty to consider and minimize environmental impacts of projects, where feasible, and an obligation to balance a variety of public objectives, including economic, environmental, and social factors.

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. As explained further below, this document is an SEIR that contains both program and project-level analysis.

1.1.1 Subsequent EIR

If a subsequent activity could result in effects not within the scope of the program EIR, including new or more severe significant impacts than identified in the program EIR, the lead agency must prepare a negative declaration, mitigated negative declaration, or a project-level EIR. Pursuant to State CEQA Guidelines Section 15162, a SEIR should be prepared if an EIR has been certified for a project, but one or more of the following conditions are met.

- (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete shows any of the following:
 - A. The project will have one or more significant effects not discussed in the previous EIR.
 - B. Significant effects previously examined will be substantially more severe than shown in the previous EIR;

- C. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
- D. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

In 2004, the County adopted the UCP, which covered a 2,133-acre area that included most of the VST property, just south of the UC Merced campus (Adopted UCP). A program EIR was certified with adoption of the UCP in 2001 and a supplemental EIR, which focused on hydrology and water quality, was certified in 2004 (referred to collectively herein as the 2001/2004 UCP EIR; State Clearinghouse No. 2001021056). The 2001/2004 UCP EIR was identified as the most appropriate document to base the subsequent CEQA analyses upon because it describes the potential environmental impacts of the planning documents that would be amended by the VST Specific Plan and was certified by the County. (See Chapter 2, "Project Description," for additional discussion of the history of environmental analysis of the UCP area.)

An EIR may incorporate another document that is generally available to the public by reference. As established in Section 15150(a) of the State CEQA Guidelines, the incorporated language shall be considered to be set forth in full as part of the text of the SEIR. This SEIR incorporates the setting and analyses in the 2001/2004 UCP EIR by reference. Mitigation measures from the 2001/2004 EIR that are adopted and apply to the project are identified throughout this Draft SEIR. Potential for new or substantially more severe impacts is disclosed, and new mitigation measures are identified, as appropriate.

As an informational document for decision makers, a Draft SEIR is not intended to recommend either approval or denial of a project. CEQA requires the decision makers to balance the benefits of a project against its unavoidable environmental impacts. If environmental impacts are identified as significant and unavoidable (i.e., no feasible mitigation is available to reduce the impact to a less-than-significant level), the County may still approve the project if it believes that social, economic, or other benefits outweigh the unavoidable impacts. The County would then be required to make findings and state, in writing, the specific reasons for approving the project, based on information in the SEIR and other information in the administrative record. In accordance with Section 15093 of the State CEQA Guidelines, the document containing such reasons is called a "statement of overriding considerations." The County adopted a statement of overriding considerations related to the significant and unavoidable impacts that would result from implementation of the Adopted UCP.

PROGRAM EIR

A program EIR enables the lead agency to consider broad environmental implications of development on a conceptual basis, recognizing that a series of actions will occur prior to development. Because they are prepared relatively early on, program EIRs allow greater flexibility in dealing with overall development options, basic environmental issues, and cumulative impacts. The 2001/2004 UCP EIR is a program EIR.

The program EIR identifies and mitigates the effects of the overall program of development, and the lead agency incorporates feasible mitigation measures and alternatives developed in the program EIR into subsequent actions to implement the project. Once a program EIR has been prepared, subsequent activities within the program must be evaluated to determine if additional CEQA documentation is required to address the significant impacts of such activities. Subsequent activities could be found to be within the program EIR scope and additional environmental documents may not be required (State CEQA Guidelines Section 15168[c]).

PROJECT EIR

A project EIR examines the environmental impacts of a specific development project, focusing on the changes in the environment that could result from development of the project. This SEIR includes a project-level analysis of the VST Specific Plan that tiers from the evaluation of the UCP. When tiering, general discussions in the broader EIR are incorporated by references and the analysis is focused on issues specific to the later project (State CEQA Guidelines

Section 15152[a]). Tiering is appropriate where the sequence of EIRs is from a program EIR to a plan EIR of lesser scope or where a subsequent EIR is prepared for a later stage of a project (State CEQA Guidelines Section 15385). Agencies are encouraged to tier the environmental analyses prepared for related projects and focus the discussion on “actual issues ripe for decision” (State CEQA Guidelines Section 15152[b]).

Where an EIR has been prepared and certified for a plan, any lead agency for a later project pursuant to or consistent with the plan should limit the EIR to on the later project to impacts that are not examined as significant environmental effects in the prior EIR or that are susceptible to substantial reductions or avoidance through conditions of approval or revisions to the project (State CEQA Guidelines Section 15152[d]).

1.2 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The following is a synopsis of the project characteristics. For further information on the proposed project, see Chapter 2, “Project Description.”

1.2.1 Geographical Extent of the Project Area

The UCP area is located in unincorporated Merced County, northeast of the City of Merced, south of UC Merced, and within the City’s sphere of influence (SOI). The proposed UCP Update area encompasses 1,841 acres and includes two properties: the Hunt and VST properties. The Hunt property, referred to as UCP South in the Adopted UCP, includes approximately 1,187 acres of land south of UC Merced. The Hunt property is generally bounded by Lake Road on the west, Cardella Road to the north, Fairfield Canal to the east, and Yosemite Road to the south. The VST property, which is the subject of the VST Specific Plan, encompasses the remaining 654 acres of the proposed UCP area. The VST Specific Plan area is bounded generally by Lake Road on the west, UC Merced property (specifically the proposed UC Merced Campus Expansion Area) to the north, Cardella Road on the south, and the Orchard Drive alignment on the east.

1.2.2 Overview of the Proposed Changes to the Adopted UCP

As part of the UCP Update, the UCP would be revised to include only the Hunt and VST properties (468.7 acres of property owned by UC Merced would be removed and 176.76 acres would be added to the UCP to encompass the full VST Specific Plan). The total number of proposed dwelling units would be reduced from 11,616 to 9,680, and the potential amount of non-residential development would decline from 2,022,900 square feet to 1,246,150 square feet. For the VST Specific Plan portion of the UCP, the number of dwelling units would increase by 1,440 units from 2,420 to 3,860 and the amount of commercial and office square footage would increase by approximately 709,000 square feet from 147,200 square feet to 856,200.

1.2.3 Project-Level Analysis of VST Specific Plan Area

This SEIR also evaluates the potential effects of development within the 654-acre VST Specific Plan area. The VST Specific Plan envisions four main land use categories: residential, employment, parks/open space, and public facilities. Residential uses would consist primarily of medium-low- and medium-density housing, with some low-density housing. Employment-generating uses would include primarily community and neighborhood center retail and business park. The VST Specific Plan would provide parks and open space, including passive/natural open space, mini parks, neighborhood parks, and a sports facility. The VST Specific Plan also includes a school, fire station, police substation, and public recreation facilities. The plan provides for a network of new roads, including roads with Class IV bicycle lanes.

1.3 SCOPE OF THE ENVIRONMENTAL ANALYSIS

Under the CEQA statutes and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when such effects are not considered potentially significant (PRC Section 21002.1[e]; State CEQA Guidelines Sections 15128, 15143). Information used to determine which impacts would be potentially significant was derived from review of the UCP Update and VST Specific Plan; review of applicable planning documents and CEQA documentation; field work; feedback from public and agency consultation; comments received during a public scoping meeting held on January 20, 2022; and comments received on the notice of preparation (NOP) (see Appendix A of this Draft SEIR).

The County has concluded that the proposed modifications to the Adopted UCP and implementation of the VST Specific Plan may result in new or substantially more severe significant effects than disclosed in the previously certified 2001/2004 UCP EIR. This Draft SEIR includes an evaluation of the following environmental issue areas: air quality, biological resources, greenhouse gas emissions and climate change, hydrology and water quality, noise and vibration, transportation/traffic, tribal cultural resources, and utilities and service systems. Importantly, a number of planning documents and associated EIRs have been prepared since the County developed the Adopted UCP. These documents, including the EIRs for the Long Range Development Plan prepared for UC Merced (USACE 2008) and the City's PEIR for the 2030 General Plan, cover the same geographic area as the UCP Update (including expansion of the VST Specific Plan area east of the Fairfield Canal) and assume the same type of development as currently proposed. Technical information provided in these documents informs the analyses presented in this SEIR and these documents are hereby incorporated by reference.

Given the similarities between the original project and the proposed project, and the relatively similar circumstances that exist today, it is unlikely that new features of the proposed project would result in new significant impacts or a substantial increase in severity of previously identified significant impacts in the following environmental issue areas: aesthetics; agricultural resources; cultural resources; geology, soils, seismicity, and mineral resources; hazards and hazardous materials; land use and planning; population and housing; and recreation. Therefore, the discussion of these topics is limited to include a summary of the conclusions of the 2001/2004 UCP EIR with a brief, supplemental discussion substantiating the applicability of the 2001/2004 UCP EIR analysis to the amended project. Refer to Section 1.3.2, "Topics with No New or Substantially More Severe Impacts."

1.3.1 Significant and Unavoidable Impacts Identified in the 2001/2004 UCP EIR

The 2001/2004 UCP EIR determined that the Adopted UCP would result in no impact or less-than-significant impacts on the following resources and issue areas (with or without mitigation): cultural resources; geology, soils, seismicity, and mineral resources; hazards and hazardous materials; hydrology and water quality; and public services. The detail of each impact is discussed in Sections 4.1 through 4.15 of the 2001/2004 UCP EIR.

The 2001/2004 UCP EIR identifies the Adopted UCP as having the following impacts that cannot be reduced to a less-than-significant level through mitigation measures. The detail of each impact, and an explanation of why mitigation is unable to reduce the impact to a less-than-significant level, is discussed in Sections 4.1 through 4.15 of the 2001/2004 UCP EIR.

AESTHETICS

- **Impacts 4.1-1 and 4.1-4:** The UCP would alter the visual character of the UCP area and could be visually incompatible with surrounding land uses. Mitigation Measure 4.1-1, which provides design standards for above-ground infrastructure would be implemented. However, impacts were found to be significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

- **Impacts 4.1-2 and 4.1-5:** The UCP could intrude into major view corridors and adversely affect scenic resources. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.
- **Impacts 4.1-3 and 4.1-6:** The UCP would create a new source of nighttime light and glare in the UCP area. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be significant and would be cumulatively considerable in combination with other cumulative development.

AGRICULTURAL RESOURCES

- **Impacts 4.2-1 and 4.2-4:** Development of the UCP area could result in the conversion of Important Farmland, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

AIR QUALITY

- **Impact 4.3-2:** Project-related construction activities would generate nitrous oxide, reactive organic gas, and carbon monoxide emissions. Mitigation Measure 4.3-2, which includes specifications for idling limits, scheduling of construction activities and equipment usage, and tuning of equipment, would be implemented to reduce air pollutant emissions. However, impacts were found to be significant and unavoidable.
- **Impact 4.3-4:** Operational emissions associated with the UCP area would exceed San Joaquin Valley Air Pollution Control District Standards. Mitigation Measure 4.3-4, includes requirements for installing outdoor electrical outlets, using solar or low emission water heaters, orienting buildings to allow for solar heating and natural cooling, and increasing insulation. However, impacts were found to be significant and unavoidable.
- **Impact 4.3-9:** Project emissions, in combination with UC Merced and other development in the County could contribute to the degradation of air quality. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be cumulatively considerable in combination with other cumulative development.
- **Impact 4.3-11:** Operational emissions would exceed nitrous oxide, reactive organic gas, and carbon monoxide standards. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be significant and unavoidable.

BIOLOGICAL RESOURCES

- **Impact 4.4-11:** Development of the UCP, in conjunction with UC Merced and other cumulative development, would result in the loss or adverse modification of important native plant and wildlife habitat, including wetlands, vernal pool habitat, alkaline clay playa habitat, and annual grassland habitat, and adverse effects to special-status species associated with these habitats. The project includes implementation of Mitigation Measure 4.4-2, which requires preservation of upland annual grassland and vernal pool fairy shrimp habitat and Mitigation Measure 4.4-4, which requires preservation of foraging habitat for Swainson's hawk and pre-construction surveys to identify and protect raptor nests in proximity to construction areas. However, impacts from buildout of the UCP were found to be significant and unavoidable.

LAND USE

- **Impact 4.9-1:** The UCP could result in incompatible land uses due to conflicts with surrounding land uses. No feasible mitigation was available to reduce this impact. Therefore, impacts from buildout of the UCP were found to be significant and unavoidable.

NOISE

- **Impact 4.10-3 and Impact 4.10-6:** The UCP would generate increased vehicular traffic on the regional road networks, which would result in an increase in the ambient noise levels. Mitigation Measure 4.10-3 would be implemented, which requires the County to construct barriers or retrofit affected homes with noise attenuation measures, and develop design plans in a manner that maximizes shielding. However, impacts were found to be significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.
- **Impact 4.10-4 and Impact 4.10-8:** Construction of the UCP would include activities that could result in substantial temporary or periodic increases in ambient noise levels. Mitigation Measure 4.10-4 would be implemented, which includes noise control standards for construction contractors (e.g., use mufflers, silencers, and other noise control features on equipment; compliance with noise output regulations for noise-producing equipment; prioritize use of electrically powered equipment; locate staging areas away from noise-sensitive receptors; limits on amplified sounds for emergency use only; and erection of temporary noise barriers where construction occurs near noise-sensitive receptors). However, impacts were found to be significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

RECREATION

- **Impact 4.13-3 and Impact 4.13-6:** The UCP would eliminate a portion of the Merced Hills Golf Course. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.
- **Impact 4.13-5:** The UCP, in combination with other development in Merced County, including UC Merced, would contribute to the cumulative increase in the use of Lake Yosemite Regional Park and could result in the physical deterioration of the park. No feasible mitigation was available to reduce this impact. Therefore, impacts were found to be significant and unavoidable.

TRANSPORTATION

- **Impact 4.14-7 and Impact 4.14-8:** The UCP, in combination with the UC Merced campus and other development in Merced County, would increase congestion on local and regional roads. Mitigation Measures 4.14-7 and 4.14-8 would be implemented, which require road improvements at selected locations and coordination with transportation agencies. However, impacts from buildout of the UCP were found to be significant and unavoidable.

UTILITIES

- **Impact 4.15-6:** Development of the UCP, in combination with the UC Merced campus and other development in the region, would increase the demand for the Atwater Wastewater Treatment Facility. No feasible mitigation was available to reduce this impact. Therefore, impacts on the Atwater Wastewater Treatment Facility were found to be significant and unavoidable.

1.3.2 Topics with No New or Substantially More Severe Impacts

This SEIR evaluates the potential for the UCP Update and VST Specific Plan Project to result in new or substantially more severe impacts than what was previously evaluated in the 2001/2004 UCP EIR. The UCP Update and VST Specific Plan would not result in a substantially greater impact than identified in the 2001/2004 UCP EIR for the following environmental resource topics: aesthetics, agriculture and forestry, cultural resources, energy, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire. The following provides a brief discussion of each environmental issue area not evaluated in detail in Chapter 3, "Environmental Impacts and Mitigation Measures."

AESTHETICS

The visual resources within, and in the vicinity of, the UCP area remain consistent with the aesthetic qualities described in the 2001/2004 UCP EIR. Views of the UCP area from the north, east, and south are unavailable because large agricultural properties surround the VST plan area on these three sides, and no public access (i.e., public roadways) through these properties is available to view it. Motorists on Lake Road and occupants of the residential land uses west of the VST plan area are the two groups most likely to view the UCP area. The Merced County General Plan considers major scenic vistas to be views of the Coastal and Sierra mountain ranges (Merced County 2013). The City of Merced has designated the segment of Lake Road that runs north and south along the western boundary of the VST Specific Plan area as a scenic roadway.

UCP Update

Scenic Resources and Vistas

The analysis in the 2001/2004 UCP EIR determined that development could intrude into major view corridors and adversely affect scenic resources (page 4.1-15). No feasible mitigation was identified, and the impact was determined to be significant and unavoidable. The aesthetic changes would be similar under the UCP Update to those evaluated in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts on aesthetics and this topic is not addressed further in this Draft SEIR.

Visual Character and Quality

The 2001/2004 UCP EIR concluded that new development under the Adopted UCP would permanently and substantially alter the existing rural and agricultural visual character of the area, resulting in significant and unavoidable impacts (page 4.1-13). The 2001/2004 UCP EIR includes Mitigation Measure 4.1-1 that would provide design standards (e.g., screening and siting requirements) for infrastructure in the VST Specific Plan area that would reduce the effect on visual character. The aesthetic changes would be similar under the UCP Update to those evaluated in the 2001/2004 UCP EIR. Adopted UCP policies and mitigation measures that avoid or mitigate potential environmental impacts would be implemented. Therefore, the UCP Update would not result in new or substantially more severe impacts on aesthetics and this topic is not addressed further in this Draft SEIR.

Light and Glare

The 2001/2004 UCP EIR concluded that new lighting would be introduced through development of proposed uses, as well as increased traffic which would result in vehicular and street lighting. Additionally, the 2001/2004 UCP EIR identified that new sources of daytime glare would occur through reflections off pavement, vehicles, and new buildings, which could alter the rural landscape and nighttime views of the Adopted UCP area (page 4.1-16). The 2001/2004 UCP EIR concluded that because a substantial increase in artificial light resulting from build-out of the Adopted UCP would alter nighttime views, impacts would be significant and unavoidable. No mitigation is proposed.

The potential to introduce new sources of light and glare would be similar under the UCP Update to those evaluated in the 2001/2004 UCP EIR. In addition, Adopted UCP Policy V 2.1 would be revised to add a requirement that all specific plans in the UCP Update integrate recommendations from the International Dark Sky Association (IDA), and implement IDA standards for Community-Friendly Outdoor Sports Lighting. Therefore, the UCP Update would not result in new or substantially more severe impacts on aesthetics and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

Scenic Resources and Vistas

Views of the Coastal and Sierra Nevada mountain ranges that are currently available from Lake Road and the adjacent rural residential area are considered major scenic vistas and could be impaired by development of the VST Specific Plan area. Implementation of the VST Specific Plan would include new residential housing, commercial, and public facilities, which could contribute to the impairment of scenic views within the VST Specific Plan area. Though the configuration of land uses would be slightly different, the overall visual effect on views of the Sierra Nevada would be the same as analyzed in the 2001/2004 UCP EIR. Adopted UCP Policy LU 2.2 requires that development is

designed to capitalize upon viewsheds of UC Merced and Lake Yosemite Regional Park to the north, the Sierra to the east, and adjoining urban and agricultural uses. Roads in the VST Specific Plan have been designed to provide unblocked vistas to the east and north. Lake Yosemite Regional Park is not visible from the VST Specific Plan area. In addition, the assessment of the potential for development of the VST Specific Plan area to impair views of the Sierra Nevada from Lake Road in the 2001/2004 UCP EIR would remain applicable to the VST Specific Plan. The proposed VST Specific Plan would result in similar impacts to scenic resources as those identified in the 2001/2004 UCP EIR. There are no feasible mitigation measures available now that were previously infeasible or otherwise unavailable that would reduce the impact. This impact would remain significant and unavoidable.

Visual Character and Quality

Compared to the Adopted UCP, there would be differences in the type, intensity, and layout of new development associated with the VST Specific Plan; however, the overall appearance of the development would be similar and would alter the existing visual character of the VST Specific Plan area, as viewed from Lake Road, in a manner similar to the development assessed in the 2001/2004 UCP EIR. Cottonwood Creek, the principal natural drainage in the western portion of the VST Specific Plan area would be maintained and enhanced, consistent with Adopted UCP Policy LU 2.3. Therefore, the proposed VST Specific Plan would result in similar impacts related to visual character and quality as those identified in the 2001/2004 UCP EIR. There are no feasible mitigation measures available now that were previously infeasible or otherwise unavailable that would reduce the impact. This impact would remain significant and unavoidable.

Light and Glare

Although there would be differences in type, intensity, and layout, implementation of the proposed VST Specific Plan would result in similar overall development and land uses as the Adopted UCP and, therefore, similar levels of nighttime lighting. Impacts related to light and glare would be similar to those evaluated in the 2001/2004 UCP EIR. The VST Specific Plan would implement IDA standards related to illumination type and shielding. Therefore, the proposed VST Specific Plan would result in similar or reduced impacts related to light and glare as those identified in the 2001/2004 UCP EIR. This impact would remain significant and unavoidable.

AGRICULTURE AND FORESTRY

The California Department of Conservation (DOC) and the California Association of Resource Conservation Districts translate soil survey data from the National Resources Conservation Service into maps of "Important Farmland Series" for the state's agricultural counties. The purpose of the DOC's Farmland Mapping and Monitoring Program (FMMP), which updates the maps biennially, is to provide land use conversion information for decision makers to use in the planning for the present and future of California's agricultural land resources. The Important Farmland maps and the advisory guidelines for the FMMP identify five agriculture-related categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The mapping also includes "Other Land," which designates land that does not fall in any of the above categories. Note that the first three categories of farmland listed are considered Important Farmland for the purpose of analyses under CEQA. This portion of Merced County has an agricultural heritage.

UCP Update

Important Farmland

The 2001/2004 UCP EIR determined that conversion of Important Farmlands would occur as a result of the project. As discussed in Impact 4.2-1 (page 4.2-21), Adopted UCP Policy A 3.1 would require the protection of comparable quality farmland at a 1:1 mitigation ratio, and Policy AA 2.2 would target the agricultural land south of the Adopted UCP area for these voluntary easements. Agriculture would be encouraged as an interim land use while the UCP lands are progressively developed, as required under Adopted UCP Policy LU 1.6. Phasing would occur from west to east so that the existing agricultural operations are not separated by urban development. Development is also designed to include the Fairfield Canal and major city roads as phasing lines to provide separation of agriculture from urban uses and allows the irrigation pond to remain functional for the longest feasible time period. Where a specific plan is

approved prior to adoption of an agricultural preservation program for the north Merced area, Adopted UCP Policy A 2.1 requires implementation of measures that would achieve the equivalent protection of comparable farmland at a ratio of 1:1 for Important Farmland converted. Nonetheless, a significant and unavoidable impact would occur because the development would result in the direct loss of Important Farmland that cannot be replaced.

The proposed modification of the UCP area would designate the Farmland of Local Importance and grazing land east of Fairfield Canal for development but would remove Important Farmland north of the amended UCP boundary from the UCP area. The adopted mitigation measures would apply and would result in similar impact reduction to that assumed in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts on Important Farmland and this topic is not addressed further in this Draft SEIR.

Zoning and Williamson Act

The 2001/2004 UCP EIR evaluates potential to conflict with existing zoning in Impact 4.2-3. This impact was found to be less than significant in the 2001/2004 UCP EIR with the implementation of Policy A 3.1, which would require the protection of comparable quality farmland at a 1:1 mitigation ratio, and Policy A 4.1, which would establish a buffer at the southern extent of the Adopted UCP area (page 4.2-25). The 2001/2004 UCP EIR does not specifically analyze the potential to conflict with a Williamson Act contract because there are no lands under Williamson Act contracts within the plan area (page 4.2-20). However, the 2009 LRDP evaluated the potential for development of the University Community to result in conflicts with Williamson Act contracts and existing zoning under Impact AG-2 and determined that the impact would be less than significant because there are no lands within the VST Specific Plan area under Williamson Act contracts and the County has designated the VST Specific Plan area as an area for future development (UACE 2008: 4.2-31). This analysis is applicable to the proposed UCP Update because it evaluated the complete conversion of the VST Specific Plan area, and there has been no change in zoning and no lands within the VST Specific Plan area have entered into Williamson Act contracts since the draft EIR for the 2009 LRDP was prepared in 2008. The UCP Update would not change the potential effects related to zoning and potential for conflict with Williamson Act lands. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Forest Land

Potential for the Adopted UCP to conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production was not evaluated in the 2001/2004 UCP EIR. According to the Merced Vision 2030 General Plan, there is no forest land as defined by Public Resources Code section 1220(g), timberland as defined by Public Resources Code section 4526, or timberland zoned Timberland Production as defined by Government Code section 51104(g) within the City of Merced Specific Urban Development Plan (SUDP)/SOI (City of Merced 2010). There would be no impact. Therefore, the UCP Update would not result in new or substantially more severe impacts on forestry and this topic is not addressed further in this Draft SEIR.

Conversion of Farmland

The 2001/2004 UCP EIR recognizes the potential for incompatibility between existing agricultural land uses and the development of the UCP area under Impact 4.2-2. During buildout, future residents of the UCP area could be exposed to dust, odors, pesticide spray drift, and elevated noise associated with agricultural activities (page 4.2-22). Future residents could also introduce traffic, domestic pests, and gardening pests into the area. Further, development could expose adjacent farmers to greater potential for theft and vandalism (page 4.2-23). The 2001/2004 UCP EIR (page 4.2-24) concluded that the effect on adjacent agricultural properties would be less than significant with implementation of Adopted UCP policies that require future residents to receive a copy of the County's right-to-farm ordinance (Policy A 2.2), receive supplemental information about the effects of agricultural activities (Policy A 2.3), and create a buffer near the southern portion of the Adopted UCP area (Policy A 4.1).

The 2009 LRDP EIR, which included evaluation of the 177 acres of the VST Specific Plan area that were not included in the 2001/2004 UCP EIR, evaluated additional project-related changes that could result in conversion of Important Farmland to non-agricultural use in Impact AG-2. The discussion notes that the County, City, and Local Area Formation Commission have coordinated to plan for development that limits urban development in support of UC Merced to the areas north and south of the campus, including the VST Specific Plan area. Further, because the land

to the east of the UCP area is under Williamson Act contract, future conversion of these lands to non-agricultural use would require separate discretionary action.

The UCP Update would not change the potential effects related to conversion of farmland. The UCP Update would comply with the Adopted UCP policies and County buffer requirements pertaining to agriculture (note that non-substantive edits to UCP policies, such as renumbering, are proposed). Therefore, the UCP Update would not result in new or substantially more severe impacts on agriculture and forestry and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

Important Farmland

Approximately 4 percent (28.5 acres) of the VST Specific Plan area is classified as Important Farmland (7 acres of Prime Farmland, 0.5 acre of Unique Farmland, and 21 acres of Farmland of Statewide Importance). The Adopted UCP policies would apply to development of the VST Specific Plan area. Agriculture would be encouraged as an interim land use while the UCP lands are progressively developed, as required under Adopted UCP Policy LU 1.6. Phasing would occur from west to east so that the existing agricultural operations are not separated by urban development. Development is also designed to include the Fairfield Canal and major city roads as phasing lines to provide separation of agriculture from urban uses and allows the irrigation pond to remain functional for the longest feasible time period. In addition to using hard edges such as major roadways and waterways as phase separators, the VST Specific Plan requires a 100-foot separation between any habitable portion of a residential structure and interim agricultural uses. The VST Specific Plan also complies with the County agricultural buffer requirements specified in Section 18.10.030 of the Merced County Zoning Ordinance. VST has preserved Farmland through conservation easements that exceed the 1:1 preservation requirement (i.e., 28.5 acres) required by Adopted UCP Policy A 2.1.

The 2001/2004 UCP EIR concluded that this impact is significant and unavoidable. Because the VST Specific Plan would comply with Adopted UCP Policy A 2.1 and protect comparable farmland at a ratio of 1:1 for Important Farmland by obtaining easement or payment of in-lieu fees, the proposed VST Specific Plan would not result in a substantially greater impact than identified in the 2001/2004 UCP EIR. There are no feasible mitigation measures available now that were previously infeasible or otherwise unavailable that would reduce the impact. Notably, the 2001/2004 UCP EIR evaluated six onsite alternatives that included the entire VST plan area. With the exception of the alternative that would increase the overall size of the university and associated development, this impact was indicated to be similar or less with project alternatives that would include the entire VST Specific Plan area (page 5-93). The impacts of the proposed VST Specific Plan are consistent with the evaluation in the 2001/2004 UCP EIR. This impact would remain significant and unavoidable.

Zoning and Williamson Act

The VST Specific Plan area is currently zoned for agriculture (A-1) by Merced County, which a "holding zone" used by the County pending adoption a specific plan. The land immediately east and southeast of the VST Specific Plan area is used for grazing (refer to Figure 4.2-1 in the 2001/2004 UCP EIR) and is under Williamson Act contract. The VST Specific Plan area is within the UC Merced SUDP. This is an area that the County's general plan identifies as ultimately being converted to urban uses, at which time the current agricultural zoning would be amended. As indicated in the general plan, the County intends for the area to remain in agricultural use until the community planning process is completed.

The portions of the VST Specific Plan area that abut adjacent Williamson Act lands would have a 200-foot buffer as required by the Merced County Zoning Ordinance, including a minimum 75-foot open space area beyond residential yard and setback areas. The VST Specific Plan would comply with the applicable Adopted UCP policies and County buffer requirements and the proposed VST Specific Plan would result in impacts similar to or less than those identified in the 2001/2004 UCP EIR. This impact would remain less than significant.

Forest Land

Potential for the Adopted UCP to conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production was not evaluated in the 2001/2004 UCP EIR. According to the Merced Vision 2030 General Plan, there is no forest land as defined by Public Resources Code section 1220(g), timberland as defined by Public Resources Code section 4526, or timberland zoned Timberland Production as defined by Government Code section 51104(g) within the City of Merced SUDP/SOI (City of Merced 2010). There would be no impact.

Conversion of Farmland

A majority of the VST plan area (approximately 450 acres) was converted to orchard, associated facilities, and dry-farmed fields in 2017. The VST Specific Plan area is now primarily planted in almonds (530 acres) with un-irrigated pasture (82 acres) occurring along the western site boundary and at the northwest corner of the property (Live Oak Associate 2019).

The VST Specific Plan would establish a conceptual land use plan that would urbanize property that is currently in an undeveloped, agricultural area. In addition to the direct conversion of the property, such a change in land use could lead to the conversion of adjacent farmland to non-agricultural uses. However, the lands to the north and south of the VST Specific Plan area are already envisioned for compatible development through the Adopted UCP. Land to the west currently supports rural residential uses. Land to the east would remain in agricultural production. The land uses at the eastern edge of the VST plan area would include large lot (12,500 to 7,000 square feet) residential and open space. A 200-foot setback would be provided between habitable portion of a residential structure and "Agricultural Production" areas per Merced County Zoning Ordinance Section 18.10.040. Along these areas, there is also an open space buffer ranging in width from 75 feet to 150 feet. Arterial or collector roads have not been planned to accommodate future connection to the east.

The 2001/2004 UCP EIR concluded that this impact is less than significant. Because the VST Specific Plan is central to the greater area evaluated in the 2001/2004 UCP EIR, and the development has been planned to integrate with development to the north and south while placing lower-intensity uses on the eastern margin, the proposed VST Specific Plan would result in impacts similar to those identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

CULTURAL RESOURCES

The environmental setting for cultural resources consists of past historic and archaeological surface discoveries. The cultural resource setting within and in the vicinity of the UCP area generally remain consistent with those described in the 2001/2004 UCP EIR.

UCP Update

Historical Resources

The 2001/2004 UCP EIR indicated that no historical resources were observed or previously reported within the Adopted UCP area. However, because construction activities associated with offsite improvements (outside of the UCP area) could result in the discovery of previously unknown historic resources, the 2001/2004 UCP EIR determined that impacts related to historic resources would be potentially significant. The 2001/2004 UCP EIR identifies implementation of Adopted UCP Policies C 1.1, C 1.2, C 1.3, and C 2.1, as well as Mitigation Measure 4.5-4, which would require preparation of cultural resource surveys and protection of cultural resources, if identified, for offsite infrastructure upgrades. The 2001/2004 UCP EIR concluded that impacts would be reduced to a less-than-significant level after implementation of Adopted UCP policies and Mitigation Measure 4.5-4.

The UCP Update would not change the potential effects related to historical resources. Potential for effects on these resources is generally related to the sensitivity of the location and the amount of demolition and ground disturbance proposed. The amended UCP would be located in the same geographic area as the Adopted UCP but would reduce the total area of potential ground disturbance. Adopted UCP policies that avoid or mitigate potential environmental

impacts would be implemented. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Archaeological Resources

The 2001/2004 UCP EIR indicated that no archaeological cultural resources were observed or previously reported within the Adopted UCP area. However, because construction activities associated with offsite improvements (outside of the Adopted UCP area) could result in the discovery of previously unknown archaeological resources, the 2001/2004 UCP EIR determined that impacts related to cultural resources would be potentially significant. The 2001/2004 UCP EIR concluded that impacts would be reduced to a less-than-significant level after implementation of Adopted UCP Policies C 1.1, C 1.2, C 1.3, and C 2.1, which require construction contractors to notify the County of Merced in the event of discovered cultural sites or materials and adequate protection of discovered artifacts, as well as Mitigation Measure 4.5-4, which would require preparation of cultural resource surveys and protection of cultural resources, if identified, outside of the Adopted UCP area. The UCP Update would not change the potential effects related to archaeological resources. Potential for effects on these resources is generally related to the sensitivity of the location and the amount of demolition and ground disturbance proposed. The UCP Update would be located in the same geographic area as the Adopted UCP but would reduce the total area of potential ground disturbance. Adopted UCP policies that avoid or mitigate potential environmental impacts would be implemented. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Human Remains

The 2001/2004 UCP EIR indicated that no cultural resources were observed or previously reported within the Adopted UCP area. However, because construction activities associated with offsite improvements (outside of the Adopted UCP area) could result in the discovery of previously unknown cultural resources, the 2001/2004 UCP EIR determined that impacts related to cultural resources would be potentially significant. The EIR identifies Adopted UCP Policy C 1.1, C 1.2, C 1.3, and C 2.1, as well as Mitigation Measure 4.5-4, which would require preparation of cultural resource surveys and protection of cultural resources, if identified, outside of the Adopted UCP area. The 2001/2004 UCP EIR concluded that impacts would be reduced to a less-than-significant level after implementation of these Adopted UCP policies and Mitigation Measure 4.5-4.

Potential for effects on these resources is generally related to the sensitivity of the location and the amount of demolition and ground disturbance proposed. The UCP Update would be located in the same geographic area as the Adopted UCP but would reduce the total area of potential ground disturbance. Adopted UCP policies that avoid or mitigate potential environmental impacts would be implemented. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

Historical Resources

Implementation of the VST Specific Plan would include new residential housing, commercial, and public facilities. Similar to the conclusions in the 2001/2004 UCP EIR, construction activities associated with new development under the VST Specific Plan could result in the identification of previously undiscovered historic resources. The *Cultural and Paleontological Resources Project-Level Inventory for the Virginia Smith Trust (VST) Specific Plan Area, Merced County, California* (NIC 2021) prepared for the VST Specific Plan area did not identify additional historical resources. With implementation of the Adopted UCP policies and preparation of a cultural resources survey pursuant to Mitigation Measure 4.5-4, the proposed VST Specific Plan would result in similar impacts to historic resources as those identified in the 2001/2004 UCP EIR. This impact would remain less than significant.

Archaeological Resources

Implementation of the VST Specific Plan would include new residential housing, commercial, and public facilities. Similar to the conclusions determined in the 2001/2004 UCP EIR, construction activities associated with new development under the VST Specific Plan could result in the identification of previously undiscovered archaeological

resources. The *Cultural and Paleontological Resources Project-Level Inventory for the Virginia Smith Trust (VST) Specific Plan Area, Merced County, California* (NIC 2021) prepared for the VST Specific Plan area did not identify additional archaeological resources. Therefore, the proposed VST Specific Plan would result in similar impacts to archaeological resources as those identified in the 2001/2004 UCP EIR. This impact would remain less than significant with the implementation of Adopted UCP policies and mitigation.

Human Remains

Implementation of the VST Specific Plan would include construction and operation of new residential housing, commercial, and public facilities. Similar to the 2001/2004 UCP EIR, construction activities associated with new development under the VST Specific Plan could result in the identification of previously undiscovered cultural resources, including human remains. Therefore, the proposed VST Specific Plan would result in similar impacts to cultural resources, including human remains, as those identified in the 2001/2004 UCP EIR. This impact would remain less than significant with the implementation of Adopted UCP policies and mitigation.

GEOLOGY AND SOILS

The UCP area is in eastern Merced County, on the western edge of the Sierra Nevada foothills. The topography of the areas surrounding the VST Specific Plan area consists of gently rolling hills and plains used for agriculture. The topography of the UCP area is generally flat (VST 2020). There are no active faults within the UCP area; the nearest active faults are the San Andreas Fault (15 miles west of the county, and approximately 50 from the VST plan area), the Hayward and Calaveras faults to the northwest of the county, and the White Wolf Fault and Garlock fault zones to the south of the county. There are no liquefaction hazard areas within the county. Resources within and in the vicinity of the UCP area remain consistent with the geologic features and resources described in the 2001/2004 UCP EIR.

UCP Update

Seismic Hazards

The 2001/2004 UCP EIR indicates that the UCP area is characterized by rolling flatland (with slopes less than 10 percent). Given the granular, clayey, and relatively consolidated and cemented nature of the soils; the near-surface hardpan; and the gentle slopes throughout the area, the 2001/2004 UCP EIR indicates that the VST Specific Plan area is not prone to landsliding (page 4.6-6). The potential for development to expose people and structures associated with seismic hazards was evaluated in Impact 4.6-1 of the 2001/2004 UCP EIR. As discussed therein, all buildings and structures constructed in the Adopted UCP area would be required to meet the structural design and foundation requirements of the California Building Code, as well as local buildings regulations. Pursuant to Adopted UCP Policy S 1.1 and Policy S 1.2, site-specific geotechnical studies are required for subsequent development. This would effectively reduce the potential effects of seismic activity.

The 2001/2004 UCP EIR concluded that the UCP area was not subject to significant seismic hazards associated with active faults and determined that the impacts from exposure to hazards associated with seismic related ground shaking would be less than significant because all structures would adhere to state, county, and local Building Codes and Regulations (pages 4.6-16 and 4.6-17, and 4.6-20 and 4.6-21). Further, because there is no groundwater near the ground surface and the types of soil present in the UCP area are not general the granular sediments subject to liquefaction seismically induced settlement, or bearing loss is considered unlikely, even if there should be a substantial increase in groundwater levels (VST 2020).

The UCP Update would not change the potential effects related to seismic hazards. The UCP Update would be located in the same geographic area as the Adopted UCP but would reduce the total area of potential ground disturbance by 292 acres. No new hazards have been identified since certification of the 2001/2004 UCP EIR. Adopted UCP policies that avoid or mitigate potential environmental impacts would be implemented. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Soil Hazards

The expansive soils are susceptible to volume changes associated with changes in soil moisture content. The preliminary geotechnical investigation for the VST Specific Plan area revealed a surface horizon of mildly to highly expansive clay soil. Similarly, the 2001/2004 UCP EIR concluded that impacts associated with unstable soils would be less than significant despite having soil types within the area with moderate to high hazard ratings (pages 4.-6-19 and 4.6-20.) Though the configuration of land uses would be slightly different than the previous 2001/2004 UCP EIR, impacts related to unstable soils would be the same as previously analyzed because the development would be similar in scale and would adhere to similar (and updated) regulations. The potential for future differential movement can be reduced to normally tolerable levels with moisture conditioning, compaction, and foundation preparation (VST 2020). Therefore, the proposed VST Specific Plan would result in similar impacts as identified in the 2001/2004 UCP EIR.

Paleontological Resources

The potential for development to disturb or destroy paleontological resources was evaluated in Impact 4.5-1 of the 2001/2004 UCP EIR. As reported therein, the geologic formations underlying the UCP area have moderate to high potential to contain significant paleontological resources (page 4.5-15). With the application of Adopted UCP Policy C 2.1 requiring that construction workers are informed of the potential to encounter paleontological resources, as well as Policy C 1.3 requiring cessation of construction work where resources are discovered, the 2001/2004 UCP EIR determined that this impact would be less than significant. As evaluated in the 2001/2004 UCP EIR, all development would be subject to Adopted UCP policies that would address the potential effects on resources that could be encountered during construction. The impact would be similar to the impact disclosed in the 2001/2004 UCP EIR. Therefore, this topic is not addressed further in this Draft SEIR.

VST Specific Plan

Seismic Hazards

A geotechnical investigation has been conducted to explore and evaluate the subsurface conditions at the site and to develop geotechnical engineering recommendations to aid in master planning, preliminary project design, mass grading and infrastructure, and preparation of design and construction specifications. The project site consists of both Pleistocene aged Riverbank Formation and Pliocene aged Laguna Formation soil deposits. These formations are characterized as alluvial fans of sand, gravel, silt and clay loam with various sand and fine gravel content (VST 2020).

Development of the VST Specific Plan is not anticipated to directly or indirectly increase the potential for fault rupture, seismic ground shaking, seismic-related ground failure, or landslides. The proposed VST Specific Plan would result in similar impacts to seismic hazards as those identified in the 2001/2004 UCP EIR. This impact would remain less than significant with the implementation of Adopted UCP policies.

Soil Hazards

Development of the VST Specific Plan is not anticipated to directly or indirectly increase the potential for fault rupture, seismic ground shaking, seismic-related ground failure, or landslides. The proposed VST Specific Plan would result in similar impacts to seismic hazards as those identified in the 2001/2004 UCP EIR. This impact would remain less than significant due to compliance with state, county, and local regulations.

Paleontological Resources

The potential for development to disturb or destroy paleontological resources was evaluated in Impact 4.5-1 of the 2001/2004 UCP EIR. As reported therein, the geologic formations underlying the VST Specific Plan area have moderate to high potential to contain significant paleontological resources (page 4.5-15). With the application of Adopted UCP Policy C 2.1 requiring that construction workers are informed of the potential to encounter paleontological resources, as well as Policy C 1.3 requiring cessation of construction work where resources are discovered, the 2001/2004 UCP EIR determined that this impact would be less than significant. The VST Specific Plan would result in subsurface disturbance of soils with moderate to high potential for paleontological resources. As evaluated in the 2001/2004 UCP EIR, all development would be subject to Adopted UCP policies that would address the potential effects on resources that could be encountered during construction. The impact would remain less than significant.

HAZARDS AND HAZARDOUS MATERIALS

Conditions within and in the vicinity of the UCP area remain consistent with the setting described in the 2001/2004 UCP EIR.

UCP Update

Transport and Use of Hazardous Materials

The 2001/2004 UCP EIR concluded that the potential for hazards to the public or environment through the routine transport, use, or disposal of hazardous materials would be less than significant. State, local, and county regulations and collection services regulate and assist in preventing hazardous situations resulting from hazardous materials. The risk from the common household hazardous materials and the common hazardous materials associated with the types of businesses proposed in the Adopted UCP was determined to be at a similar risk from other developed areas in the City of Merced and was determined to pose an acceptable level of risk (pages 4.7-18 and 4.7-19). The proposed amendments would not substantially change the potential for risk associated with the routine transport, use, or disposal of hazardous materials.

The 2001/2004 UCP EIR concluded that the potential for the VST Specific Plan to create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment would be less than significant. The majority of the analysis in the 2001/2004 UCP EIR focused on the potential impacts associated with exposure to radioactive materials, biohazardous materials, and animals used for academic research. Most residential and business activities would not involve large quantities of hazardous materials, and those materials would not put the proposed community at greater risk than other developed areas in the City of Merced. The 2001/2004 UCP EIR concluded that all activities involving radioactive materials, biohazardous materials, and animals used for academic research would follow all federal, state, and local regulations (pages 4.7-25 through 4.7-27) and would thus result in a less than significant impact. It is anticipated that the UCP Update would result in less potential for a significant hazard to the public or environment from the reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment than the project evaluated in the 2001/2004 UCP EIR because it does not include land uses, such as laboratories associated with UC Merced, that could result in an increase in the routine transport of hazardous materials.

Similarly, the 2001/2004 UCP EIR (Impact 4.7-4) concluded that the potential for hazardous emissions or the handling of hazardous materials or waste within 0.25 mile of an existing or proposed school would be less than significant because all future projects would be required to comply with all applicable California Education Codes regarding hazardous materials. There are no schools within 0.25-mile of the plan area that were not evaluated in the 2001/2004 UCP EIR.

The UCP Update would result in similar, or reduced, potential for transport and use of hazardous materials. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Hazardous Materials Sites

The 2001/2004 UCP EIR did not identify hazardous materials sites on, or within 1 mile of, the project boundaries that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would, therefore, not create a significant hazard to the public or environment. The 2001/2004 UCP EIR identified the potential for contamination from pesticides, herbicides, and agricultural chemicals resulting from previous use of the project area for agriculture. The 2001/2004 UCP EIR concluded that with compliance to State and County Requirements, the impact would be less than significant. The UCP Update would not result in the potential to disturb new hazardous materials sites. The nature of the development and potential to encounter hazardous materials would be similar to that analyzed in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Airports

The 2001/2004 UCP EIR (page 4.7-15) concludes that there would be no impact because no public airport, public use airport, or airport land use plan occurs within 2 miles of the UCP area. No new public airports or airport land use plans have been developed within 2 miles of the UCP area since the 2001/2004 UCP EIR, and thus the impact assessment would remain the same as the 2001/2004 UCP EIR.

Emergency Response and Wildfire

There is not an adopted emergency response or evacuation plan that covers the UCP area and could be impaired by adding residents and businesses to the UCP area. The 2001/2004 UCP EIR concluded that there would be no impact to an emergency response plan or emergency evacuation plan (page 4.7-15).

The 2001/2004 UCP EIR concluded that the risk of expose of people or structures, directly or indirectly, to a significant loss, injury, or death involving wildland fires to be less than significant. The area analyzed by h the 2001/2004 UCP EIR is surrounded by agricultural land to the south, the urbanized portion of the City of Merced to the southwest west, County Rural Residential development to the west, urbanizing portions of the county to the northwest, and annual grassland to the east and northeast. Agricultural lands tend to be irrigated and have a lower wildfire risk due to the moisture content of the soils and plants. Urban land also tends to have a low risk of wildfires, due to the minimal amount of fuels available to low groundfires. The 2001/2004 UCP EIR concludes that, although the UCP area is directly adjacent to a state responsibility area (SRA) for wildland fires, the impact would be less than significant because the proposed project would adhere to federal, state, and local regulations regarding the installation of fire suppression equipment and defensible space surrounding new buildings (pages 4.7-28 and 4.7-29).

VST Specific Plan

Transport and Use of Hazardous Materials

The 2001/2004 UCP EIR concluded that the potential for hazards to the public or environment through the routine transport, use, or disposal of hazardous materials would be less than significant. State, local, and county regulations and collection services regulate and assist in preventing hazardous situations resulting from hazardous materials. The risk from the common household hazardous materials and the common hazardous materials associated with the types of businesses proposed in the Adopted UCP was determined to be at a similar risk from other developed areas in the City of Merced and was determined to pose an acceptable level of risk (pages 4.7-18 and 4.7-19). The VST Specific Plan would not accommodate any types of commercial or industrial developments not analyzed in the 2001/2004 UCP EIR. Therefore, the proposed VST Specific Plan would have a similar impact as the 2001/2004 UCP EIR. This impact would remain less than significant.

Hazardous Materials Sites

As the VST Specific Plan area has been continuously used for agriculture since the 2001/2004 UCP EIR was prepared, it can be reasonably concluded that site conditions have not substantially changed. California Health and Safety Code Section 25914.2 stipulates that upon discovery of asbestos or hazardous substances, all work in effected areas will cease until a qualified outside contractor has removed or rendered the asbestos or hazardous materials have been rendered harmless. The VST Phase 1 Environmental Site Assessment, completed July 2019, confirmed that the only recognized environmental condition within the VST Specific Plan area was the potential for environmentally persistent agricultural pesticides to be present. There are four hazardous materials cleanup sites within the vicinity of the VST Specific Plan area, all of which have been completed and closed (SWRCB 2023). The leaking underground storage tank (LUST) Cleanup Site at 2632 La Loma Road was closed in 2011 and is approximately 0.4 mile from the western border, the LUST Cleanup Site at 3701 Hatch Road was closed in 1991 and is approximately 0.9 mile from the southwestern corner of the VST Specific Plan area, the LUST Cleanup Site at Lake Yosemite Park at 5714 Lake Road North was closed in 1996 and is approximately 1.25 miles from northern boundary of the VST Specific Plan area, and the Cleanup Program Site at the University of Merced at 5200 North Lake Road was closed in 2006 is 0.6 miles from the northwestern corner of the VST Specific Plan area. The proposed VST Specific Plan would be required to comply with State regulations. This impact would be similar to the 2001/2004 UCP EIR and would remain less than significant.

There are currently no schools within 0.25 mile of the VST Specific Plan area. Pursuant to Section 17213 of the California Education Code and Sections 21151.2, 21151.4, and 21151.8 of the California Public Resources Code, subsequent environmental review would be completed prior to the school district's acquisition of property within the VST plan area that is designated for a new school. The VST Specific Plan is not within 0.25 mile of a school site and any projects undertaken within the VST Specific Plan area would be required to comply with these same regulations as the 2001/2004 UCP EIR and would, therefore, remain less than significant.

Airports

The 2001/2004 UCP EIR (page 4.7-15) concludes that there would be no impact because no public airport, public use airport, or airport land use plan occurs within 2 miles of the UCP area. No new public airports or airport land use plans have been developed within 2 miles of the VST plan area since the 2001/2004 UCP EIR, and thus the impact assessment would remain the same as the 2001/2004 UCP EIR.

Emergency Response and Wildfire

The VST Specific Plan would not result in the potential for new or substantially more severe interference with an adopted emergency response or emergency evacuation plan. Therefore, the VST Specific Plan would result no impact, as described in the 2001/2004 UCP EIR.

The VST Specific Plan area is surrounded by farmland on the north, west, and southern borders, and is adjacent to grassland on the east and northeastern border. Additionally, the VST Specific Plan area is not located in the portion of the Adopted UCP that is directly adjacent to the SRA; only the northeastern corner of the VST plan area is near an SRA classified as a Moderate Wildfire Hazard Severity Zone. The Adopted UCP policies and County zoning ordinance requires, and the VST Specific Plan would implement, requirement for a 200- foot setback to the agricultural production areas to the east and the southeast that include these Moderate Wildfire Hazard Severity Zones (which includes a 75 to 100 foot separation between residential lot lines and open space portions of UC Merced along the northeast border of the VST Specific Plan area). It is anticipated that the proposed VST Specific Plan would result in a similar or less impact related to exposure to risk of loss, injury, or death from wildfires as the project evaluated in the 2001/2004 UCP EIR and the VST Specific Plan would not exacerbate wildfire risk. This impact would remain less than significant.

LAND USE AND PLANNING

The following regulatory setting has been updated since certification of the 2001/2004 UCP EIR.

2030 Merced County General Plan

In 2013, Merced County adopted its updated general plan, which sets the direction for the future of the county through 2030. The general plan is the overarching policy document that guides land use, housing, transportation, infrastructure, community design, and other policy decisions. The Adopted UCP was incorporated as an Urban Community in the general plan, which recognizes that implementation would occur through the specific plan process. The western three quarters of the VST property is designated as Multiple Use Urban Development (MU) in the Merced County General Plan. The Adopted UCP boundary, as shown in the Merced County General Plan, does not currently reflect the additional acreage to the east of the Fairfield Canal, which is designated Agricultural (A).

Merced County Zoning

The Merced County Zoning Ordinance and Zone District Map is adopted to implement the general plan. The entire VST Specific Plan area is currently zoned General Agricultural (A-1). This zone is intended as a "holding zone" until such time as the general plan's Multiple Use Urban Development land use designation can be further implemented through the adoption of a specific plan, as is proposed.

City of Merced Vision 2030 General Plan

In 2012, the City of Merced adopted a new General Plan looking towards 2030, including urban expansion goals. The entire VST Specific Plan area is included in the City's SUDP/SOI reflected in the Vision 2030 General Plan.

UCP Update

The Adopted UCP was a cooperative effort of the City, County, State, and numerous local stakeholders. Development of the Adopted UCP set the stage for modification of City and County planning documents, and the development of the UC Merced's 2009 LRDP. Consequently, the development policies and conditions associated with the UCP are intertwined with County, City, and UC planning documents. The Adopted UCP includes policies and programs that direct both the City and the County to update their respect plans and regulations to include the development plans and policies their respective planning and development documents.

The 2001/2004 UCP EIR concludes that the Adopted UCP would include land use designations that could result in incompatible uses (Impact 4.9-1). This incompatibility is identified in association with conversion of agricultural uses, proximity to an airstrip, and introduction of noise-generating land uses. As described throughout this Draft SEIR, these impacts would not be exacerbated with implementation of the UCP Update. The 2001/2004 UCP EIR concluded that modification of the SUDP boundaries would be consistent with the goals and policies of the County's general plan; impacts would be less than significant (Impact 4.9-2). Because applicable land use plans have been modified to reflect development of the UCP area, the proposed UCP would result in less impact than identified in the 2001/2004 UCP EIR. Therefore, the UCP amendments would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

The 2001/2004 UCP EIR indicated that the proposed development for the VST property would conflict with the then-current County general plan land use designation of Agricultural. The County updated its General Plan Land Use Element in December 2013 for a planning period extending to 2030 and changed the Agricultural land use designation in the Adopted UCP area (which includes the western $\frac{3}{4}$ of the VST Specific Plan area) to an Urban Communities designation. Urban Communities are areas within the County intended to accommodate all classifications of urban land use to be established through the adoption of a specific plan (in accordance with Government Code Section 65450 et seq.).

The City of Merced's current general plan was adopted in 2012 and designates the VST Specific Plan area as part of the UC Community North in the land use diagram. With adoption of the 2030 General Plan, the entire amended UCP Update area, including the additional 221 acres outside of the Adopted UCP area, was included in the City's SOI/SUDP boundary. The general plan describes the Adopted UCP area as a priority annexation area. Analysis of conformity with Adopted UCP policies, as well as City of Merced and Merced County general plan policies, is provided in this SEIR to demonstrate consistency with policies adopted for the purpose of avoiding or mitigating an environmental effect.

The VST Specific Plan would be consistent with the City's policies related to urban expansion:

- **UE-1.1.** Designate areas for new urban development that recognize the physical characteristics and environmental constraints of the planning area.
- **UE-1.2.** Foster compact and efficient development patterns to maintain a compact urban form.
- **UE-1.3.** Control the annexation, timing, density, and location of new land uses within the City's urban expansion boundaries.
- **UE-1.4.** Continue joint planning efforts on the UC Merced and University Community plans.
- **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.
- **UE-1.6.** Consider expansion of the City's SUDP/SOI boundary for areas within the Area of Interest when certain conditions are met.

The VST Specific Plan would be generally consistent with City and County planning documents. Although, the eastern $\frac{1}{4}$ of the VST Specific Plan area remains designated Agriculture in the Merced County General Plan the general plan would be amended for consistency as part of the UCP Update. Because applicable land use plans have been modified

to reflect development of the UCP area, the proposed UCP Update would result in less impact than identified in the 2001/2004 UCP EIR. Therefore, the impact would remain less than significant.

MINERAL RESOURCES

Conditions within and in the vicinity of the UCP area remain consistent with the mineral resources described in the 2001/2004 UCP EIR.

UCP Update

The impacts of the UCP Update related to mineral resources would be similar those identified for the 2001/2004 UCP EIR. Based on the 1999 Mineral Land Classification Report, the 2001/2004 UCP EIR (page 4.6-16) concludes that there are no mineral resource zones identified within or near the project area, and implementation of the Adopted UCP would not result in an impact to mineral resources. The UCP Update would occur in the same general location as the Adopted UCP. No new mineral resources have been identified. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

The proposed VST Specific Plan would result in similar impacts as the 2001/2004 UCP EIR because the VST Specific Plan area is in the same general geography and no additional mineral resources have been identified. There would be no impact, as disclosed in the 2001/2004 UCP EIR.

POPULATION AND HOUSING

The County of Merced consists of six cities (Merced, Atwater, Dos Palos, Gustine, Livingston and Los Banos) and unincorporated land. The population of Merced County is 279,793 residents, of which 95,125 individuals reside in unincorporated areas. Since 2010, the county's population has increased by 9.5 percent, while the population of the unincorporated areas has increased by 6.7 percent. According to Merced County Association of Governments projections, between 2018 and 2030, the County population (including unincorporated areas) is projected to increase by 54.0 percent to 431,300 residents; the population of the unincorporated areas is projected to increase by 75.1 percent to 166,600 residents. There are 85,927 dwelling units within Merced County, 28,525 of which are located in unincorporated areas and 27,863 of which are located within the City of Merced. According to Merced County Association of Governments projections, the number of dwelling units is projected to increase to 105,954 county-wide by 2030.

UCP Update

The 2001/2004 UCP EIR determined that the Adopted UCP would accommodate growth induced by the UC Merced campus and would not induce additional growth in and of itself. The 2001/2004 UCP EIR also indicated that policies included in the plan are intended to prohibit the provision of infrastructure capacity to areas outside of the University Community and/or the UC Merced campus, which would otherwise induce population growth on nearby lands. Based on this condition, impacts were determined less than significant.

Though the 2001/2004 UCP EIR determined that impacts related to substantial population growth would be less than significant, the thresholds related to substantial population growth have slightly changed since the publication of the EIR. Based on Appendix G of the State CEQA Guidelines, a significant impact related to population and housing would occur if substantial unplanned growth were to result from project implementation. Both the City and County have planned for population growth within the VST plan area and plan implementation would not induce unplanned growth in the area. Therefore, implementation of the VST Specific Plan would result in similar impacts to those identified in the 2001/2004 UCP EIR.

The 2001/2004 UCP EIR determined that the Adopted UCP implementation would result in an increase in housing units over those that currently exist in UCP area and, therefore, no substantial displacement of housing or people would occur. Impacts were determined to be less than significant. The impact related to population growth and

displacement of people or housing would be similar to those identified for the 2001/2004 UCP EIR. Since certification of the 2001/2004 UCP EIR, the City and County have included development of the UCP area in their planning documents. Because the UCP Update is anticipated to reduce the development potential compared to the Adopted UCP, and no development has occurred in the area that would be displaced, the UCP Update would not induce substantial unplanned population growth or displace a substantial amount of housing. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

Implementation of the VST Specific Plan would include development of new land uses within the VST Specific Plan area and is expected to result in similar effects as those described in the 2001/2004 UCP EIR. The VST Specific Plan would not result in substantial displacement of housing or people currently residing in the VST Specific Plan area. Therefore, the assessment of potential displacement of people or housing that could result in the construction of replacement housing elsewhere evaluated in the 2001/2004 UCP EIR remains applicable to the VST Specific Plan. Both the City and County have planned for population growth within the VST Specific Plan area and plan implementation would not induce unplanned growth in the area. Therefore, implementation of the VST Specific Plan would result in similar impacts to those identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

PUBLIC SERVICES

The UCP area currently consists of rural agriculture land with minimal services to the area. Merced County Sheriff's department provides police services to the area. The Merced County Sheriff's office is located southwest of the UCP area. While not in their jurisdiction, the UC Merced Police Department is located approximately 0.89 mile north of the area. The nearest fire stations to the UCP area are City Station No. 55 at Parsons and Silverado, and County Fire Station No. 85 on McKee at El Portal, both of which are approximately 2.50 road-miles from the Lake Road entrance to the VST Specific Plan area, and within a 4.25-minute response time. The VST Specific Plan area is currently divided between Merced City Schools and the Weaver School Districts. The nearest park is the Yosemite Lake Regional Park, located approximately 0.96 mile north of the UCP area.

UCP Update

Fire protection

The 2001/2004 UCP EIR determined that impacts related to fire protection services would be less than significant because development would comply with identified Adopted UCP policies related to adequate provision of fire services, and tax revenues generated by the County would fund construction of essential new fire facilities. The UCP Update would be smaller in size and result in fewer residents. As a result, demand for public services would not increase, but may actually be reduced, compared to the evaluated in the 2001/2004 UCP EIR. Development would be subject to the same UCP policies related to adequate provision of fire services and collection of tax revenue as the Adopted UCP. Adopted UCP policies that would be maintained in the UCP Update would include UCP Policy ARM 4.1, which would require that the County "Enter into agreements with the City of Merced to provide interim police, fire, library, and other services to the University Community during the initial stages of development and ensure that sufficient resource capacities and funding are created to support local services." Therefore, the proposed VST Specific Plan would result in similar (less-than-significant) impacts as those identified in the 2001/2004 UCP EIR. The UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Police protection

The 2001/2004 UCP EIR determined that impacts related to police protection services would be less-than-significant because development would comply with identified Adopted UCP policies related to adequate provision of police services, and tax revenues generated by the County would fund construction of essential new police facilities. Additionally, Adopted UCP policies require availability of adequate police protection services. The UCP Update would be smaller in size and result in fewer residents. As a result, demand for public services would not increase, but may

actually be reduced, compared to the evaluated in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Schools

The 2001/2004 UCP EIR identified policies that require dedication of educational facility sites and indicates that applicable school impact fees would be provided by the project applicant/developer. Impacts were determined to be less than significant. The UCP Update would be smaller in size and result in fewer residents. As a result, demand for public services would not increase, but may actually be reduced, compared to the evaluated in the 2001/2004 UCP EIR. As required by the Adopted UCP, the VST Specific Plan portion of the UCP Update would include an elementary (K-8) public school site, plus a "Scholars Academy" university prep school. Additional schools to serve the UCP area and UCP South would be provided in the UCP South, including an additional elementary (K-8) school, a middle school, and a high school. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Parks

The 2001/2004 UCP EIR acknowledged that increased use of existing regional parks and facilities could occur but indicates that Adopted UCP policies that would allow for the planning, expansion, and improvement of existing facilities that would reduce potential impacts to a less-than-significant level. The UCP Update would be smaller in size and result in fewer residents. As a result, demand for public services would not increase, but may be reduced, compared to the evaluated in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

Other public facilities

The 2001/2004 UCP EIR stated that development of the Adopted UCP would result in increased demand on libraries within the Adopted UCP area. The 2001/2004 UCP EIR identifies Mitigation Measure 4.12-7, which requires the County to ensure that the County Library's level of service does not fall below existing service levels. The 2001/2004 UCP EIR determined that implementation of policies establishing library development standards and encouragement of joint-use facility libraries, as well as implementation of Mitigation Measure 4.12-7, would ensure that less-than-significant impacts occur related to public library facilities.

The UCP Update would be smaller in size and result in fewer residents. In addition, the use and reliance on physical library facilities has evolved, as many resources are now shared digitally. In addition, the development remains designed to support the housing needs of UC Merced and it is envisioned that many residents would have access to these public facilities, including the university's library. Moreover, development would provide adequate funding on par with that of the rest of the county through payment of local taxes. As a result, demand for public services would not increase, but may be reduced, compared to the evaluated in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

Fire protection

Implementation of the proposed VST Specific Plan would result in increased demand on existing fire protection services through development of new land uses. As described further in Chapter 2, "Project Description," the VST Specific Plan would include development of new fire station on Main Street south of Virginia Smith Parkway. Construction of a fire station within the VST Specific Plan area is assumed throughout the 2001/2004 UCP EIR, and the physical impacts of constructing the facility are evaluated in this SEIR. The fire station would be included in Phase 1A and no additional fire protection facilities would be required to serve buildout of the VST Specific Plan. Further, the PEIR prepared for the City's general plan discuss the potential for general plan implementation to result in adverse physical impacts from the provision of fire protection services in the City (City of Merced 2010: 3.14-13 and 3.14-14). As described in the PEIR, general plan policies would ensure that adequate fire protection services, facilities, and infrastructure support are provided for the community, and that fire department response objectives continue to be met (Policy P-2.1 of the Public Services and Facilities Element and S-4.1 and S-4.2 of the Safety Element).

Annexation of the VST Specific Plan area would not result in additional environmental impacts from new fire protection facilities. The City's general plan PEIR considered long-term development and annexation of the SDUP/SOI. Therefore, impacts related to the construction of new fire protection facilities are included within the scope of the analysis in this SEIR and are consistent with the impacts from implementation of the City's general plan. Public service providers, including the City of Merced Fire Department, plan to serve the area within the SDUP/SOI upon annexation. The proposed VST Specific Plan would result in similar impacts as those identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

Police protection

Implementation of the proposed VST Specific Plan would result in increased demand on existing police protection services through construction and operation of new residential, commercial, and public uses. As described in Chapter 2, "Project Description," the VST Specific Plan would include development of a new police substation. Once constructed, uses in the VST Specific Plan area would be adequately served by these police protection services. In the interim, all development would be subject to the same Adopted UCP policies related to adequate provision of police services and collection of tax revenue as the Adopted UCP. Therefore, the proposed VST Specific Plan would result in a similar impact related to adverse physical effects associated with the provision of new or physically altered police facilities as those identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

Schools

The UCP area is currently split between the Merced City School District and the Weaver School District for the provision of elementary school services. The dividing line between the two elementary districts is the Kibby Road alignment. The site is completely within the Merced Union High School District and the Merced College District boundaries. Consolidation of the site and UCP into one elementary school district is being informally reviewed with the two school districts to assess which district is better able to service the project and to determine if the process described in Section 35700 of the California Education Code for transfer of area from one district to another should be initiated. This process involves a review by the Merced County Office of Education (MCOE), the County Committee, notice to the Local Area Formation Commission, and public hearings and meetings, and findings by the designated County Committee and State Board of Education pursuant to Section 35753 of the California Education Code.

In total, the UCP includes three planned elementary school sites (one in the VST Specific Plan and two in the UCP South) and a high school site (in the UCP South). The VST Specific Plan is expected to generate 454 K-6 students in Phase 1, and 796 K-6 students at total buildout. Middle school students are projected to be 119 in Phase 1 and 93 in Phase 2 for a total project enrollment of 212. Total K-8 student generation is expected to be 900 to 1,100 students. High school enrollment is expected to be 239 in Phase 1 and 186 in Phase 2 for a total of 425 at full buildout. A 17-acre site has been reserved by MCOE for the construction of a K-8 school in Phase 1e of the VST Specific Plan. Pending development of the high school site, it is anticipated that the high school students would attend El Capitan High School, the nearest Merced Union High School District campus. The project will pay school impact fees as adopted by the respective school districts.

The VST Specific Plan will also include a MCOE "Scholar's Academy." MCOE has purchased 5 acres in Phase 1c on Meyers Gate Road just west of Center Street to construct and operate the Scholar's Academy, which is a community-initiated charter school for grades TK-12 that offers instruction in a personalized learning session with a certificated teacher in a collaborative learning environment to support career and college preparatory information and guidance for a seamless transition into higher education. The Scholar's Academy's curriculum is aligned with the California Academic Content Standards and Frameworks, offers leadership training and community service opportunities through the Merced Scholars Charter School Student Organization, offers community-based Career Technical Education hands-on training through the Merced County Regional Occupational Program, and is accredited by the Western Association of Schools and colleges. The site has the theoretical capacity to accommodate 300 to 400 students, onsite day care and other social support facilities, MCOE Early Education programs, and other programs. The Scholar's Academy would not be exclusively limited to VST Specific Plan residents. As a charter school it must

admit all students if there is capacity. However, it is intended to be principally focused to serve UC Merced staff and UCP residents. See Appendix B for further information.

Because the UCP Update and VST Specific Plan would provide adequate school facilities to accommodate the projected population, it would result in a similar impact as those identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

Parks

Implementation of the VST Specific Plan also includes designated lands intended for park and open space uses in the VST Specific Plan area. As explained further in the "Recreation" discussion below, within the VST Specific Plan area parks would be provided at a rate of 7 acres per 1,000 population (including all park areas, the playfield fraction of the schools, linear parks, trails, private parks in multi-family developments, and other areas for active recreation). This would exceed the 5 acres per 1,000 residents standard in the Adopted UCP. As required by the Adopted UCP, the VST Specific Plan has developed a park and recreation impact fee that would equalize the burden of providing these community park facilities (with the exception of the mini parks provided to the neighborhood, which would be the responsibility of each subdivision/housing developer). A Mello-Roos district would be formed to fund the maintenance of the park facilities; provided, however, that the cost of operating the Community Recreation Center improvements would be funded with a Master Homeowner's Association pursuant to Davis-Sterling Common Interest Development Act. Because open space and park uses are included as part of the VST Specific Plan, implementation would result in a similar impact to those identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

Other public facilities

Implementation of the proposed VST Specific Plan includes development of new land uses including residential, commercial, park/open space, and public facilities. The VST Specific Plan would be subject to Adopted UCP policies and Mitigation Measure 4.12-7, which requires the County to ensure that the County Library's level of service does not fall below existing service levels. Adopted UCP Policy PLC 1.2 indicates that sub-area specific plans should develop library facilities to serve the community. These can include freestanding facilities, shared library facilities with area schools, library facilities integrated with multi-purpose community/cultural facilities, shared library facilities with UC Merced, or library facilities incorporated within commercial/ retail development. In addition, Policy PLC 2.1 encourages the development of library facilities that can be jointly used by public schools and community residents and Policy PLC 3.1 requires subsequent development to install new technology, such as a fiber optic network, for telecommunication services to connect University Community housing and other neighborhood facilities with local libraries and, as feasible, the UC library system.

Although the VST Specific Plan does not include a freestanding public library, the project would not conflict with these adopted policies because there is an opportunity to include shared library facilities on the school sites identified in the plan and the VST Specific Plan would include installation of high-speed wireless and fiber optic broadband service that would facilitate access to library services, as detailed in Policy PLC 3.1. The use and reliance on physical library facilities has evolved, as many resources are now shared digitally. In addition, the development remains designed to support the housing needs of UC Merced and it is envisioned that many residents would have access to these public facilities, including the university's library. Moreover, development would provide adequate funding on par with that of the rest of the county through payment of local taxes, which the County would use to fulfill its existing obligation under Mitigation Measure 4.12-7. The VST Specific Plan would result in a similar impact as the 2001/2004 UCP EIR. Impacts would remain less than significant.

RECREATION

The County of Merced currently contains approximately 43,860 acres of federal park and recreational facilities, 83,320 acres of California state parks and recreation/fish and game sites, and 720 acres of Merced County owned and operated parks (Merced County 2012). The City has approximately 187 acres of developed parkland, 120 acres of linear parkland, 29 acres of undeveloped parkland, and 17 miles of bike trails. Lake Merced Regional Park is located

approximately 1 mile north of the UCP area. The park includes Lake Yosemite, a man-made reservoir owned by Merced Irrigation District, and park facilities operated by Merced County. The park provides day use areas for gatherings and picnics, and the lake is used for boating and fishing.

UCP Update

The 2001/2004 UCP EIR concludes that the development of the UCP area would result in less-than-significant impacts to existing neighborhood parks and recreational facilities with implementation of Adopted UCP Policies PP 1.1 through 1.3, 2.1, 2.2, 3.1, 4.1, 4.2, 5.1 through 5.6, 6.1 through 6.3, 7.1, and 7.2 (Impact 4.13-1). These policies require provision of sufficient parkland to meet the recreational needs of the University Community's residents, based on a standard of 5 acres of parks and open space per 1,000 residents; require that a comprehensive parks and recreation component be defined in each sub-area specific plan; require the dedication of neighborhood and community park sites in future phases of development, concurrent with the review and approval of tentative maps; require that large-scale commercial developments integrate common recreational or open space facilities on site; encourage a continuous system of connected open space and recreation areas throughout the UCP; and provides for a range of recreation types based on the anticipated demographics of the project site.

The 2001/2004 UCP EIR concluded that the impact on regional parkland would be less than significant. The UCP Update would also result in new residential units in proximity to Lake Yosemite Regional Park, which could increase use of the park and result in physical deterioration. The 2001/2004 UCP EIR concludes that the potential for development of the Adopted UCP to increase the use of Lake Yosemite Regional Park in a manner that could result in its physical deterioration would be less than significant with implementation of Adopted UCP Policies PP 1.1, ALY 2.3, ALY 2.6, and ALY 3.2 (Impact 4.13-2). Policy PP 1.1 requires provision of sufficient parkland to meet the recreational needs of the University Community's residents, based on a standard of 5 acres per 1,000 residents. Policies ALY 2.3, 2.6 and 3.2 relate to a planning effort for Lake Merced Regional Park that has not been initiated.

However, the UCP Update would not be expected to result in substantially greater potential for physical deterioration of regional park facilities beyond what was evaluated in the 2001/2004 UCP EIR based on adherence to Adopted UCP policies that require adequate dedication of parkland within the UCP area. The Adopted UCP also includes policies that require participation in a regional planning effort for Lake Yosemite Regional Park, through which subsequent development would contribute funds to the maintenance on Lake Merced Regional Park. The 2001/2004 UCP EIR also concludes that the park acreage provided within the UCP area would meet and exceed the minimum standards set by the Adopted UCP's and City's policies and, thus, would thus result in a less-than-significant impact on parks or recreational facilities outside of the UCP area.

The population of the UCP plan area may be reduced compared to the estimates in the 2001/2004 UCP EIR because fewer residential units are envisioned in the UCP Update. Further, the UCP Update would provide an overall rate of 6 acres of parkland per 1,000 residents (with approximately 7 acres per 1,000 residents in the VST plan area and 5 acres per 1,000 residents in the UCP South). This exceeds the standard of 5 acres of parkland and open space per 1,000 residents in the Adopted UCP. Adopted UCP policies would also require payment of a regional fee calculated based on provision of 0.86 acre of parkland per 1,000 residents to address potential impacts to Lake Yosemite Park. Because Adopted UCP policies that avoid or mitigate potential environmental impacts would be implemented, impacts related to construction or expansion of recreational facilities that might have an adverse physical effect on the environment would be similar to those evaluated in the 2001/2004 UCP EIR. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

The proposed VST Specific Plan would include approximately 98 acres of parkland for the 11,110 residents the plan anticipates; there would be approximately 9 acres per 1,000 people, 6 more acres per 1,000 people than the County of Merced minimum of 3.0 acres per 1,000 people (Merced County Ordinance 1090.1730). The 9 acres per 1,000 people proposed by the VST Specific Plan provides more parkland per 1,000 residents than what was analyzed in the 2001/2004 UCP EIR, and thus the impact to neighborhood parks and recreational facilities would be less than was evaluated in the 2001/2004 UCP EIR. The 2001/2004 UCP EIR concluded that the impact on community parks and recreation facilities would be less than significant. Because the VST Specific Plan would provide more acres of

parkland per 1,000 people than was evaluated under the 2001/2004 UCP EIR, the proposed VST Specific Plan would result in less impact than identified in the 2001/2004 UCP EIR.

Park land is included in the VST Specific Plan and adverse physical effects on the environment that could result from their development have been evaluated throughout this SEIR. There would be no environmental impacts from the construction of new parks or expansion of existing parks outside of the VST Specific Plan area. As discussed above, because the type and quantity of parks and recreational facilities proposed by the VST Specific Plan would be roughly equivalent to what was evaluated under the 2001/2004 UCP EIR and would meet the County and City parkland dedication requirements, the proposed VST Specific Plan would result in a similar impact to what was identified in the 2001/2004 UCP EIR. Impacts would remain less than significant.

WILDFIRE

The majority of the UCP area is within a local responsibility area (LRA) and is designated as a non-very high fire hazard severity zone. However, a small portion of the VST plan area within the LRA is also within a Moderate Fire Hazard Severity Zone. Additionally, approximately 350 feet northeast of the UCP area, the land east of Le Grand Canal extending east into the foothills are SRAs located within moderate fire hazard severity zones (CAL FIRE 2020a, VST 2019).

The Merced County Fire Department provides primary response services to the LRA and offers mutual automatic aid with the California Department of Forestry to many of the rural foothill and rangeland areas. Many of the rural areas within the county have insufficient water supplies to adequately control fires (Merced County 2012). Eastern portions of Merced County were recently evacuated in response to the SCU Lightning Complex Fire, which began on August 18, 2020 and spanned multiple locations throughout Santa Clara County, Alameda County, Contra Costa County, San Joaquin County, Merced County, and Stanislaus County. The fire burned 396,624 acres and was contained on October 1, 2020 (CAL FIRE 2020b). The SCU Lightning Complex Fire occurred over 50 miles southwest of the UCP area. No recent fire events have occurred within or near the UCP area. In recognition of the severity of wildland fire hazards, the State has enacted legislation that requires local jurisdictions to adopt minimum standards, such as defensible space perimeters around structures, and specific building requirements to increase protection and improve fire prevention and response services. Similarly, the County administers a fire facilities impact fee (Merced County 2012).

UCP Update

The 2001/2004 UCP EIR concluded that, although the UCP area is adjacent to SRA, there would not be a substantial risk of exposure to wildland fire because the UCP Update would adhere to federal, state, and local regulations regarding the installation of fire suppression equipment and defensible space surrounding new buildings (page 4.7-28 and 4.7-29). Though the 2001/2004 UCP EIR does not specifically evaluate exposure to significant risks as a result of runoff, post-fire slope instability, or drainage changes, the 2001/2004 UCP EIR does include discussion related to exposure of people and structures to wildland fires and concludes that compliance with regulations related to fire safety, in addition to Adopted UCP Policies S 2.3, S 5.1, S 5.2, and S 5.3, would ensure that adequate wildland fire defense are incorporated into future development under the Adopted UCP. Impacts were determined to be less than significant (page 4.7-29). As indicated above (see "Hazards and Hazardous Materials"), the 2001/2004 UCP EIR concluded that there would be no impact to an emergency response plan or emergency evacuation plan (page 4.7-15) because the area is not governed by an emergency response or evacuation plans.

The potential for impacts related to emergency response or evacuation, pollutant concentrations from wildfire, exacerbation of wildfire risk, and exposure resulting from runoff, post-fire instability, or drainage changes would be similar to those that could result from implementation of the Adopted UCP. As summarized above, the 2001/2004 UCP EIR concludes that compliance with regulations related to fire safety, in addition to Adopted UCP Policies S 2.3, S 5.1, S 5.2, and S 5.3, would ensure that adequate wildland fire defense are incorporated into future development under the Adopted UCP and finds that there would not be significant impacts related to wildfire. The UCP Update would not affect the susceptibility of the area to wildfire, nor result in development that would exacerbate wildfire risk compared to the Adopted UCP. Adopted UCP policies that avoid or mitigate potential environmental impacts would

be implemented. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

VST Specific Plan

The VST Specific Plan area is located in an area that is generally flat, with agricultural uses, and bisected by canals. The area is not subject to seasonal or regular prevailing winds. It is anticipated that the proposed VST Specific Plan would result in a similar impact related to exposure of project applicants to pollution released during wildfires as the project evaluated in the 2001/2004 UCP EIR and the VST Specific Plan would not exacerbate wildfire risk.

The proposed VST Specific Plan consists of development of new residential housing, commercial, and public facilities, and would include associated infrastructure such as roads, power lines, and other utilities. These utilities and infrastructure improvements would be extended from the urbanized area west of the VST Specific Plan area and would not extend into or through the SRA to the east. The required infrastructure would not exacerbate fire risk or result in temporary or ongoing risks to the environment beyond those described in the project description and evaluated in conjunction with implementation of the VST Specific Plan. Because the VST Specific Plan would not exacerbate fire risk or result in ongoing environmental impacts related to the installation of associated infrastructure, impacts would be less than significant and would be similar to implementation of the Adopted UCP.

The VST Specific Plan would also comply with local and state regulations related to fire safety. Although buildout of the VST Specific Plan would introduce people to the area, the development would not substantially increase the potential for wildfire. Furthermore, the land west of the VST Specific Plan area is relatively flat, surface water generally sheet flows to the south, and regional hydrology is influenced by the Le Grand Canal separating the VST plan area from the nearby SRA. Because of regional geography and hydrology, the VST Specific Plan area would not be subject to landslides or flooding in the event of a wildland fire upstream or upslope of the VST Specific Plan area. As described above, implementation of the proposed VST Specific Plan is not anticipated to result in impairment of adopted emergency response or evacuation plans; therefore, it is anticipated that there would not be new significant impacts that were not addressed in the 2001/2004 UCP EIR. Impacts would remain less than significant.

GROWTH INDUCEMENT

CEQA specifies that growth-inducing impacts of a project must be addressed in an EIR (PRC Section 21100[b][5]). Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

The 2001/2004 UCP EIR concluded that implementation of the UCP would result in the construction of substantial amounts of housing that would accommodate growth induced by the UC Merced campus. The UCP does not convey development entitlements but establishes the policy and programmatic framework to guide preparation of subsequent plans, including subdivision maps. Both the City and County have planned for population growth within the UCP area.

Implementation of the UCP Update and VST Specific Plan would foster similar short-term and long-term economic growth within the City and County as identified in the 2001/2004 UCP EIR. The UCP would be revised to include only the Hunt and VST properties (468.7 acres of property owned by UC Merced would be removed and 176.76 acres would be added to the UCP to encompass the full VST Specific Plan). The amendment would result in a decrease in the total number of dwelling units from 11,616 to 9,680 units and a decrease in non-residential development from 2,022,990 square feet to 1,247,000 square feet. Therefore, the potential for the UCP Update and VST Specific Plan to directly result in population growth would be reduced compared to the growth evaluated in the 2001/2004 UCP EIR.

New infrastructure that would be installed to support the development associated with the VST Specific Plan includes a backbone roadway network (including bicycle and transit facilities); a stormwater drainage system; water distribution mains; sewer trunk lines; and offsite water, sewer and transportation improvements. In addition, offsite

upgrade of infrastructure would be required. Because the project anticipates annexation into the City, all utilities and services would be designed to City standards assuming city-provided services. Utilities would be sized to support buildout of the UCP area and would not be designed to facilitate extension of utilities east of the UCP boundary. As indicated in the 2001/2004 UCP EIR, the policies included in the UCP are intended to prohibit the provision of infrastructure capacity to areas outside of the UCP and/or the UC Merced campus, which would otherwise induce population growth on nearby lands. The proposed utility improvements are intended to serve development within the UCP area and not future development beyond the project. The project would directly connect to existing utility infrastructure (water, wastewater, natural gas, and electricity) and would not facilitate additional development through expansion of regional facilities (e.g., water treatment plants, wastewater treatment plants, electrical substations) beyond that which was planned for within the City or County general plans. This plan is consistent with the plans for infrastructure evaluated in the 2001/2004 UCP EIR. Therefore, the potential for the UCP Update and VST Specific Plan to indirectly result in population growth would be similar to the growth evaluated in the 2001/2004 UCP EIR.

Buildout of residential units under the VST Specific Plan would increase the population in the plan area and the commercial uses would further increase employment opportunities in the plan area. Both the City and County have planned for population growth within the VST plan area. This housing is intended to accommodate growth induced by the UC Merced campus and would be developed over time in response to market demand. Buildout of the VST Specific Plan would not exceed the amount of development allowable under the Adopted UCP. Therefore, the UCP Update would not result in new or substantially more severe impacts and this topic is not addressed further in this Draft SEIR.

1.4 PUBLIC REVIEW PROCESS

As identified above in Section 1.3, "Scope of the Environmental Analysis," in accordance with CEQA regulations, an NOP was distributed on January 14, 2022, to responsible agencies, interested parties and organizations, and private organizations and individuals that could have interest in the project. The purpose of the NOP was to provide notification that an SEIR for the UCP Update and VST Specific Plan project was being prepared and to solicit input on the scope and content of the document. Comment letters were received in response to the NOP from the California Department of Fish and Game, the University of Merced, and the Native American Heritage Commission. These comments are addressed in Chapter 3, "Environmental Impacts and Mitigation Measures," of this SEIR. The NOP and responses to the NOP are included in Appendix A of this Draft SEIR.

1.4.1 Public Review of this Draft SEIR

This Draft SEIR is being circulated for public review and comment for a period of **45 days**. During this period, comments from the general public, organizations, and agencies, may be submitted to the lead agency. Please send all comments to:

Tiffany Ho, Deputy Director of Planning
Community and Economic Development Department
2222 M Street, 2nd Floor
Merced, CA 95340
(209) 385-7654 x4407
Tiffany.Ho@countyofmerced.com

Agencies that will need to use the SEIR when considering permits or other approvals for the project should provide the name of a contact person, phone number, and email address. Comments provided by email should include the name and physical address of the commenter.

A copy of this Draft SEIR has been posted on the County's website:

<https://www.countyofmerced.com/414/Environmental-Documents>. The 2001/2004 UCP EIR is also available for review.

Upon completion of the public review and comment period, a Final SEIR will be prepared that will include both written and oral comments on the Draft SEIR received during the public-review period, responses to those comments, and any revisions to the Draft SEIR made in response to public comments. The Draft SEIR and Final SEIR will comprise the SEIR for the project.

Before adopting the UCP Update and VST Specific Plan Project, the lead agency is required to certify that the SEIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the SEIR, and that the SEIR reflects the independent judgment of the lead agency. Upon certification of an EIR, the lead agency makes a decision on the project analyzed in the EIR. A lead agency may: (a) disapprove a project because of its significant environmental effects; (b) require changes to a project to reduce or avoid significant environmental effects; or (c) approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (State CEQA Guidelines Sections 15042 and 15043).

1.5 DOCUMENT ORGANIZATION

This Draft SEIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Chapter 3, “Environmental Impacts and Mitigation Measures” and Section 3.6, “Energy”):

The “Executive Summary.” This chapter introduces the UCP Update and VST Specific Plan project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to less-than-significant levels.

Chapter 1, “Introduction.” This chapter provides a description of the lead and responsible agencies, the legal authority and purpose for the document, and the public review process.

Chapter 2, “Project Description.” This chapter describes the location, background, and goals and objectives for the UCP Update and VST Specific Plan project and describes the project elements in detail.

Chapter 3, “Environmental Impacts and Mitigation Measures.” The sections within this chapter evaluate the expected environmental impacts generated by the UCP Update and VST Specific Plan Project, arranged by subject area (e.g., Land Use, Hydrology and Water Quality). Within each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the project are then evaluated for each subject area. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, etc.). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.2-2 would be Mitigation Measure 3.2-2.

Chapter 4, “Alternatives.” This chapter evaluates alternatives to the UCP Update and VST Specific Plan Project, including alternatives considered but eliminated from further consideration, the No Project Alternative, and an alternative development option. The environmentally superior alternative is identified.

Chapter 5, “Other CEQA Sections.” This chapter this chapter includes a discussion of the significant environmental effects that cannot be avoided if the proposed project is implemented and the significant irreversible environmental changes that would be caused by the project.

Chapter 6, “Report Preparers.” This chapter identifies the preparers of the document.

Chapter 7, “References.” This chapter identifies the organizations and persons consulted during preparation of this Draft SEIR and the documents and individuals used as sources for the analysis.

2 PROJECT DESCRIPTION

Merced County is evaluating the proposed VST Specific Plan and related actions to implement the project. Concurrent with the VST Specific Plan, the University Community Plan (UCP) would be amended to establish consistency between the UCP Update and the VST Specific Plan with the City of Merced General Plan and the UC Merced Long Range Development Plan (LRDP). The County adopted the UCP in 2004 (the “Adopted UCP”) as part of an extensive public process. The proposed update and amendment of the UCP (the “UCP Update”) would remove the portion of the UCP area now exclusively owned by the University of California (UC) from the UCP, expand the UCP area east so that it is consistent with the adopted LRDP, and update the land uses concurrent with those proposed in the VST Specific Plan.

Nested within the UCP area, the proposed VST Specific Plan area is a land use, circulation, and development plan for approximately 654 acres. The VST Specific Plan is intended to meet the requirement for a specific plan, as directed by the UCP. The VST Specific Plan includes four main land use categories: residential, employment, parks/open space, and public facilities. The plan also provides for a network of new roads, including roads with Class IV bicycle lanes. More details about these uses are provided below. Other actions related to the VST Specific Plan are the potential annexation of the VST Specific plan area to the city of Merced, a development agreement, a subdivision map for Phase 1 of the VST Specific Plan, and other actions described in Section 2.7, “Required Discretionary Actions,” which summarizes the intended uses of SEIR.

2.1 LOCATION

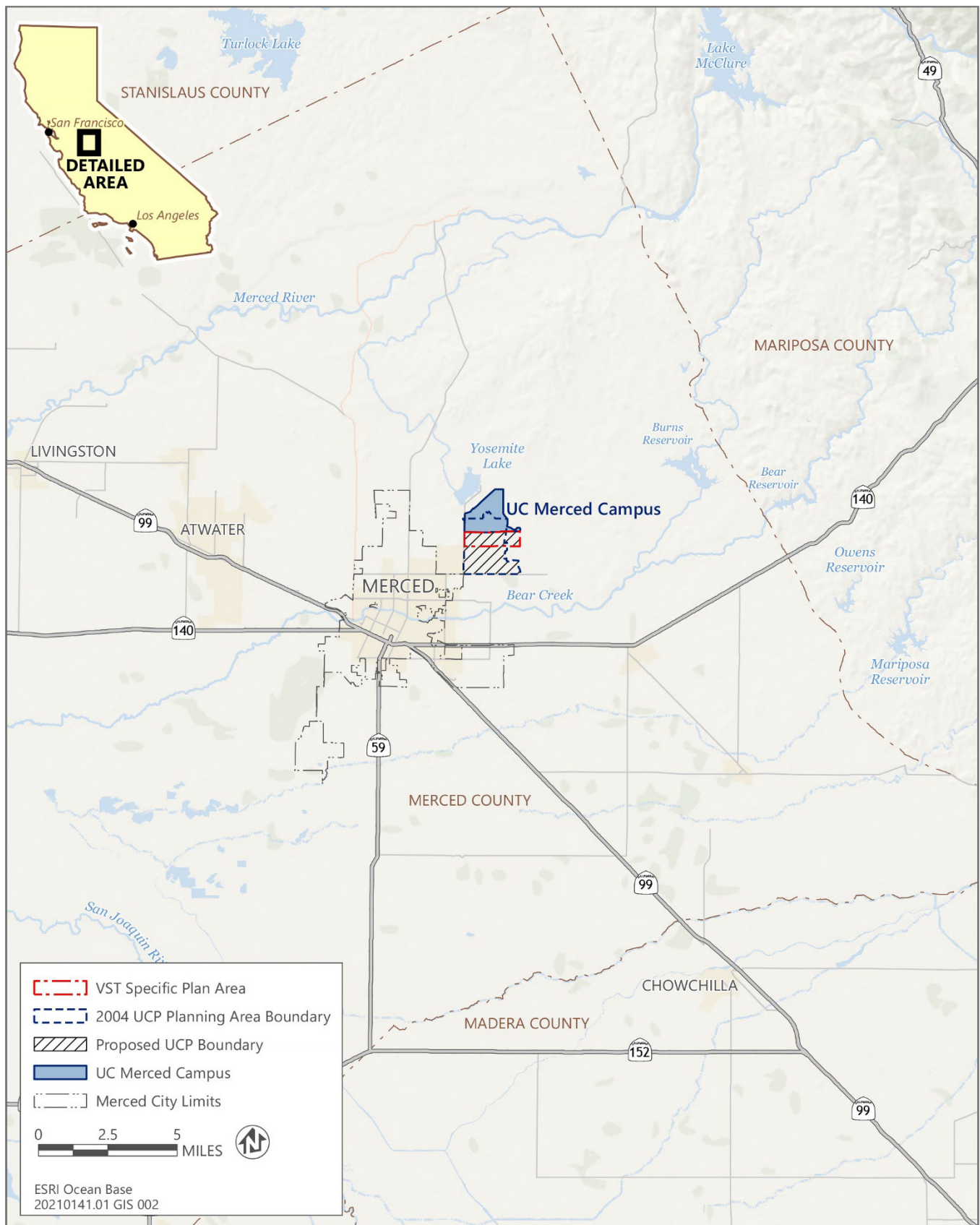
The UCP area is located in unincorporated Merced County, northeast of the city of Merced and within the City’s sphere of influence (SOI) (Figure 2-1 and Figure 2-2). The UCP area is bounded by Lake Road on the west, UC Merced property (specifically the proposed UC Merced Campus Expansion Area) on the north, the Orchard Drive alignment (north of Cardella Road) and the Fairfield Canal (south of Cardella Road) on the east, and Yosemite Avenue on the south (Figure 2-2). The UCP area would be divided by an extension of Cardella Road; the land north of Cardella Road to UC Merced (previously referred to as the “UCP North”) would encompass the VST plan area, and the land south of Cardella Road to Yosemite Avenue would remain in the portion of the UCP area referred to as the “UCP South” area.

2.2 EXISTING CONDITIONS

Existing land uses surrounding the UCP area include a ranchette-style single-family rural residential development west of Lake Road, the UC Merced campus to the north, and grazing land to the east. Agricultural activities occur in the VST plan area. Approximately 554 acres of the VST plan area are planted in almond orchards. An irrigation basin and associated utility/maintenance structures are located on the north-central portion of the site just east of the Fairfield Canal. Aside from structures associated with the basin, there are no buildings in the VST plan area. The UCP South area is also used for agricultural activities, including tree crops and a residence.

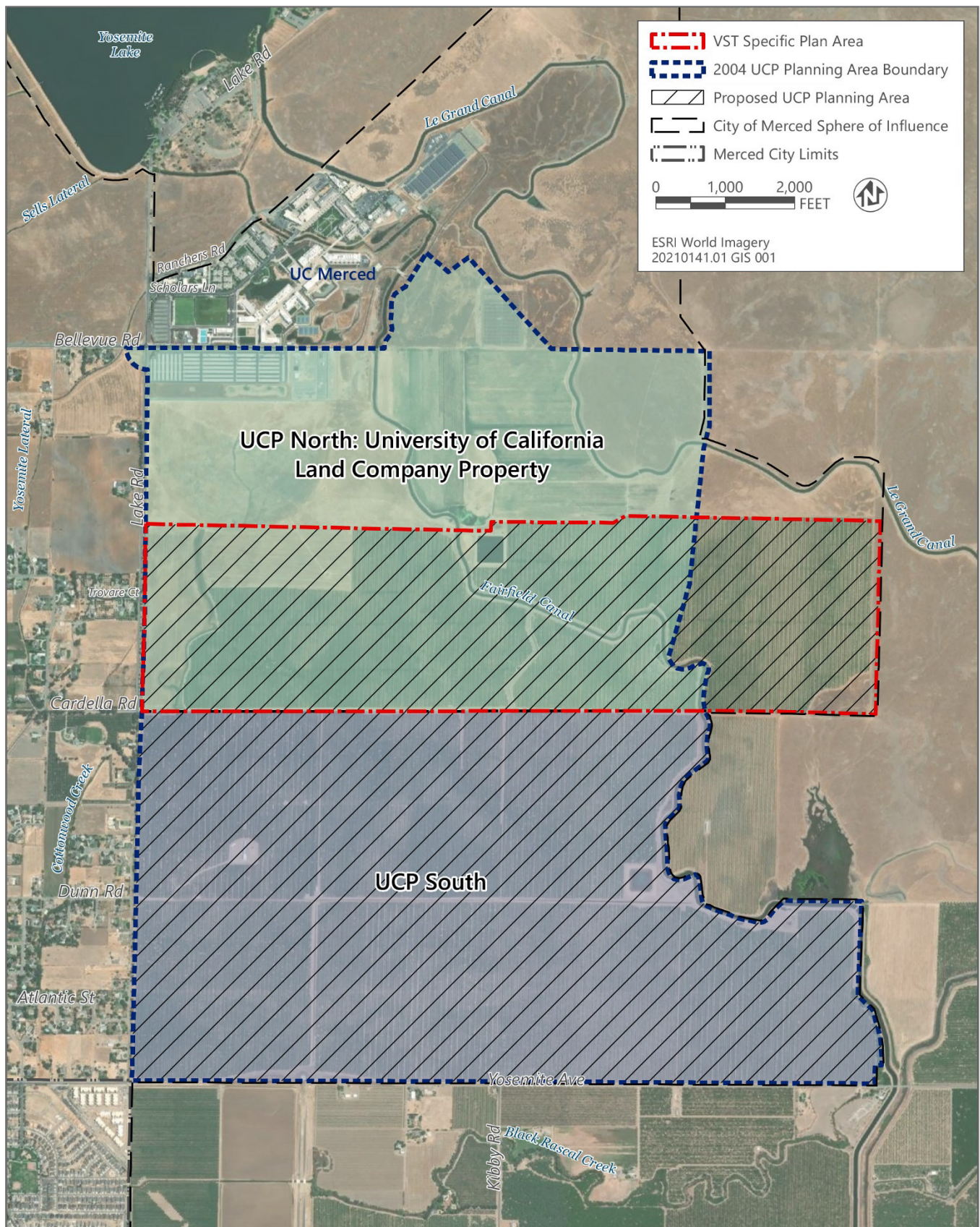
2.3 BACKGROUND AND PURPOSE

In 1995, the State of California selected Merced as the location for the 10th UC campus. The selection of the campus location and subsequent planning for the university led to an effort to comprehensively plan the campus and the supporting area to the south. That process started with the development of the Adopted UCP in 2004 and the formation of the University of California Land Company LLC (UCLC), a joint venture between the VST and the UC Regents. At that time, the UCLC owned a portion of the Adopted UCP area referred to as UCP North (see Figure 2-2).



Source: Data downloaded from Merced County in 2020.

Figure 2-1 Regional Location



Source: Data downloaded from Merced County in 2020.

Figure 2-2 University Community Plan and Virginia Smith Trust Specific Plan Area

The comprehensive planning and concurrent development of the UC Merced and VST properties were a material part of the site selection decision by the university trustees. VST was to donate the land to the state for the university, and both properties were to be part of a master planned community to complement the new campus, with an agreement that the proceeds from the development of the remaining land by VST would increase the size and reach of the trust's scholarship program in support of higher education. The UC Regents agreed and designated Merced and the Virginia Smith property as the site for the university. The proposed VST Specific Plan facilitates the final entitlement and sale of the remaining 654 acres of Virginia Smith's original 3,000 acres of property. The proposal would complete the last piece of the "Merced Promise" made to the UC Regents and would expand the reach of the Smith scholarship countywide.

The Adopted UCP was a cooperative effort of the City, County, state, and numerous local stakeholders. It was intended to be an area plan or community plan to address a specific geographic area of the county and to be a strategic plan for development of the UCP area. The Adopted UCP predated the UC's first LRDP and set the stage for the modification of City and County planning documents, as well as the development of the UC's first and subsequent LRDPs between 2009 and 2020. When the UCP was formulated, the UCP properties were somewhat remote from the City of Merced, and it was not considered possible that the properties could immediately annex to the City or be effectively served by City infrastructure and services. Although the City's 2015 General Plan (1997), which was in effect at the time of UCP adoption, recommended that the UCP and university annex to the City for development, the UCP did not contemplate annexation of the property to the City. Annexation of the UCP area was not permissible pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 because the plan area was not contiguous with the incorporated city.

Since the County adopted the UCP in 2004, many factors have changed, including substantial new development in North Merced. As part of the North Merced Annexation Study, the City prioritized development in North Merced at Bellevue and G Streets and on properties immediately adjacent to the UC Merced campus, including the VST plan area. Assembly Bill (AB) 3312, which passed in 2020, allows the City to annex the UC Merced campus along a road strip (Bellevue Road or Lake Road) without the adjoining properties between UC Merced and the city limits. In February 2021, the Merced City Council directed City staff to proceed with the annexation of the UC Merced campus to the City under the terms of AB 3312. If UC Merced is annexed into the City of Merced, the VST plan area would be eligible for annexation because the northern boundary of the VST plan area is contiguous to the university. Annexation and development of properties adjacent to UC Merced are also a priority in the Merced 2030 General Plan, and the City Council approved proceeding with preannexation activities and tasks for the VST plan area on November 15, 2021.

Although annexation to the City of Merced is contemplated for the VST plan area in the near term, VST submitted the VST Specific Plan and related entitlement applications with the County in accordance with the UCP. In the interest of cooperation between the City, County, the UC, and the Merced County Local Area Formation Commission (LAFCo), the City and County have each adopted a memorandum of understanding (MOU) so that the City may participate in the preparation and development of the VST Specific Plan, and address environmental considerations and infrastructure financing, ensuring compatibility with the City General Plan and the County General Plan during the pre-annexation entitlement review process. The Merced City Council approved the MOU on June 7, 2021, and the County Board of Supervisors adopted this MOU on June 8, 2021. The intent is for the VST Specific Plan's environmental document and entitlements to adequately cover the annexation of the entire VST Specific Plan area by the City following the annexation of UC Merced. Because the planning and environmental components of the VST Specific Plan are intended to apply to the entitlements established in the County and related City entitlements, the VST Specific Plan demonstrates compliance with the UCP, as amended, the County General Plan, as amended, and County development regulations, as well as compliance with the City General Plan (including special urban growth policies related to the development of UCP properties), development regulations, and housing regulations (including the City's inclusionary housing requirements).

2.3.1 2004 University Community Plan

The Adopted UCP covers a 2,133-acre area that includes the UC Merced campus, the UCLC property (also referred to as the “UCP North” portion of the Adopted UCP), and the UCP South (see Figure 2-2). As originally conceived, the UCP North was to be physically intertwined and abutting the UC Merced campus center so that there would be a seamless transition between the campus to the supporting community area. The Adopted UCP established goals and policies for development of a community to support the UC Merced campus, and included conceptual land use, circulation, parks, and public facility plans for the area. In total, the Adopted UCP contemplated the development of 11,616 dwelling units and 2,022,900 square feet (sq ft) of commercial area. The UCP North portion of the Adopted UCP, in which the VST plan area is located, is approved for 5,793 dwelling units and 1,632,900 sq ft of commercial and office space. The balance of the planned units was allocated to the UCP South area.

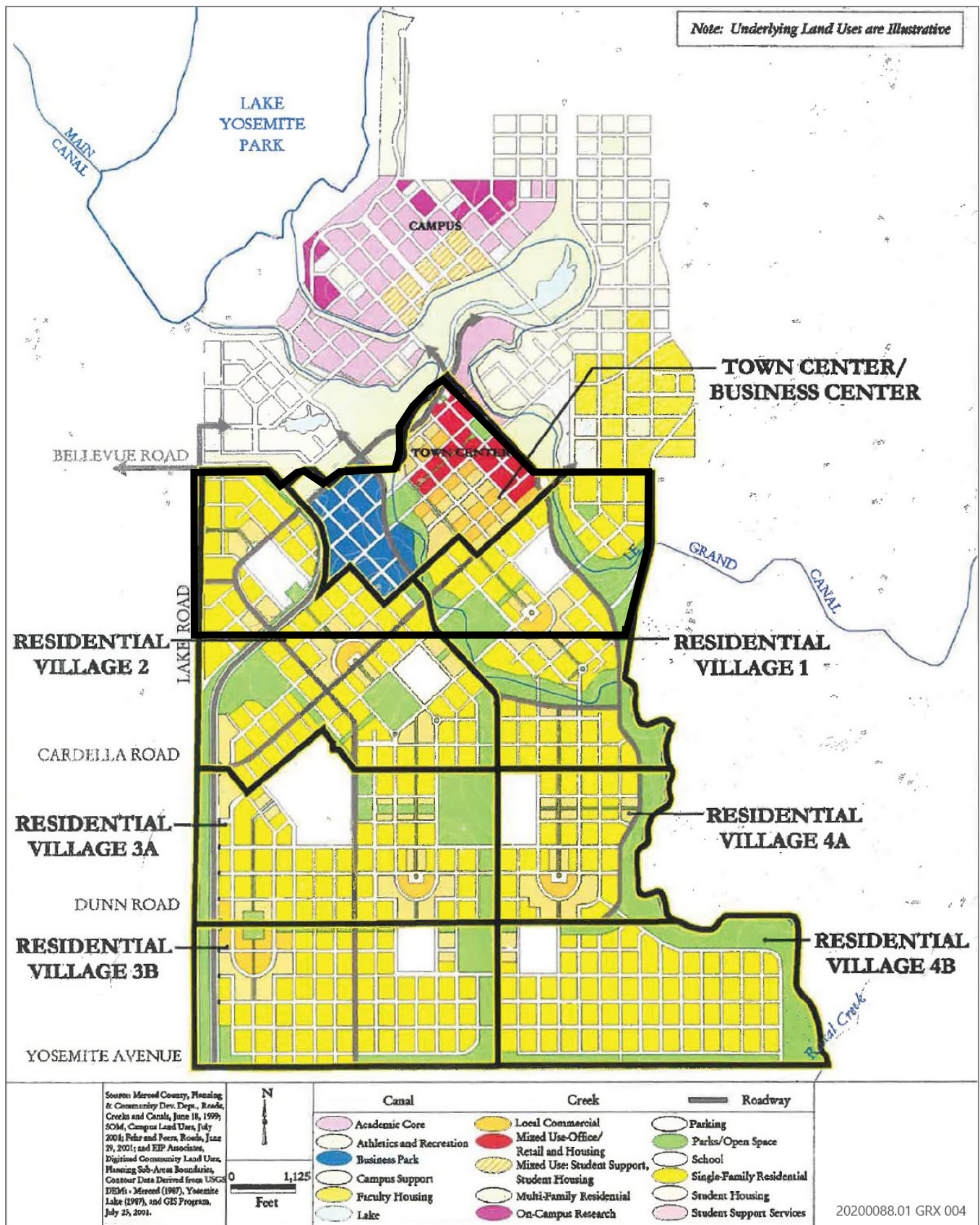
The Adopted UCP designates land within the UCP area in three categories, from north to south: the area north of Cardella Road is designated as Multiple Use Urban Development, the area between Cardella Road and Dunn Road is designated as Urban Reserve, and the area south of Dunn Road to Yosemite Avenue is designated as Agriculture. The ultimate land use diagram and phasing assumed in the Adopted UCP are provided in Figure 2-3. The Draft Land Use Planning Sub-Areas Diagram divided the UCP into six residential villages and a town center/business center. Residential Villages 1 and 2 are partially within the VST plan area, and the Business Center is entirely within the VST plan area. The Town Center is partially within the geographic extent of the VST Specific Plan.

The Adopted UCP offers a range of design concepts and policies intended to guide development for a consistent, cohesive, and connected community. It also prioritizes innovation, diversity, open space networks, and respect for existing business centers within the city of Merced. The Adopted UCP is designed to be implemented through submittal and approval of detailed plans that consider prevailing market conditions. The County is reviewing and processing detailed plans to establish consistency with the types and intensity of development limits and policies of the Adopted UCP. The County certified an EIR prior to adoption of the UCP (hereafter, the “2001/2004 UCP EIR”).

Changes to the Adopted UCP would revise the extent of the UCP area to reflect existing land ownership (deleting the areas that are exclusively owned by the State of California and subject to LRDP regulations), conform to current development regulations, modify and adopt a revised land use plan and circulation plan for the amended UCP area, amend and modify the policies of the Adopted UCP to conform with changing development regulations, and include new development policies that have been developed subsequent to the Adopted UCP (such as mitigation measures in the joint EIR/Environmental Impact Statement for the LRDP [referred to herein as the “2009 LRDP EIR”] that apply to the UCP area, and to bring the UCP into alignment with the 2020 LRDP). Policy changes to the UCP are summarized in Appendix C. Many policies have been rendered moot by new local or state regulations, or changes in local and state regulations, that have achieved the purposes of the policy. For example, current California Energy Code, California Green Building Standards Code (CALGreen), and other regulations meet or exceed the 2004 UCP requirements for energy conservation. By way of further examples, water conservation, stormwater management, and effluent generation are all more heavily regulated under state and local regulations than by the Adopted UCP. The City and County have also adopted new general plans, groundwater plans, and other documents to which the UCP area is subject that meet or exceed the Adopted UCP policies. Finally, because it is now envisioned that the property would be annexed to the City before any development occurs, many of the policies related to establishment of new utility districts and “governance” provisions are no longer necessary.

The following UCP amendments are proposed to reflect existing and proposed land uses and authority:

- The 469-acre property north of the VST Specific Plan area, which includes parts of Residential Villages 1 and 2 and the Town Center as planned in the Adopted UCP (see Figure 2-3) and which is currently exclusively owned by and under land use authority of the state and planned through the 2020 LRDP, would be removed from the UCP area.
- To encompass the entire VST Specific Plan area, 177 acres of land east of the Fairfield Canal would be added to the UCP area. This expanded area was included in the 2009 LRDP and is part of the City’s designated Specific Urban Development Plan boundary, and the SOI in the City’s Vision 2030 General Plan and approved by LAFCo.



Source: Image produced by EIP in 2001.

Figure 2-3 Adopted UCP: Draft Land Use Planning Sub-Areas Diagram; Area to Be Removed from UCP

- The land use designations and circulation plan in the illustrative land use diagram would be updated to reflect those in the VST Specific Plan. A revised circulation plan and land use diagram would also be adopted as part of the UCP Update, as well as a land use plan for the non-VST portion of the UCP area.
- Adopted UCP policies would be revised as necessary and appropriate to reflect the current conditions, current state and local regulations, future annexation of the property to the City of Merced, and the physical separation of the amended UCP from UC Merced.
- The amended UCP Policies would be adopted as presented in Appendix C.
- The Circulation Diagram for the UCP area, including the revised alignment of Campus Parkway through the UCP area, would be adopted. This amendment would also require amendments to the County General Plan Circulation Element to recognize the “urban expressway” designation and dimensions proposed for Campus Parkway in the UCP area.

2.3.2 UC Merced Long-Range Development Plans

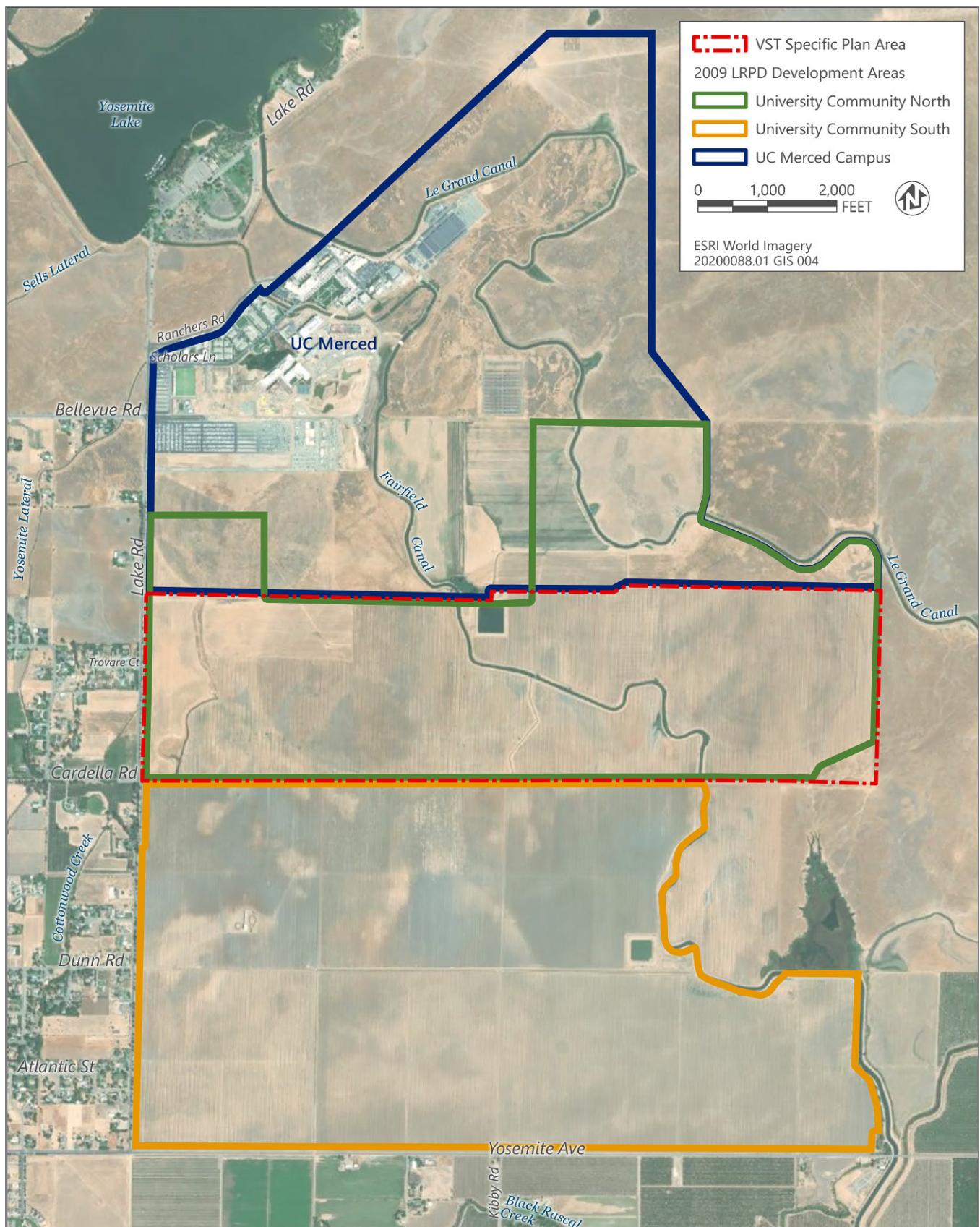
In 2009, the UC Regents adopted a land use plan for an 815-acre campus located north of the VST plan area. The LRDP established a UCP North area within the existing Adopted UCP that included the VST plan area. The 2009 LRDP modified the planned development area designated in the Adopted UCP to include 177 additional acres east of the Fairfield Canal (and a concurrent reduction of acreage north of the Le Grand Canal). The UC Regents evaluated the UCP North area as part of the 2009 LRDP EIR. The southern boundary of the UCP North area analyzed in the 2009 LRDP is Cardella Road, which is coterminous with the southern boundary of the VST Specific Plan (Figure 2-4).

Based on the 2009 LRDP EIR, the university and VST jointly completed Section 7 consultation with USFWS in furtherance of a biological opinion. UC and VST obtained certain permits and authorizations, including a Section 2081 Incidental Take Permit, a Section 401 Water Quality Certification, and a Section 404 permit for the areas covered by the 2009 LRDP. The UC Regents approved amendments to the LRDP in May 2013, July 2016, and April 2017. The 2017 LRDP was primarily focused on dissolving the UCLC and changing the ownership areas for VST and the university so that VST is now the exclusive owner of the VST plan area, and UC Merced is the exclusive owner of the UCP area north of Meyers Gate Road.

In March 2020, the UC Regents approved the 2020 LRDP (and certified the EIR), which superseded the 2009 LRDP. This new LRDP for UC Merced substantially modified enrollment projections (reducing the buildout enrollment from 25,000 to 17,500 students) and modified (and in some cases eliminated) the land uses and development planned for much of the former UCP North area. As a result, the 2020 LRDP plans for the development of 179 acres of the UCP North portion of UCP area, which is now owned by UC Merced, but does not include the VST plan area. The 2020 LRDP also includes additional land south of the original campus to Meyers Gate Road as part of the instructional area of the campus, revises the 2009 LRDP land use diagram to cover the revised campus site, allows for a more compact and sustainable development within the revised campus area, and provides for more flexibility in the siting of future development.

The 2020 LRDP will guide development of the campus through 2030 and provides an updated land use diagram that delineates campus land uses and identifies new development goals and implementation strategies. It also plans for the addition of up to 1.8 million sq ft of building space to serve the projected enrollment level of 15,000 students by 2030. In addition, the 2020 LRDP presents updated information on the projected impacts on water and wastewater treatment, the extent of development, and the anticipated numbers of on-campus students and staff based on the 15-year operating history of the university.

The long-term vision for UC Merced and the adjacent, supporting property is annexation into the City. An annexation agreement, first established in 2003, has been maintained to facilitate the eventual annexation of UC Merced. As explained above, annexation of UC Merced had not been permissible pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 because the UC Merced campus is not contiguous with the incorporated city. The City of Merced is currently in the process of annexing UC Merced under the provisions of the annexation agreement and AB 3312.



Sources: Developed by Ascent Environmental in 2020 based on Figure 2.0-2, "Campus and University Community Planning Areas," in the UC Merced and University Community Project Draft Environmental Impact Report/Environmental Impact Statement (USACE and University of California 2008).

Figure 2-4 2009 Long-Range Development Plan Area

2.3.3 County and City Planning

2030 MERCED COUNTY GENERAL PLAN

In 2013, Merced County adopted its updated general plan—the overarching policy document that guides land use, housing, transportation, infrastructure, community design, and other policy decisions in the county. The Adopted UCP is one of 10 community plans incorporated into the County General Plan. The general plan identifies the Adopted UCP as an Urban Community and recognizes that implementation would occur through the specific plan process. As shown in Figure 2-5, the general plan designates the western three-quarters of the VST plan area as Multiple Use Urban Development (MU) and the eastern one-quarter of the VST plan area as Agricultural (A). The project includes an amendment to the County General Plan to conform with the updates to the LRDP and city general plans that have designated the area east of the Fairfield Canal for urban development as part of the VST Specific Plan.

CITY OF MERCED VISION 2030 GENERAL PLAN

In 2012, the City of Merced adopted a new general plan with a 2030 horizon year, including urban expansion goals. The general plan recognizes the UC Merced campus, UCP North area, and UCP South area, as delineated in the 2009 LRDP (including the acreage added during the 2009 LRDP) as a proposed community plan. The Urban Expansion Chapter of the 2030 Merced General Plan provides guidance on the integration of the university and the community plan area with the city and prescribes the desire to annex the area at the earliest feasible date for the City to provide the municipal utility services, such as sewer and water. Based on the adoption of the 2030 General Plan, the entire area, including the additional 177 acres outside of the Adopted UCP area, has been included within the City's SOI/Specific Urban Development Plan boundary. The 2030 General Plan recognized the Adopted UCP "as a general conceptual framework for the planning of the University Community...[and that] the City should revise all of its various planning documents to accommodate the incorporation of the University Community into the City of Merced, including...plans for wastewater treatment, water, storm drainage, parks, fire protection, and other services."

2.4 PROJECT OBJECTIVES

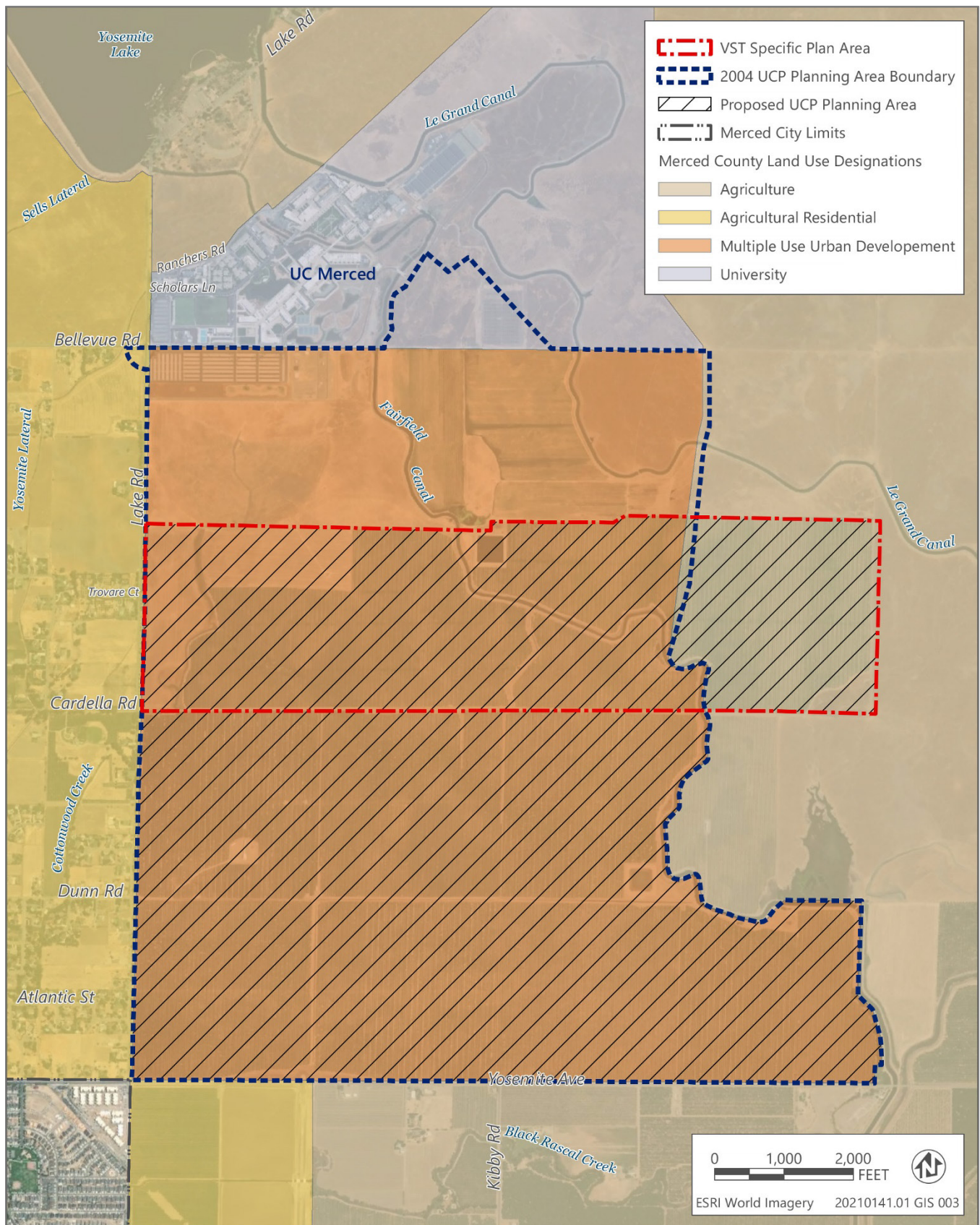
The State CEQA Guidelines require that an EIR include a statement of objectives for the project and that the objectives include the underlying purpose of the project. These objectives help the lead agency determine the alternatives to evaluate in the EIR (see CEQA Guidelines Section 15124[b]) and gauge whether alternatives or mitigation measures are feasible and would meet the basic project objectives.

2.4.1 Objectives of the UCP Amendments

The purpose of the UCP is to provide a planning framework for how lands are to be developed and important resources are to be protected and conserved, in anticipation of the growth and development associated with UC Merced.

The adopted objectives of the Adopted UCP are:

- to support the successful development of the University of California, Merced, campus by providing for a community that is physically contiguous to the campus and that includes appropriate and sufficient housing, commercial, industrial/business park, civic, and open space uses to meet the long-term needs of the campus and population;
- to provide adequate land and development opportunities to absorb the equivalent of 100 percent of the new growth demand generated by UC Merced over time;



Source: Data downloaded from Merced County in 2020.

Figure 2-5 2030 Merced County General Plan

- to provide a community that can be developed in an integrated fashion through a master developer rather than a fragmented subdivision process;
- to provide a community with patterns of land use and urban form that support principles of livable communities and environmental sustainability;
- to provide adequate circulation and utility infrastructure that supports the long-term sustainability of the UC Merced campus and University Community;
- to establish and support linkages and transitions that will integrate the University Community with greater Merced;
- to complement and support the economy on the City of Merced and the greater Merced region;
- to support the educational goals of the Virginia Smith Trust by enhancing its scholarship fund;
- to support regional programs to conserve and protect the County's important agricultural and natural resources as development of UC Merced and the University Community proceeds;
- to be configured and planned so that environmental permitting allows community development to proceed at the pace necessary to support campus development;
- to be affordable and financially feasible; and
- to support implementation of the Merced County General Plan.

These objectives remain the overarching objectives of the UCP. In addition, the proposed project modifications and UCP amendments are intended to:

- amend the Adopted UCP boundaries to reflect existing land ownership;
- reallocate the potential housing units attributed to land now owned exclusively by UC Merced to within the amended UCP boundaries without substantially changing the range of unit types;
- improve consistency between County and City general plans, and with the UC Merced LRDP;
- revise the Adopted UCP to conform to current development regulations;
- update the Adopted UCP land use plan to be compatible with adjacent development;
- update the Adopted UCP circulation plan to be compatible with existing standards and plans for regional infrastructure, including Campus Parkway;
- update the phasing program to reflect current market conditions and changes to the UCP boundaries; and
- develop a "university community" that meets the needs of UC's staff and students, as currently projected, including providing a range of housing opportunities appropriate for the local demographics and lifestyles.

2.4.2 Objectives of the VST Specific Plan

The objectives of the VST Specific Plan are to:

- provide a mix of land uses and a financially feasible phasing and implementation plan that will maximize the contribution to the VST scholarship endowment to provide college scholarships to county residents per the VST's charter and bylaws;
- provide a master planned community with community amenities that will attract students and retain highly skilled and educated staff;
- provide diverse town and neighborhood centers to offer local shopping and service opportunities for people of different ages, income levels, cultures, and education levels;

- provide increased housing density next to town centers and overall housing densities in conformance with Adopted UCP policies;
- provide a diversity of housing sizes, prices, and types to serve the full range of employees, instructors, staff, and students at UC Merced, consistent with the vision of the Adopted UCP;
- comply with the City of Merced’s RHNA housing production policies by providing sufficient units that would be restricted for affordability;
- provide diverse multimodal and active transportation alternatives and a network of bike paths, pedestrian paths, and transit connections;
- connect to UC Merced’s existing and planned circulation facilities to provide a seamless connection between the VST plan area and the UC Merced campus for pedestrian, bicycle, vehicle, and transit modes;
- create a continuous network of parks and open spaces; and
- prioritize livability, activity, and shared community space, with neighborhoods centered around parks and schools.

2.5 PLAN CHARACTERISTICS

2.5.1 Proposed Amendments to the UCP

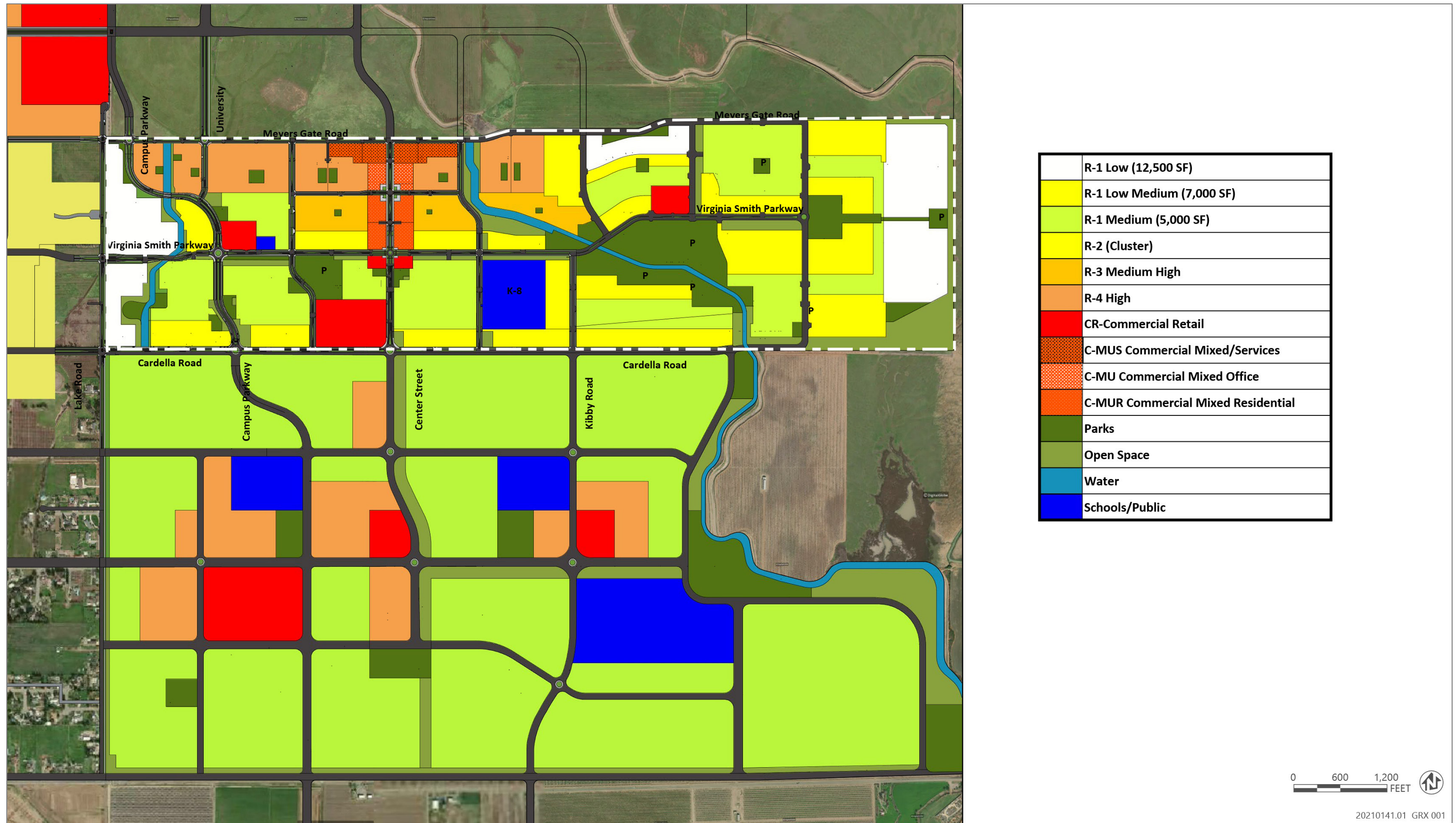
The UCP supplements the goals, objectives, and policies of the County of Merced General Plan to reflect the unique issues, planning vision, and objectives for development of the University Community. The proposed update to the Adopted UCP would modify the UCP boundary to exclude land within the planning boundary of UC Merced; revise the policy plan to reflect current conditions, regulations, and best practices; and update the land use and circulation diagram to reflect the land uses proposed within the VST Specific Plan and alignment of Campus Parkway.

LAND USE PLAN

The revised illustrative land use plan, as proposed, builds on the urban design concepts outlined in the Adopted UCP, reflects current conditions and demand, and reflects the changes that UC Merced has adopted in its 2020 LRDP. During the 18 years since the 2004 UCP was adopted, the following factors led to reconsideration of the land use plan: (1) office occupancies have not materially increased over the last 15 years, and post-COVID demand for additional office and business park space is expected to be limited; (2) the City of Merced has adopted the Bellevue Master Plan, which includes a substantial amount of office and Business Park space; (3) additional retail area has been designated in the vicinity; and (4) residential land uses have been modified to include the types and sizes that reflect current demographic conditions and local preferences.

Comparative Land Use Capacity of the UCP Area

Development potential for the UCP would be reduced with the proposed modifications. In total, the Adopted UCP covers a developed area of 2,133 acres, 11,616 dwelling units and 2,022,900 sq ft of commercial/office uses. The UCP Update is anticipated to encompass 1,841 acres, include approximately 9,700 dwelling units and 1,247,000 sq ft of commercial office use. Table 2-1 compares the development potential of the Adopted UCP and the proposed amendments. Figure 2-6 provides a conceptual land plan for the amended UCP. The development capacity for the UCP South property is not proposed to be modified by the UCP Update.



Source: Image provided by Peck Planning and Development, Virginia Smith Trust Land Plan in 2022.

Figure 2-6 Proposed UCP Land Use and Circulation Diagram

Table 2-1 Development Potential of the Adopted UCP and UCP Update

Land Use	Adopted UCP						UCP Update					
	Gross Acres	Net Acres	Percent	Density/Net Acre	Commercial (sq ft) ¹	Residential (units) ²	Gross Acres	Net Acres	Percent	Density/Net Acre	Commercial (sq ft) ¹	Residential (units) ²
Local Commercial	29.6	25.0	1.2%	16,440	411,000	—	40.4	34.1	1.9%	15,345	524,000	—
Office/Hotel	34.2	29.0	1.4%	26,766	776,000	—	23.2	19.6	1.1%	21,146	415,000	—
Mixed Use Commercial	23.5	20.0	0.9%	—	436,000	700	18.0	15.3	0.8%	20,098	308,000	100
Business Park	25.9	22.0	1.0%	—	400,000	—	—	—	0.0%	—	—	—
Parks/Open Space/Canal	284.2	256.0	12.0%	—	—	—	275.9	247.7	13.5%	—	—	—
School	130.5	110.0	5.2%	—	—	—	112.2	94.5	5.1%	—	—	—
Multifamily Residential	194.0	164.0	7.7%	23.9	—	4,000	174.3	147.3	8.0%	25.7	—	3,800
Single-Family Residential	1,176.5	968.0	45.4%	7.2	—	7,000	996.0	823.6	44.7%	7.0	—	5,800
Major Roads	243.5	234.5	11.0%	—	—	—	201.1	201.1	10.9%	—	—	—
Minor Roads	-	304.5	14.3%	—	—	—	-	257.9	14.0%	—	—	—
Total	2,133.0	2,133.0	100.0%	—	2,023,000	11,700	1,841.0	1,841.0	100.0%	—	1,247,000	9,700

Notes:

¹ Rounded to the nearest 1,000.² Rounded to the nearest 100.

Source: Provided by Peck Planning and Development in 2020.

Proposed Policy Modifications

The proposed amendments to the UCP would include minor revisions and renumbering of policies, deletion of policies that are no longer needed, and addition of policies. The following discussion summarizes the key policies changes proposed in the UCP Update. The UCP Update is included as Appendix C.

In the Community Development portion of the UCP, Policies LU 2.5, LU 2.6, LU 2.7, LU 2.11, LU 2.12, and LU 2.12, which are related to sequential phasing of the UCP development, would be replaced by the requirement for a Specific Plan for each property with subarea phasing within each specific plan. Policy LU 3.2 would be revised to remove reference to the University Community Town Center, which had been partially planned on land that is now part of UC Merced and owned exclusively by the state. Similarly, Policies LU-3.5, LU-3.7, LU-4.1, LU-5.4, LU-5.12, and ED 8.3, which are related to planned integration with the UC Merced campus and LRDP, would be deleted. In addition, Policies LU 6.3 through LU 6.7 and ED 12.1, which are related to the previously envisioned Business Center, would be removed because the Business Center is no longer part of the UCP. With regard to the policies related to the “integration” of the UCP and LRDP areas, these areas are no longer physically intertwined, but the circulation and other functional systems are closely coordinated. The dissolution of the UCLC in 2017 eliminated the legal feasibility of “integrating” the physical development plans.

Policy LU 11.2, related to the use of recycled materials, Policy LU 11.4, which addresses the use of treated wastewater, Policy 11.5, which promotes the use of native and drought-tolerant landscaping, and Policy LU 11.6, which relates to the use of energy-efficient fixtures, would also be removed. Similarly, Policies H 7.2 and H 7.3, which relate to water conservation and “green” housing, would be removed. The requirement for use of recycled materials is now part of CALGreen and is no longer necessary. Policy LU 11.4, which relates to the use of treated wastewater, is no longer feasible because the VST Specific Plan area would connect to the City’s wastewater collection and treatment system and the City does not have a recycled water system. Policy LU 11.6, which has been deleted because it is vague and nonquantitative, has been superseded by CALGreen and the 2019 and 2022 Energy Codes. Policies H 7.2 and H 7.3

have similarly been rendered moot by CALGreen and the state energy codes, neither of which existed in 2004, when the UCP was originally adopted.

Housing policies removed in the UCP Update would include Policies H 1.4 and H 3.4, which require monitoring of UC Merced's housing needs every 5 years; Policy H 1.6, which requires that consistency be maintained among the subarea specific plans; and Policy H 2.6, which encourages innovative building types, configuration, and materials for student housing. Policy H 1.4 has been satisfied through the designation of the land use for housing. The County, homeowners and residents of the VST Specific Plan, or the UC do not generally have the organizational, technical, or regulatory capacity to monitor the special housing needs. This is completed by the County through development and update of the Housing Element in the general plan. The Countywide Regional Housing Needs Allocation plan will complete this task on a regular basis, and it is not necessary for the UCP to direct that it be done. The broad direction in Policy H 2.6 does not provide additional detail or information beyond that already contained in the Housing Element. Therefore, removal of Adopted UCP Policies H 3.4 and H 2.6 would clarify jurisdictional authority but would not result in substantial changes in potential housing allocation.

Related to affordable housing, Policy H 5.1.12, which expands use of federally funded certificates or vouchers to rent payments, and Policy H 5.1.17, which requires that housing affordability levels be monitored, would be removed. H 5.1.12 is not feasible to implement at a community plan level and is because it relates to a federal budgetary decision, not a local decision. Policy ED 7.3, which is related to developing a program for implementation of an affordable housing fee, would also be removed. These affordable housing policies would be replaced with compliance with the County and City inclusionary housing requirements. Policies H 6.1, H 6.2, and H 6.3, which encourage a mix of housing types with varied architecture and encourage orienting housing to the street to foster community activity, would be removed. These three policies are proposed to be deleted because they repeat similar land use policies, including Policies H 2.2, LU 7.15, and LU 7.16, and lack clear standards for compliance.

Several policies in the Community Infrastructure and Services discussion that addressed developing separate street, bikeway, and pedestrian master plans (T 1.2), establishing bicycle parking standards (T 4.4), and working to install bicycle racks on buses (T 4.5) were removed because these policies and regulations are currently contained in CALGreen and other building codes. Policies related to coordinating transit service and passes with UC Merced (Policies TR 5.4 and TR 5.6) would also be deleted because these services currently exist independent of the UCP. Several policies related to parking (T 6.2, T 6.4, T 6.6, and T 6.7) would be deleted because they are no longer necessary given the distinct boundary between the UC Merced campus and the UCP Update. Policies T 7.1 through T 7.4, related to encouraging use of transportation demand management strategies, would be removed. Policy T 7.1 is no longer necessary or relevant because Office and Business Park uses would be deleted from the UCP. Policy T 7.2 is proposed to be deleted because it relates to on-campus parking. The UCP area and the LRDP area no longer overlap, and campus parking is provided for in the LRDP. The Town Center and the core of UC Merced campus are now separated by 0.5 mile, and the extent of the development portion of the 2020 LRDP indicates that the university and Town Center would be approximately 0.25 mile apart. Shuttle and transit service would be provided by City and UC Merced bus services, and the VST Specific Plan has identified transit stops. Policy T 7.3 requires development of a ridesharing program that has already been developed and is operating. Finally, Policy T 7.4 is no longer necessary because CALGreen and other current building codes require these facilities.

Policy IW 1.10 would be revised to reflect the connection to sewer services provided by the City of Merced, and related Policies IW 1.11 and IW 8.2 through IW 8.5 would be deleted. Similarly, Policy IW 2.5 would be revised to reflect City water service and compliance with the City's improvement standards. Policies IW 12.6, IW 13.1, and IW 13.4, related to on-site water supply infrastructure, would be removed. The UCP Update would not include beneficial reuse of wastewater because there would not be an on-site wastewater treatment plant, and Policies IW 4.1, IW 4.5, IW 4.6, IW 4.7, IW 5.4 through IW 5.8, and IW 6.1 would be removed. Policies IE 1.1 through IE 1.6, related to development of a reliable energy supply, would be removed, as would Policies IE 3.1 through IE 3.9, related to energy efficiency. These policies are proposed for deletion because state energy efficiency standards are stringent, and building regulations are already set at a level that results in net lifecycle savings for building occupants. Increasing energy efficiency beyond established levels, although common in the past, is no longer feasible because energy regulations are already set at the "break-even" point for upfront costs and long-term savings, as determined by the California Energy

Commission. In 2004, when the UCP was first adopted, there were limited energy regulations, and an increase of 15 percent, as specified in the policy, was considered a feasible “reach” goal. Because state energy code standards already exist, Policies IE 3.2 through IE 3.9 are no longer necessary. Policies ISW 1.1 and ISW 1.2, regarding solid waste service, and Policies ISW 2.1 through ISW 2.7, related to solid waste generation, would be removed because equivalent solid waste reduction is now required by state laws and regulations.

Policy S 1.4 would be deleted. This policy requires a separate University Community Grading and Geotechnical Standards Manual. This requirement is considered unnecessary in light of the County’s and City’s existing standards. The noise standards established in Policy N 1.1 would be revised to lower the exterior noise standard for sensitive uses and establish interior noise standards; redundant Policies N 2.2 and N 2.3 would be removed. Policies related to operation of the airstrip (N 2.7 and AS 1.1) would be removed because the private airstrip is no longer in use. Policies related to coordinating with UC Merced to provide recreational amenities (ALY 1.1 through ALY 2.6) would also be deleted.

Policies that would require the County to cooperatively plan for development of the area between the City and the UCP area (ARM 1.1, ARM 1.2, ARM 1.3, and ARM 2.1) have been removed because development of this area is no longer a high priority for the City. The North Merced Annexation Study demonstrated limited support for wholesale annexation and development of the area. Further, this policy framework was formed to facilitate the annexation of UC Merced and the UCP through a conventional “contiguous” annexation. The adoption of AB 3312 by the California Legislature has eliminated the necessity for policies that support conventional annexation.

2.5.2 Proposed VST Specific Plan

The proposed VST Specific Plan re-envisioned the portion of the UCP owned by VST so that it would be more responsive to expected market conditions, while preserving the basic components of the UCP: commercial uses, the town center concept, and relatively high-density housing. The specific plan revises density and intensity of these uses compared to what was previously proposed. It also adjusts timing and phasing for installation of parks and public services to appropriately meet demand. Transportation facilities, including roads and bike paths, would be reconfigured in the VST Specific Plan to better serve the VST plan area and existing and planned surrounding land uses. Also, with the passage of AB 3312, VST is now seeking annexation into the City of Merced.

The specific plan is intended to satisfy the UCP requirement for a specific plan for each “village” within the UCP. The Merced County Board of Supervisors directed staff to initiate review of the VST Specific Plan on March 2, 2021. The specific plan includes a description of the overall land use plan and site design to provide 3,860 residential units at varying densities and supporting commercial uses. Table 2-2 summarizes the development anticipated with implementation of the VST Specific Plan. Appendix B includes the Specific Plan document.

Following the guidance in the Adopted UCP, many “green” design features are included to address changes in the state and local building codes. The following features are included in the VST Specific Plan:

- **Limited use of natural gas.** The VST Specific Plan includes policies requiring that all new residential units be electric, and all other uses have limited use of natural gas. Natural gas is assumed to be used in commercial, office and institutional uses for commercial cooking, industrial process, back-up and emergency power and other uses. Space heating and water heating would be from electricity for such uses, not from natural gas.
- **Building energy efficiency standards.** The VST Specific Plan has special energy-saving design requirements to comply with the 2022 building code. Special design requirements include the use of advanced framing/engineering (wider stud placement for decrease in transmission loss and reduction in required framing lumber), quality insulation installation to minimize envelope and duct seal energy losses, compact plumbing to minimize plumbing runs and distance between hot water taps and water heaters, and use of US Environmental Protection Agency (EPA) WaterSense fixtures to reduce indoor water use.
- **On-site energy generation.** The VST Specific Plan includes a requirement that on-site photovoltaic (PV) solar generation would be used to obtain the energy required to meet 100 percent of the electrical demand. Residential buildings in the VST plan area would include a combination of solar canopies, rooftop solar panels,

and solar shingles. Single-family units must provide a roof area adequate for the solar array (equivalent of 275–300 sq ft per unit of tilted south-facing roof area).

- **Electric vehicle (EV) and transit infrastructure.** Transit use would be encouraged through designation of transit stops, plus information and/or incentive packages for transit ridership. In addition, the project would comply with CalGreen Tier 1 non-mandatory requirements for EV charging as detailed in Section 13.1 of the Specific Plan.
- **Enhanced pedestrian and bicycle connectivity.** Vehicle lanes would be 10 feet wide, while bicycle lanes would be 8 feet wide, creating a buffered bike lane standard. These buffered bike lanes would occur on all internal collector, arterial, and expressway streets. Special at-grade “speed table” pedestrian street crossings would also be included. These street crossings provide for traffic calming and a continuous walking experience. Finally, pedestrian through connections have been specified along and between residential blocks. This results in a pedestrian intersection density of more than 500 intersections per square mile, which is more than the standard established by Leadership in Energy and Environmental Design and the Smart Growth Coalition.

Table 2-2 Development Potential of the VST Specific Plan

Land Use Type	Number of Units	Floor Area (sq ft)	Acres
Residential			
R-1	1,277	—	—
R-2	480	—	—
R-3	504	—	—
R-4	1,484	—	—
Village Commercial Mixed Use	108	—	—
Total Residential	3,857	—	440
Commercial			
Village Mixed Use	—	582,500	24.8
Neighborhood Commercial/Retail	—	104,500	7.2
Community Commercial	—	175,000	12.0
Total Commercial	—	862,000	44.0
Parks and Recreation			
Open Space	—	—	15.5
Parks (2 Community Parks, 39 Pocket and Miniparks, a Community Recreation Center, and a Regional Sports Park)	—	—	97.8
Total Parks	—	—	113.3

Source: Provided by Peck Planning and Development in 2022.

FEATURES OF THE VST SPECIFIC PLAN

The VST plan area would provide services including a day care, drug stores, restaurants, schools, an upscale convenience store, a bank, several places of worship, a fitness center, medical and/or dental services, personal-care services, and a full-service supermarket. As planned, all of these services would be located within biking or walking distance of UC Merced and the approximately 3,860 residential units within the plan area. An integrated web of pedestrian and bicycle pathways would be developed that includes the public street system, dedicated pedestrian pathways, and riparian bike paths. As envisioned in the UCP, UC Merced and the VST plan area would be an integrated community that includes close-by employment and adequate commercial services to meet the needs of the residents and university.

To establish these needed services and facilities, the VST plan would include the development of two small convenience commercial centers; a community shopping center; a mixed-use village center for offices, personal

services, and mixed-use residential uses; pocket and neighborhood parks that are within two blocks of any residential unit; eight miniparks within one-eighth mile of residential units; a community recreation center and a sports park; and a K–8 elementary school and Merced Scholars Charter School.

Land Use Framework

This VST Specific Plan contains a Land Use Framework that includes the planned land use pattern, proposed development densities in each subarea on the VST plan area, and development phasing. The Land Use Framework identifies uses allowed and standards for each subarea. In addition, it includes general site planning and development standards that specify the requirements for all development and land uses regardless of the applicable land use designation, including standards related to sensitive resources; site access requirements; energy efficiency; fences, walls, hedges, buffers, and other screening; noise regulations; outdoor lighting standards; performance standards related to topics that include air quality, glare, and vibration; and undergrounding of utilities. The Land Use Framework also includes a planned housing mix in the VST Specific Plan area that is consistent with the County's General Plan, the UCP Update, the County Housing Element, the City's Housing Element, and City guidelines for the inclusion of various types of housing in larger development projects.

The VST Specific Plan land use plan designates 440 acres of residential land uses, 113 acres of open space and parks, 20 acres for a K–8 elementary school, 44 acres for commercial development, and 79 acres for roads and other improvements (Figure 2-7). This acreage would allow for the development of approximately 3,900 residential units and 862,000 sq ft of commercial buildings. Low-, medium-, medium-high-, and high-density residential developments would be constructed along planned collector and residential roadways. A community recreation center would be included, along with 39 mini-parks and pocket parks, two community parks (one for each development phase), and a 36-acre regional sports park.

As mentioned above, the VST Specific Plan designates the plan area with four main land use categories: residential, employment, parks/open space, and public facilities. Each of these categories is discussed in detail below. Figure 2-7 shows the land use plan. Table 2-2 provides a detailed breakdown of the specific land use types.

Residential

The VST Specific Plan mix of residential uses is designed to meet the housing demand of the specific demographics of local residents, including UC Merced staff and students. The housing products allowed under the specific plan's various residential designations include "R-1 Low" housing units averaging 3,250 sq ft on lots of 12,500 sq ft or greater near the edges of the VST Specific Plan area, to smaller 775-sq-ft units in the Town Center over retail and service uses, as well as a wide variety of housing types and sizes in between. R-1 Low-Medium units are characterized as having an average square footage of 2,750 sq ft on lots ranging in size from 7,000 sq ft to 10,000 sq ft and would be consistent with typical housing in the Merced area. The VST Specific Plan would also introduce a substantial number of "cluster" or "pocket" housing types, which are single-family detached units with shared driveways and common front yard paseos. These are single-family detached units with housing sizes from 1,200 sq ft to 2,000 sq ft on lots ranging in size from about 5,000 sq ft (R-1 Medium, Cluster) to 3,500 sq ft (R-2, Cluster). These units provide a more communal arrangement, less intense local street infrastructure, and a streetscape that has limited (if any) driveway dominance. There are also two higher-density product types: an R-3 attached condominium/townhome and R-4 apartments in a stacked flat arrangement. The VST Specific Plan would provide a substantial number of housing units that are affordable to families with very low, low, moderate, and "workforce" incomes (80–160 percent of City median family income).

As shown in Figure 2-7, the highest-density residential types proposed in this plan would be concentrated near commercial and retail corridors, primarily in the northern boundary and central areas of the specific plan area, which provide the closest and most direct access to UC Merced. Medium- and low-medium-density residential types would be spread throughout the specific plan area; however, the low-density residential uses would be clustered along the eastern and western VST Specific Plan area boundaries, with a small cluster along the northern boundary, to provide a transition to the Rural Residential 1-acre lots west of Lake Road and to the agricultural land uses to the northeast and east. Implementation of the VST Specific Plan is projected to generate approximately 11,110 new residents.

Low Density Residential (R-1)

The Low Density Residential (R-1) designation allows the development of single-family detached units. Densities include R-1 Low (Estate Residential, 12,500-sq-ft minimum lot size), R-1 Low Medium (7,000-sq-ft minimum lot size), R-1 Medium (4,500-sq-ft minimum lot size), and R-1 Medium-Cluster (4,500-sq-ft minimum lot size in a cluster configuration with shared driveways). At buildout, it is expected that there would be 148 R-1 Low units on 59 acres, 357 R-1 Low Medium units on 84 acres, 693 R-1 Medium units on 116 acres, and 79 R-1 Medium Cluster units on 12.6 acres. All but the cluster units would be configured as units with front- or side-loaded garages. Average dwelling unit sizes are expected to range from 3,750 sq ft for the R-1 Low units to 1,900 sq ft for the R-1 Medium Cluster units. Potential unit sizes would range from 1,550 sq ft to 4,500 sq ft.

Medium Density Residential (R-2)

The Medium Density Residential (R-2) designation would be primarily four-pack and six-pack cluster units that would create small-lot detached single-family units. Total R-2 development in the area is projected to be approximately 480 units on 55 acres, with maximum potential development of 12 units per net acre. The R-2 units may be in several different configurations, and development would comply with the design standards in the VST Specific Plan. This designation would provide small-lot moderate-income and “work force” housing with housing sizes and corresponding initial sales prices aimed at those families with incomes equal to 80–160 percent of area median family income. Because of their special configuration, these units would be located along major streets, including Virginia Smith Parkway and Cardella Road, and as cluster units around parks. They can side or front on to these roads without the need for individual driveways from those roads and can be configured to minimize any vehicle-related noise impacts.

Medium-High Density Residential (R-3)

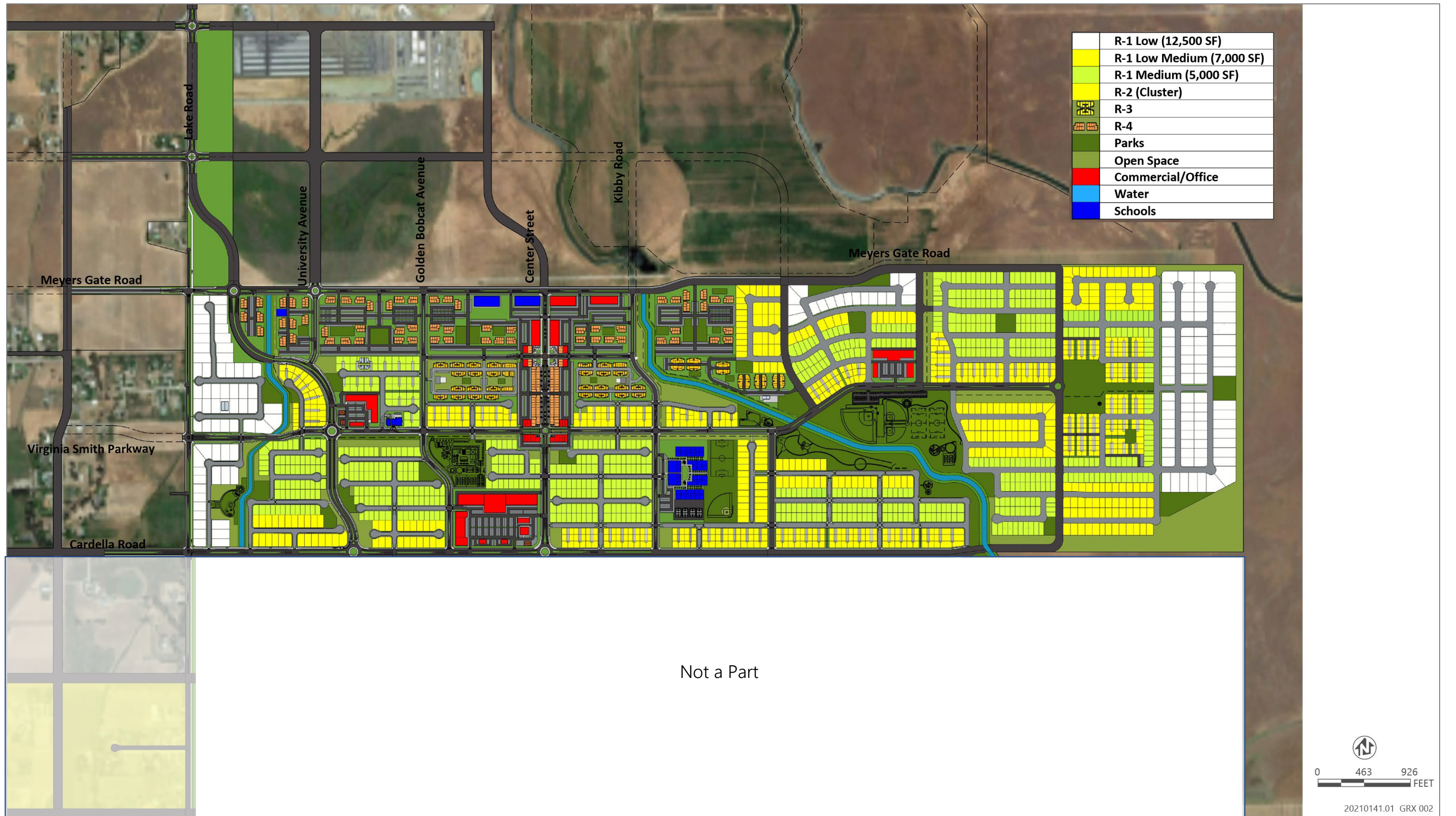
The Medium-High Density Residential (R-3) land use designation allows for a combination of townhomes, lower-density stacked flat apartments, and condominiums arranged around a central amenity or open space at a density between 18 and 24 dwelling units per net acre. The R-3 portion of the VST Specific Plan is expected to yield approximately 504 dwelling units on 31 acres and may include up to 20 units per acre, not including density bonuses from the inclusion of affordable housing in individual projects. Unit sizes would range from 900-sq-ft studios up to 1,800-sq-ft three-bedroom and three-bath units. These units would be located adjacent to the Village Center.

High Density Residential (R-4)

High Density Residential (R-4) residential land uses would include stacked flat apartments arranged around or associated with a central amenity or open space. The R-4 portion of the VST Specific Plan is planned to have a density of up to 36 units per net acre and is expected to yield approximately 1,488 dwelling units on 53 acres. The units are expected to be split 60 percent (894 units) for student rentals averaging 850 sq ft per four student beds, and 40 percent (594) for nonstudent units for university families, staff, and instructors. Unit sizes would range from 750 sq ft to 1,250 sq ft. These units would be located along Meyers Gate Road to place them as close to the university as possible and to reserve the area south of Virginia Smith Parkway principally for owner-occupied units. Sites for 200 of these units would be contributed to a local nonprofit housing provider to provide deed-restricted housing for low-, very low-, and extremely low-income families.

Town Center Mixed Use Residential

The Town Center Mixed Use Residential (C-MUR) land use includes 108 stacked flat apartments in the second and third floors above the Village Center commercial district along Center Street. The density of these units would be up to 35 units per net acre. Units would typically have access to roof-top gardens and patios with “green roofs” used to provide stormwater management and localized cooling during the warm Merced summers. The average size of these units is expected to be between 450 sq ft and 900 sq ft. The design of these buildings would be consistent with the “Contemporary Prairie” design applied to the Town Center buildings, retail commercial buildings, and public buildings, which blends the modern and contemporary elements of the UC Merced campus, newer downtown buildings, and the rich, natural material finishes and designs of buildings in Yosemite National Park. Parking for these units would be provided at a reduced rate of one covered space per unit (shared with commercial uses during the daytime) because of their limited size and bedroom count, and location in a vertically mixed uses setting. This land use is most similar to the City’s Village Core Residential General Plan Land Use and the Downtown Core zone.



Source: Image provided by Peck Planning and Development, Virginia Smith Trust Land Plan in 2022.

Figure 2-7 VST Specific Plan Land Use Diagram

Commercial

The VST Specific Plan includes community- and neighborhood-scale commercial retail uses, a mixed-use district, and a mixed-use area for services and office uses. The commercial, service, and office uses have been scaled and distributed so that they meet the needs of the anticipated population in the VST plan area; the university's students, staff, and instructors; and the northern half of the UCP South portion of the UCP area. In total, there would be 862,000 sq ft of commercial space, which is expected to provide 50,000 sq ft for a full-line grocery store plus two smaller neighborhood convenience grocery stores; 300,000 sq ft of general retail; 50,000 sq ft for personal services; 300,000 sq ft of office space (including approximately 75,000 sq ft for medical office uses); 75,000 sq ft for eating and drinking places; and 87,000 sq ft of other nonresidential uses, such as hotels, research and development space, and other uses. These uses would be phased as convenience commercial uses are in demand. Phase 1A of the VST Specific Plan would include a small 3.5-acre to 5-acre commercial center with a gas station, smaller grocery store, eating and drinking places, and general retail. Over the longer term, the Village Center Mixed Use Commercial area would be developed in Phase 1C and the Community Commercial center would be provided in Phase 1D. Finally, a convenience commercial center would be developed east of the Fairfield Canal to service Phase 2 of the VST plan area. Because of its proximity to UC Merced, it is expected that there would be limited demand for the research and development and business park uses that were originally contemplated for the UCP North portion of the UCP area. In total, the VST Specific Plan is estimated to support approximately 2,900 employees.

Neighborhood Commercial (CR-Neighborhood)

Two Neighborhood Commercial (CR-Neighborhood) sites are planned: one in Phase 1A at the northeast corner of Campus Parkway and Virginia Smith Parkway and a second in Phase 2 along Virginia Smith Parkway. These sites are intended to provide neighborhood- and convenience-level commercial goods and services within walking distance of any of the VST plan area's neighborhoods. Both would be located along commuter routes to provide convenience and accessibility. This land use is comparable to the "retail" land use category in the UCP but is smaller in scale and focused on meeting the needs of travelers along the adjacent streets and residents within a one-quarter-mile radius. It is also comparable to the City of Merced's CN-Neighborhood Commercial General Plan land use category, with the exception that these uses are limited to 5 acres in size in the VST Specific Plan.

Community Commercial (CR-Community)

A Community Commercial (CR-Community) site is proposed on Cardella Road between Center Street and Golden Bobcat Road. This 12- to 15-acre site is planned to be anchored by a grocery store, a drug store, eating and drinking places, a gas station, fast food uses, and general retail. This land use is comparable to the "retail" land use category in the UCP but is focused in size, scale, and location to serve the weekly shopping needs of the VST plan area and the northern portion of the UCP South area. It is also comparable to the City of Merced's C-SC-Shopping Center Commercial land use zone category, with the exception that the CR-Community zone provides for a broader range of uses because alternative shopping opportunities are limited in the vicinity.

Village Center-Mixed Use

The VST Specific Plan designates several commercial zones in the Village Center along Center Street, including Village Center-Mixed Use (VC-MU) and Village Center-Mixed Use/Offices (VC-MUS). The entire Village Center-Mixed Use portion of the plan area would provide many of the features of desirable urban and suburban central districts, such as smaller retailers; a diversity of services; eating and drinking areas, including outdoor eating and drinking areas in sidewalk cafes and parklets; and adequate parking and circulation, with the parking and support functions from rear parking lots and service areas. In the VC-MUS land use area, employment-generating uses, such as professional offices, medical offices, hotels and lodging, limited research and development, and the proposed Merced Scholars Charter School.

Public and Institutional Land Uses

Parks and Recreation

As shown in Figure 2-7, the parks are distributed across the VST plan area with a larger number of smaller parks dispersed evenly throughout the medium-density residential uses, and a few larger parks, including a sports complex, located in the lower-density areas. Community parks would provide for recreational uses, including organized sports facilities, court games, community gardens, and dog parks. In addition, an east-west and a north-south linear park system would be created that would run along the south side of Virginia Smith Parkway (the midline of the VST plan area) and Fairfield Canal. In addition to providing significant passive open space, these linear parks would include parcourses, pocket parks for adjoining developments, bicycle trail head facilities, and other recreational assets. Private parks and recreation facilities would be located in the R-3 and R-4 areas at a rate of 1.5 acres per 1,000 population, and clubhouse and recreation centers would be included in any developments over 150 units. In total, the VST Specific Plan proposes 98 acres of parks: 73.2 acres of public and private park space, 20 acres of space for active recreation in the various linear parks, and 4.8 acres of active park areas. In compliance with City of Merced policies and regulations, the project also would provide a total of 66.8 acres of neighborhood and community parks (exclusive of linear parks, pocket parks, and miniparks) at a rate of 5.29 acres per 1,000 persons. This combination of park and recreation areas would provide a total of 8.8 acres of park acreage per 1,000 residents. Parks would be spaced so that all residential units are within a 500-foot walking distance of park space.

One of the key features of the VST Specific Plan is a community recreation area that includes a 6.6-acre community facility consisting of a 12,000-square-foot clubhouse and recreation center, two community swimming pools, tot lots, areas for court games, and a structure for a farmers' market. It would be centrally located next to the Town Center and would function as the community gathering place and social focal point. Community recreation and social programming would be provided through on-site staff. This facility would be limited to residents of the VST plan area only and would be supported by a master homeowners association.

The VST Specific Plan has a system of linear parks that would connect the various major destinations in the VST plan area and serve as locations for low-impact development stormwater management; provide recreation and trails; provide visual relief and improve aesthetics along the 2-mile length of Virginia Smith Parkway; and connect the sports park, Village Center, Community Park, shopping areas, and school sites. Thirty-nine miniparks and pocket parks also are proposed in the VST Specific Plan, totaling more than 17 acres. Each park would be 0.5 to 2.5 acres in size and provide facilities such as community gardens, tot lots, passive play areas, BBQ and picnic areas, basketball courts, community gardens, and dog parks. These parks would serve residents within a two-block radius. The miniparks would be phased with adjacent residential development to provide park facilities for future residents near their homes.

Finally, the VST Specific Plan includes a 34-acre community sports park with soccer fields, court game areas, and baseball fields adjacent to the Fairfield Canal. The community sports park would be developed in phases with 10 acres initially developed in Phase 1 (Phase 1E portion of the VST Specific Plan) and the balance in Phase 2.

Schools

As required by the UCP, the VST plan area includes an elementary (K–8) public school site, plus a Merced Scholars Charter School operated by the Merced County Office of Education as a university preparatory school. The VST plan area's K–8 site would accommodate up to 950 students, and the charter school would be designed to accommodate 300 additional students. The K–8 school site would be located in Phase 1E, and the charter school would be located in Phase 1C. Approximately 15 acres are reserved at the southeast corner of Kibby Road and Virginia Smith Parkway for the future elementary school. The VST plan area is currently split by the Weaver and Merced City School Districts for elementary schools. A boundary adjustment is being pursued in accordance with California Education Code. It is anticipated that the jurisdictions would be revised so that the entire VST Specific Plan area would be in the Weaver School District. The VST plan area would also be served by the Merced Union High School District, and future students would attend El Capitan High School.

Design Framework

The VST Specific Plan includes a Design Framework that provides detailed design guidelines to be used as the plan is implemented. The purpose of these guidelines is to establish the expected level of design quality within the area while maintaining flexibility for innovation. The objective of this framework is not to dictate a specific design but to establish design expectations that can be implemented as various project components are planned for implementation. The Design Framework is intended to provide guidance on the integration of the site-specific features, such as building architecture, with areawide elements such as streetscape, recreation, and open spaces, into the overall project design. The Design Framework also has standards that define the overall character of the streetscape.

The standards would replace and supersede equivalent regulations in the County Zoning Ordinance and the City of Merced Zoning Ordinance and are intended to implement the goals and policies of the Merced County General Plan, the UCP Update, and the City of Merced General Plan that are applicable to the UCP area in general and the VST plan area in particular. Specific design standards and guidelines set forth within these guidelines would be applied to all subsequent projects; where there are design requirements and regulations in the City Zoning Ordinance and/or the County Zoning Ordinance that are not in the VST Specific Plan document, those provisions would apply.

Sustainable Energy Features

The VST Specific Plan incorporates the following sustainable development practices:

- Development would comply with the City's Climate Action Plan, CALGreen, and other requirements for passive solar design related to building orientation, south glazing, and thermal mass.
- It would use pervious paving and materials to facilitate drainage where consistent with local improvement standards.
- Development would comply with GreenPoint-rated single-family, GreenPoint-rated multifamily, and CALGreen checklists.
- All residential units would be electric (no natural gas) and would incorporate high-efficiency Energy Star fixtures, appliances, and features.
- The single-family detached residential buildings would be more energy efficient than the 2019 California Energy Efficiency ("Title 24") standards, and the multifamily residential and nonresidential structures would be at least 10 percent more energy efficient than the 2019 Title 24 standards. Energy efficiency standards also apply to nonresidential structures. To meet and exceed the anticipated 2022 building code, the VST Specific Plan includes design requirements for the use of advanced framing and more energy-efficient wall, floor, and ceiling assemblies (to decrease transmission loss and reduction in required framing lumber); quality insulation installations (to minimize heating and cooling losses); compact plumbing (to minimize plumbing runs and distance between hot water taps and water heaters); and EPA WaterSense fixtures (to reduce indoor water use).
- Alternative energy systems would be capable of delivering 100 percent of the energy demand for the residential units in the VST plan area. Subsequent projects prepared under the VST Specific Plan would be "net zero." All the units would have rooftop or solar canopy PV systems that provide at least 100 percent of the unit's electrical energy demand.
- Shared mobility strategies would be included to reduce the necessity for additional vehicles for each family. Car sharing, ride sharing, and/or transit would be provided in the development.

As summarized above, the VST Specific Plan includes transit enhancements, vehicle miles traveled reduction strategies, traffic calming, pedestrian enhancements (walkable streets), bicycle enhancements, ridesharing, parking strategies (including reduced parking in mixed-use locations, and placement of higher-density units nearest the mixed-use village center), water conservation strategies, EV charging stations in common areas, affordable housing, mixed-use developments, and passive solar strategies. Development would comply with the San Joaquin Valley Air Pollution Control District's optional mitigation measures.

Circulation Framework

The Circulation Framework of the Specific Plan includes the planned circulation system elements, design standards, and circulation system phasing. It describes the location of major facilities in or adjacent to the VST plan area, including Campus Parkway, connector roads to UC Merced (as described in the university's LRDP), special street widths, and amenities. The Circulation Framework also addresses parking and loading standards when they differ from standard City requirements; transit needs; and nonvehicular modes of circulation, such as walking and bicycling. Figure 2-8 shows the overall circulation system, the location of various bikeways, and a key map for the illustrated street sections.

The plan area's proximity to UC Merced provides an opportunity to encourage greater use of pedestrian and bicycle modes of transportation. Pedestrian and bicycle circulation would be accommodated by street design standards that include sidewalks on both sides of the street for most classifications of streets within developed areas; off-street, multiuse paths along streets adjacent to open space areas; and a network of multiuse and Class IV buffered and protected bicycle facilities that would connect to the street system within the UCP and LRDP areas.

In the near term (during the buildout of the VST Specific Plan), it is assumed that Lake Road would provide the necessary circulation connections to the VST Specific Plan area. Longer-term, connections would be made via Kibby Road and Campus Parkway north of Yosemite Avenue, and direct connections would be made between the VST Specific Plan area and the UC Merced campus via Campus Parkway, University Avenue, Golden Bobcat Road, and Main Street. The circulation facilities assume connections to those future off-site improvements and establish feasible connection points but do not assume their implementation before buildout. Circulation facilities have been planned assuming that connections to Lake Road would support the VST Specific Plan.

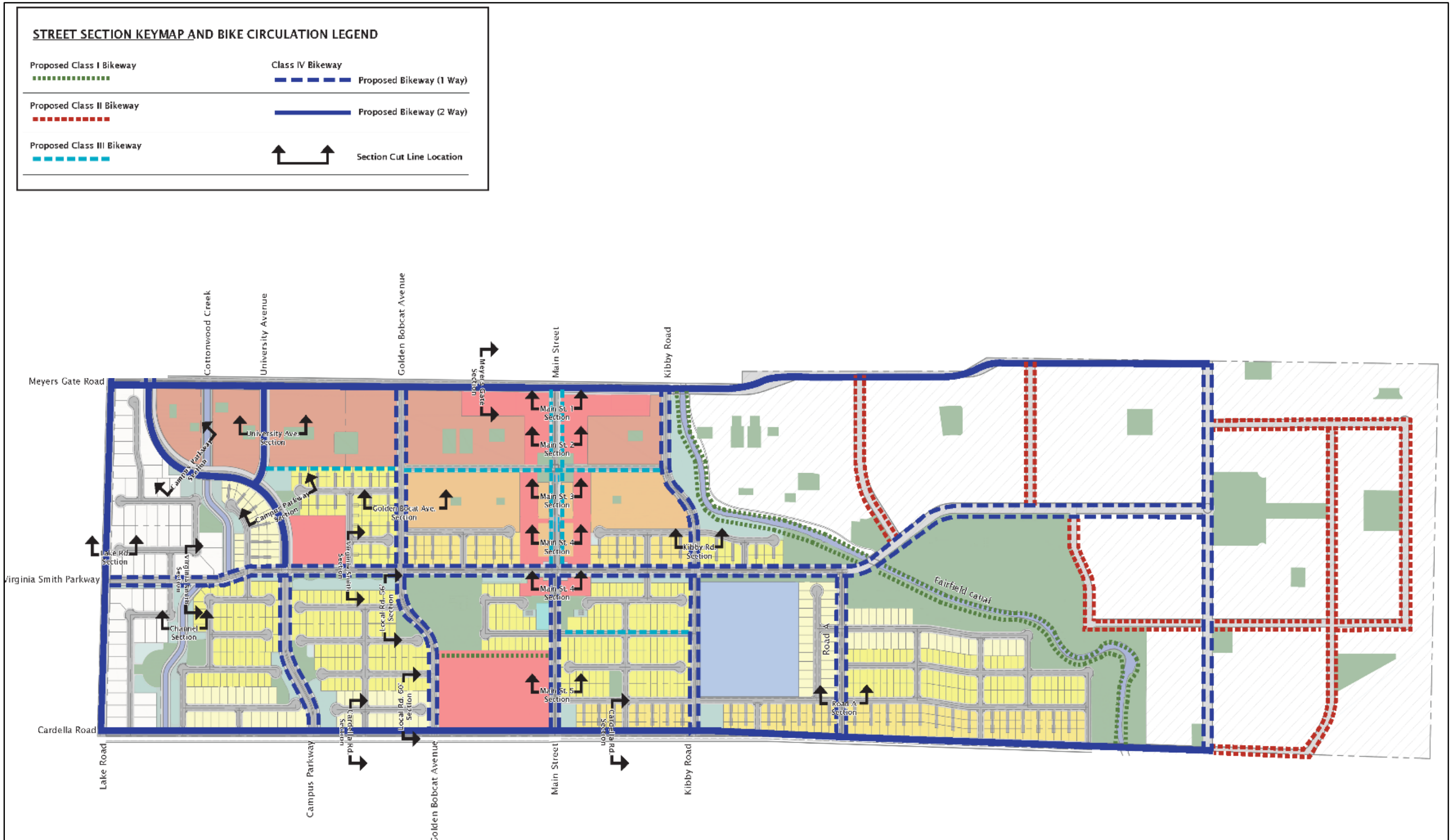
Roadway circulation in the VST Specific Plan area would be on a 0.25-mile grid of collectors and streets, including points of connection to Lake Road at Meyers Gate Road, Virginia Smith Parkway, and Cardella Road. The VST Specific Plan also establishes the plan line for the extension of Campus Parkway through the VST plan area and its ultimate connection to Bellevue Road to complete the eastern side of the Merced-Atwater perimeter expressway. The plan line for Campus Parkway that is represented in the VST Specific Plan is a result of consultations with the County, UC Merced, VST, and others to provide a conceptual continuation from the current terminus of Campus Parkway at Yosemite Avenue 3,000 feet east of Lake Road to a connection point at Lake Road near Bellevue Road. Based on a traffic scoping study prepared for the VST Specific Plan (VRPA 2020), Campus Parkway is designed as a four-lane limited access arterial with Class IV bikeways between Cardella Road and University Avenue and as a two-lane limited access arterial with adjacent Class IV bikeways north of University Avenue. Implementing the project would also involve updating the Circulation Element of the General Plan to include the revised alignment of Campus Parkway, both within and outside of the UCP area.

Virginia Smith Parkway would act as the central spine or "armature" of the plan area that would connect the Town Center, the community recreation center, the elementary school, the community sports park, and all of the housing neighborhoods. The intersection of Virginia Smith Parkway and the Fairfield Canal would be the trailhead for the trails that connect to the planned UC Merced trail system.

Lake Road would provide the only public street and right-of-way access for development in the VST plan area. A number of improvements are necessary to Lake Road to support the VST Specific Plan. The principal changes to Lake Road would be lane shifts; creation of dedicated left- and right-turn lanes; relocation of the Class I bike path; addition of a landscaped median; and addition of signalization at Cardella Road, Virginia Smith Parkway, and Meyers Gate Road. The signalization at Meyers Gate Road and Virginia Smith Parkway are estimated to be needed at the buildout of Phase 1C, and the signal at Cardella Road is projected to be needed by the conclusion of Phase 1D (VRPA 2020).

Bicycle Plan

Class I bicycle paths and Class IV bicycle lanes within the plan area would be constructed, signed, and marked to meet or exceed the minimum standards established by the California Department of Transportation Highway Design Manual and City design standards. Class I paths would be a minimum of 12 feet in width with 2-foot shoulders, except in hillside areas where grading would cause visual impacts or along creeks where space is limited. Class II lanes, where used, would be at least 8-foot-wide "buffered" lanes.



Source: Image provided by Peck Planning and Development in 2022.

Figure 2-8 VST Specific Plan Overall Circulation Plan

Transit

Transit is also an important element of the transportation system. UC Merced, the City of Merced, and Merced County Transit operate bus service to and from the university. Bus stops have been planned as part of the circulation system.

Infrastructure/Public Facilities Framework

The VST Specific Plan includes an Infrastructure/Public Facilities Framework that covers water, sewer, storm drainage, electricity, natural gas, and communications. For infrastructure, the framework addresses the planned on-site and off-site trunk infrastructure system improvements and system phasing necessary to support implementation of the land-use plan and financing mechanisms to implement planned facilities.

Infrastructure

New infrastructure that would be installed to support the development associated with the VST Specific Plan includes a backbone roadway network (including bicycle and transit facilities); a stormwater drainage system; water distribution mains; sewer trunk lines; and off-site water, sewer, and transportation improvements (see Figure 2-9). In addition, a fire station would be provided within the VST plan area. Each of these types of public facilities is described in detail below.

The traffic study (VRPA 2020) also identified the following off-site improvements that may be addressed through the payment of citywide impact fees, special specific plan impact fees, or by direct improvement and construction.

- Snelling Highway/Bellevue Road: Install a traffic signal.
- G Street/Bellevue Road: Widen the northbound approach to add one right turn lane and widen the eastbound approach to add one through lane and one right turn lane.
- G Street/Cardella Road: Widen the northbound approach to add one through lane; widen the southbound approach to add one through lane; and restripe the eastbound approach to one left turn lane, one through lane, and one right turn lane.
- Snelling Highway/Yosemite Avenue: Provide westbound right overlap phasing.
- G Street/Yosemite Avenue: Provide northbound right overlap phasing; widen the eastbound approach to add one through lane and one right turn lane; widen the westbound approach to add one left turn lane.
- Gardner Avenue/Yosemite Avenue: Install a traffic signal; widen the northbound approach to add one left turn lane; restripe the southbound approach to add one left turn lane; widen the westbound approach add one left turn lane and one through lane.
- Snelling Highway/Olive Avenue: Widen the northbound approach to add one through lane; widen the southbound approach to add one through lane and one right turn lane; widen the westbound approach to add one left turn lane.
- R Street/Olive Avenue: Widen the northbound approach to add one left turn lane and one right turn lane; widen the westbound approach add one left turn lane.
- M Street/Olive Avenue: Widen the northbound approach to add one right turn lane; widen the southbound approach add one left turn and one right turn lane; widen the westbound approach to add one right turn lane.
- G Street/Olive Avenue: Provide southbound right overlap phasing; widen the eastbound approach add one left turn lane; widen the westbound approach to add one right turn lane.
- Snelling Highway/16th Street: Install a traffic signal; widen the southbound approach to add one right turn lane.
- Martin Luther King Jr/SR 99 NB Ramps: Install a traffic signal.



Sources: Data downloaded from the Federal Emergency Management Agency in 2021 and the US Geological Survey in 2019; adapted by Ascent Environmental in 2022.

Figure 2-9 Off-Site Infrastructure

Stormwater Drainage

The Adopted UCP, County drainage ordinance, and City drainage regulations require compliance with the regional water quality control boards' "MS4" requirements for the design and distribution of drainage basin and storm water treatment areas. As an annexation area, the project will comply with City drainage standards. In accordance with these regulations, the open space areas, parks, landscaped areas, the linear parks, and the Cottonwood Creek corridor areas would be used to capture, treat, and release stormwater at the discharge rates prescribed by state and local regulations. There are no large detention or retention basins planned within the VST plan area.

Storm-water treatment and management improvements would also be used to further the community's Low Impact Development goals through bio-retention swales, runoff treatment and filtration, permeable paving and pavement systems, water retention gardens and other integrated treatment detention/ retention systems. These facilities would have the added benefit of providing open-space and aesthetic value. These improvements would also minimize the potential for changes in stormwater flow on upstream and adjacent properties. Commercial parcels outside of the Village Center would incorporate on-site landscape setback areas ("bioswales") for stormwater collection disposal and treatment, with adequate capacity to accommodate a 2-year design storm. This would normally accommodate 90 percent of the average annual runoff. Storm water basins would be developed adjacent to the Fairfield Canal to promote groundwater recharge and stormwater may be discharged directly to the canal, as permitted by Merced Irrigation District (MID).

Water Supply and Distribution

The main water facilities that would serve the VST plan area consist of the existing municipal well located on the UC Merced campus, an on-site municipal well to be developed in Phase 1A of the VST Specific Plan (and to be located in the Community Recreation Center in Phase 1D), an 18-inch main in Lake Road to be extended as part of the project from the Bellevue/Lake Road intersection to the VST plan area, and water mains on the site ranging in size from 8 to 12 inches in diameter. The system was sized and planned based on the City of Merced's Water Master Plan criteria to ensure adequate domestic and fire flows. A pressure sustaining valve would be included to create a separate pressure zone for the UC Merced and UCP area because of local topography. Main lines within the VST plan area would be looped through the individual phases to provide required flows and redundancy. Figure 2-10 shows the planned on-site and off-site water system improvements.

The VST Specific Plan proposes several features that meet and exceed the current water conservation and management regulations from the City or state agencies. Development in the VST plan area is to be designed so that the projected annual residential water consumption for the project is 30 percent less than the city's current average daily residential per-person water consumption (estimated at 127.5 gallons per day per person). To meet this goal, the VST Specific Plan sets forth design requirements including the limited usage of turf for individual yard landscaping, use of drip irrigation systems with rain and moisture sensors, plumbing fixtures that comply with EPA "WaterSense" standards and to CALGreen flow standards, and the usage of "compact plumbing" strategies.

The VST plan area currently uses approximately 2,950 acre-feet of ground water per year from local irrigation wells. The Water Supply Assessment prepared for the VST Specific Plan estimated that the water usage on the site is approximately 100 gallons per day per person (including commercial demand and public park demand) compared to the current city usage of 127.5 gallons per capita per day. Total estimated water usage for the VST plan area at full buildout is 1,250 acre-feet annually. The Water Supply Assessment determined that there are adequate water supplies in the city; the on-site well is needed for higher fire flows associated with the elementary school, and to provide redundancy for the UC Merced well.

The project also includes the attachment/annexation of the VST plan area to MID, detachment from the Merced Sub-Basin Groundwater Sustainability Agency (GSA) and attachment/annexation of the property to the MID-Urban GSA. Incorporated areas of the city are in the MID-Urban GSA, and transporting groundwater between GSAs is not permitted. Annexation to MID provides for in-district surface water deliveries to the farming portions of the site (rather than exclusive use of groundwater) and facilitates discharge of stormwater into the Fairfield Canal.

Agricultural Irrigation

The VST Specific Plan includes a proposal to realign and straighten the Fairfield Canal to accommodate a proposed sports park. A bypass channel would be constructed at the location of a large oxbow in the canal, following which the oxbow would be filled and the bypass channel would function as the canal. The oxbow to be filled is approximately 0.3 mile in length, and the new canal segment would be approximately 900 feet long. See Figure 2-10 below. VST also proposes to fill and remove the Dunn Lateral, a historic irrigation ditch that extends south from the Fairfield Canal approximately 1,600 feet before ending at an underground pipe adjacent to the southern property boundary.

The proposed modifications would occur in Phase 2 and would be subject to MID approval of detailed facility designs and confirmation of conformance with MID's design specifications. Where any modifications are made to waterway channels used for the conveyance of irrigation or stormwater, the modified channel would be designed such that the flowrate and flow velocities would not change substantially. This can be accomplished by adjusting the cross-sectional area and the construction material of the channel, use of energy absorbing devices, and other means, including use of channel construction materials that have a higher roughness coefficient and incorporating roughness baffles and energy dissipaters at the downstream end of the modified channel.

Wastewater Conveyance and Treatment

Several studies have been conducted of the wastewater collection and wastewater treatment facilities necessary to support the VST Specific Plan. Most recently, MKN Associates conducted an evaluation of the current and future capacity of the wastewater collection system, and of the wastewater treatment plant (MKN 2020). The MKN study specifically included an assessment of the current and projected flows from UC Merced, future development that has been approved by the City, and the VST Specific Plan. The study concluded that the existing sewer collection system has adequate capacity to serve properties that have approved tentative maps, those properties that are in the North Merced Sewer Assessment District, and at least Phase 1 of the VST Specific Plan. The study identified improvements to the City's existing wastewater infrastructure that would be necessary to serve the VST Specific Plan. These include a force main from Cardella Road to Bellevue Road, where the sewage flows would be discharged to the Bellevue Trunk line. Because the City Wastewater Collection System Master Plan (City of Merced 2017) prescribes a gravity trunk sewer line between Lake Road and G Street, on-site sewer flows would be directed southwest to Cardella Road and Lake Road where there would be an interim pump station to supply the force main. Once the Cardella Trunk line is completed (by others at some uncertain time) the VST Specific Plan area would be connected to the Cardella Trunk Sewer. In order to provide sewage collection capacity for Phase 2, an improvement would be needed to provide additional capacity to the West Trunk sewer line between 16th Street and 6th Street in south central Merced. This improvement, as described in the MKN report, would be a 30-inch gravity sewer in V Street between 16th Street and 6th Street. Improvements to the treatment plant are currently being planned that provide adequate treatment capacity.

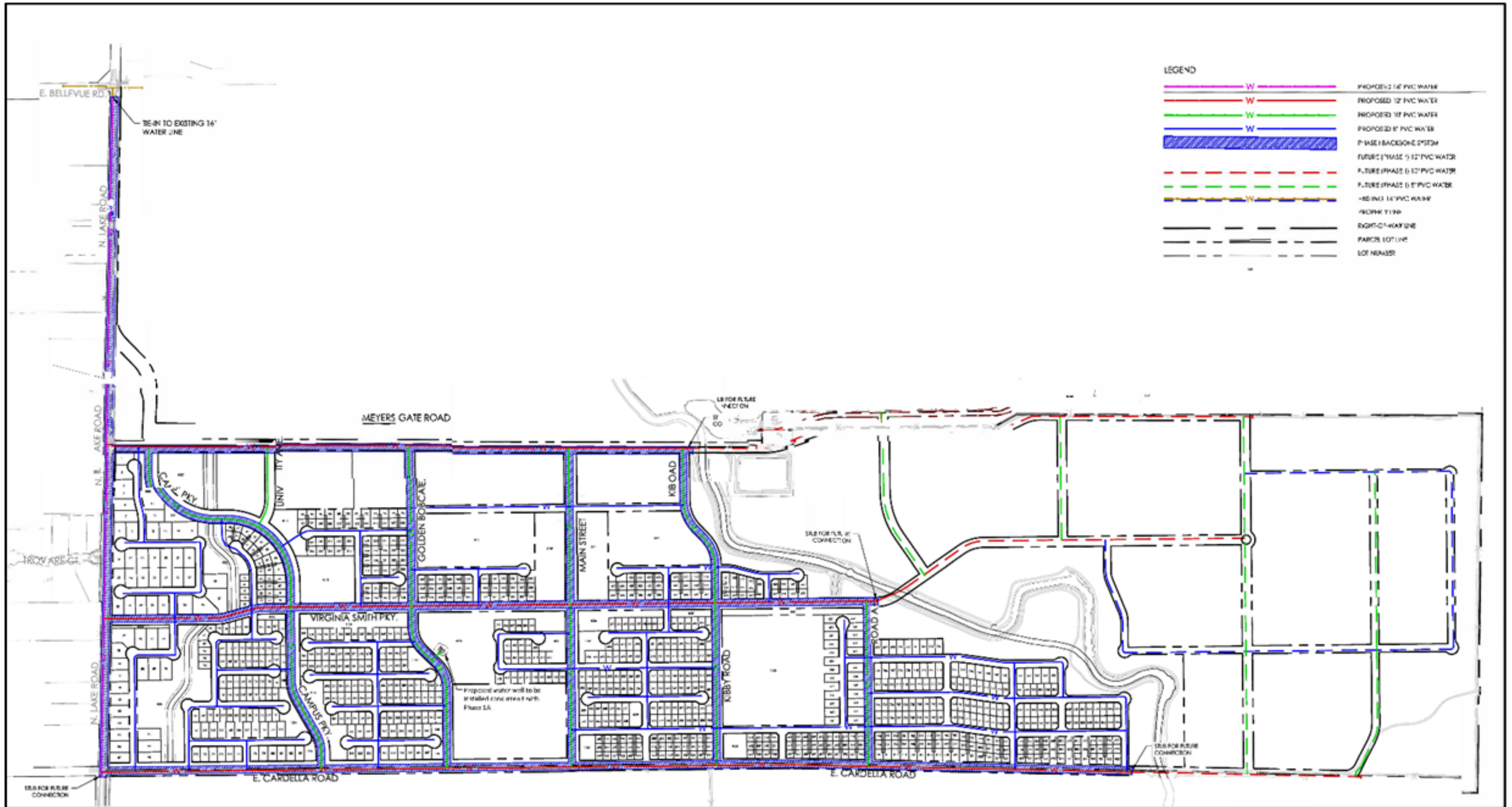
Dry Utilities

PG&E would provide underground extensions from existing facilities, from overhead lines along the west side of Vachell Lane, and along the south side of the Suburban properties to the north. Cable TV/Phone facilities exist along Vachell Lane and would be extended to serve the VST plan area. Southern California Gas Company has an existing 16-inch high-pressure main line which extends southerly in Vachell Lane and easterly in Buckley. The VST plan area is also intended to be a "5G" and "megabit" community through the use of high-speed wireless and fiber optic broadband service.

Off-Site Improvements

The VST Specific Plan involves the following off-site improvements, as described above and shown in Figure 2-9:

1. Extension of a sewer force main for approximately 1 mile within the paved area of Lake Road, from Cardella Road/Lake Road to Bellevue Road/Lake Road.
2. Extension of a 16-inch water line for approximately 1 mile in the paved area of Lake Road from Virginia Smith Parkway to Bellevue Road to connect the VST plan area to Well 17.



Source: Image provided by Peck Planning and Development in 2022.

Figure 2-10 Water Master Plan

3. Improvements to Lake Road, including dedicated left and right turn lanes, and signals at Cardella Road, Virginia Smith Parkway, and Meyers Gate Road. This would require widening of Lake Road within the established right of way.
4. Installation of a bypass/supplement for the West Street Trunk line in V Street between 16th Street and 6th Street.
5. Various traffic and circulation improvements, as described above:
 - Snelling Highway/Bellevue Road
 - G Street/Bellevue Road
 - G Street/Cardella Road
 - Snelling Highway/Yosemite Avenue
 - G Street/Yosemite Avenue
 - Gardner Avenue/Yosemite Avenue
 - Snelling Highway/Olive Avenue
 - R Street/Olive Avenue
 - M Street/Olive Avenue
 - G Street/Olive Avenue
 - Snelling Highway/16th Street
 - Martin Luther King Jr/SR 99 NB Ramps

Public Safety

The VST plan area also includes a public safety site for a police substation and a fully staffed two-engine fire crew on Virginia Smith Parkway just east of Campus Parkway. Fire and police services would be provided by the City. The public safety site is located in Phase 1A.

Comparative Land Use Capacity of the VST Plan Area

The VST Specific Plan proposes a generally denser development than identified for the property in the Adopted UCP with more dwelling units and more area designated for commercial and office development (Table 2-3). Further, the Adopted UCP does not include the 177-acre additional portion of the VST plan area east of where the Fairfield Canal intersects the Cardella Road alignment (refer to Figure 2-3). For the VST Specific Plan portion of the UCP area, the number of dwelling units would increase by 1,439 units and the amount of commercial and office square footage would increase by approximately 715,000 sq ft.

As envisioned in the Adopted UCP, the development proposed in the VST Specific Plan has been informed by prevailing market conditions. The Adopted UCP provides policies that restrict the amount of development in the Adopted UCP to that which is directly associated with supporting UC Merced and the University Community residents, and to avoid development that is a regional attraction and unrelated to UC Merced activities. Consequently, a market study has been prepared to analyze the best use of the property considering existing and planned land uses, including off-site industrial (Atwater Castle Business Park, City Industrial Parks), regional retail (Gateway Business Park), and institutional/business parks (Bellevue Master Plan, downtown Merced). The VST Specific Plan provides a mix of residential units that are based on the reported income of existing students and staff of UC Merced, and the additional student generation projected in the 2020 LRDP (assuming up to 50 percent of the new students could be accommodated in the VST plan area). Commercial uses include those that can be supported by the northern portion of UCP South, residents of the VST plan area, and on-campus UC Merced staff and students (JBREC 2020).

Table 2-3 Development Potential of the VST Plan Area under the Adopted UCP and VST Specific Plan

Land Use	Adopted UCP (per UCP Figure 5, Table 2)						Proposed VST Specific Plan (per land plan)					
	Gross Acres	Net Acres	Percent	Density/Net Acre	Commercial (sq ft)	Residential (units)	Gross Acres	Net Acres	Percent	Density/Net Acre	Commercial (sq ft)	Residential (units)
Local Commercial	10.5	9.0	2	16,440	147,200	0	7.2	7.2	1	14,514	104,500	0
Office/Hotel	0	0	0	-	0	0	12.0	12.0	2	14,583	175,000	0
Mixed Use Commercial	0	0	0	-	0	0	24.8	24.8	4	-	104,500	108
Parks/Open Space/Canal	98.0	98.0	21	-	0	0	113.0	113.0	20	-	0	0
School	26.9	22.9	5	-	0	0	17.0	14.5	2	-	0	-
Multifamily Residential	48.1	40.9	9	24	0	978	85.0	72.3	11	23	0	1,649
Single-Family Residential	249.9	199.9	42	7	0	1,440	329.5	263.6	40	8	0	2,100
Major Roads	43.8	43.8	9	-	0	0	69.8	69.8	11	-	0	0
Minor Roads	62.8	62.8	13	-	0	0	-	89.2	14	-	0	0
Total	540.07	477.26	100	-	147,200	2,418	654.02	654.03	100	-	862,000	3,857

Source: Provided by Peck Planning and Development in 2022.

Fiscal and Management and Administrative Framework

The VST Specific Plan includes a Financial, Services and Governance Framework that describes how the infrastructure and improvements in the development are to be financed and maintained, and by whom; a fiscal projection of the revenues from the project and the projected net fiscal impact of the project to the City; and, a description of any special financing mechanisms associated with the VST Specific Plan including the Traffic Impact Fee, and the intended use of public facility reimbursement agreements for project infrastructure.

Finally, the VST Specific Plan includes a Plan Administration Framework that describes the process for amending the specific plan, and the discretionary processes for each phase and type of development. This section of the VST Specific Plan describes what kinds of actions are administrative in nature that can be made City or County management staff (e.g., City Manager, Public Works Director, City Engineer, Director of Development Services), those that are interpretive or quasi-judicial and require advisory body review (i.e., Planning Commission), and those that are major and/or legislative in nature and require approval of the legislative body (i.e., Board of Supervisors and/or City Council).

VST SPECIFIC PLAN BUILDOUT AND OPERATIONAL ASSUMPTIONS

Phasing

The VST Specific Plan would be implemented in two primary phases. This phasing was determined by the required location of sewer and circulation facilities, existing road improvements, and site topography, balancing the mix of land uses, and ensuring that the agricultural areas in the VST plan area can be farmed for the longest period of time. Phase 1 includes five subphases 1A through 1E. Phase 2 does not include subphases. See Figure 2-11 for the phasing diagram. Each of the subphases is described below.

While the subphases would likely initiate construction in the order they are named, construction for the duration of each phase may overlap with construction of other phases. However, it is likely that residential units in each phase would be completed prior to commencing construction of similar units in a subsequent phase. Also, the projected start and end date of each phase described below is an approximation based on the estimated sales and absorption

of each housing type projected in the real estate market analysis prepared for the VST Specific Plan. Actual start and completion of development within each phase would depend on the market conditions at the time. To the maximum degree possible, each subphase has been designed with a mix of land uses to provide for concurrent marketing of multiple neighborhoods. Buildout is anticipated over a 15- to 20-year period, based on the market absorption projected in the market analysis for the VST Specific Plan.

Each phase of implementation would be conditioned on implementation of the identified infrastructure improvements.

Phase 1

Phase 1 includes the portion of the property between Lake Road, Meyers Gate Road, Cardella Road, and the Fairfield Canal and, in total, would include 2,541 dwelling units, 807,500 sq ft of commercial space, 49 acres for parks, a public elementary (K-8) school, and the Merced Scholars Charter School. This portion of the VST plan area is further divided into five subphases, as shown in Figure 2-11.

Phase 1A

Phase 1A of the VST plan area includes a mix of 841 residential units, including 43 low-density/large lot units, 66 R-1-5 cluster units, 36 R-2 cluster units, and 696 multifamily units (comprised of 418 student apartments and 278 market rate/family apartment units). Phase 1A also includes a 50,000 square foot Village Commercial site at Campus Parkway and Virginia Smith Parkway, and the northerly portion of Campus Parkway. The infrastructure improvements for Phase 1A are anticipated to begin in early 2025 and be complete by the end of 2025 or early 2026. These improvements would include the off-site sewer and water connections, initial improvements to Lake Road along the Phase 1A frontage, and construction of in-tract improvements within Phase 1A. Construction of the residential units would likely begin in early 2026 and would likely be completed in late 2028. This phase includes a range of housing types, but with a heavy focus on higher-density (R-4) housing, including student housing to address the current shortage of multifamily housing in the community. The Village Commercial would likely include a gas station, small grocer, retail shops, services and restaurants. Nearly 5.3 acres of public parks are included in Phase 1A (including a mix of linear parks, private parks in apartment complexes and public parks). Phase 1A would also include a site for a combined fire station and police substation; actual construction and staffing would be determined by the City of Merced based on service needs. Phase 1A would also include a water well that would be located in the Community Recreation Center in Phase 1D, as well as connection of the on-site water system to the water main at Bellevue and Lake Road (and the intertie to City Well No. 17 at UC Merced). Phase 1A would also include construction of the on-site sewer collection and pump station at the corner of Cardella Road and Lake Road, and the off-site force main to the Bellevue Road sewer trunk line.

Phase 1B

Infrastructure improvements for Phase 1B would be expected to start in early to mid-2026 and be completed by late 2026. Construction of the 226 R-1 residential units would begin in late 2026 and be complete in early 2029, although it is conceivable that Phase 1B could be developed concurrent with Phase 1A since the residential product types are complementary. This phase does not include commercial development or multifamily units. Phase 1B includes nearly 8 acres of public parks. Phase 1B would include the completion of the on-site portion of Campus Parkway and completion of the northerly two-thirds of Cardella Road between Lake Road and Golden Bobcat Drive.

Phase 1C

Phase 1C includes the bulk of the Village Center Mixed Use portion of the VST plan area, the multifamily area surrounding it (R-3 townhomes and condominiums and the R-4 apartments), and the Merced Scholars Charter School. Building construction would likely be completed by 2031. Residential development projected for this phase includes 992 units of primarily higher-density development including 64 R-2 cluster units along the Virginia Smith Parkway frontage, 364 R-3 townhomes and condominiums, 456 R-4 apartment units (including 274 student apartments and 182 family and market apartments), and 108 Town Center Mixed Use residential units on the second and third floors above ground floor retail and office space. This phase includes approximately 550,000 sq ft of commercial development, primarily associated with the Center Street/Village Center area, including retail/mixed use and hotel/office. It is possible that Phase 1C and Phase 1D could be developed concurrently because of the different

product types in each subphase. No public parks are included in this phase, although 5.8 acres of private park would be included in the multifamily developments. Necessary infrastructure to support development in Phase 1C includes backbone roadway network and utility improvements within the subphase. This subphase would also include the construction of the off-site traffic signals at Lake Road/Virginia Smith Parkway and Lake Road/Meyers Gate Road.

Phase 1D

Phase 1D includes the development of 141 R-1 and 24 R-2 cluster dwelling units, the community recreation center, and the community shopping center. It is anticipated that the infrastructure improvements could begin as soon as 2027 and are projected to be complete by 2028. Construction of the residential and commercial buildings could start in early 2029 and be completed by early 2032. It is possible that Phase 1C and Phase 1D could be developed concurrently because of the different product types in each subphase. The Community Commercial site is located at the northwest corner of Cardell Road and Center Street and is planned to include 175,000 sq ft of commercial development including a major grocery store, general merchandise stores, restaurants, a drug store and retail mixed use. Phase 1D also includes 32,500 sq ft of additional Village Center Commercial space that would complete the development of all four corners of Virginia Smith Parkway and Center Street with Village Commercial uses. Phase 1D includes 7.3 acres of public park and 1.4 acres of linear park. A traffic signal is also projected to be constructed at Lake Road/Cardella Road to support the Community Commercial center.

Phase 1E

Phase 1E includes an elementary school and the portion of the community sports park east of the Fairfield Canal, and 186 R-1 units and 131 R-2 cluster residential units. The elementary school would be constructed by Weaver Union School District, and the precise timing is unknown. The infrastructure improvements for Phase 1E would be started in early 2030 with completion expected in early 2031. Building construction is projected to start in 2031 and be completed in early 2034. No commercial development is identified in Phase 1E. Over 4.5 acres of linear parks and 15.5 acres of public parks are included in this phase. The elementary school would also add 4.8 acres of park facilities. Necessary infrastructure to support development in Phase 1E includes backbone roadway network and utilities in the subphase.

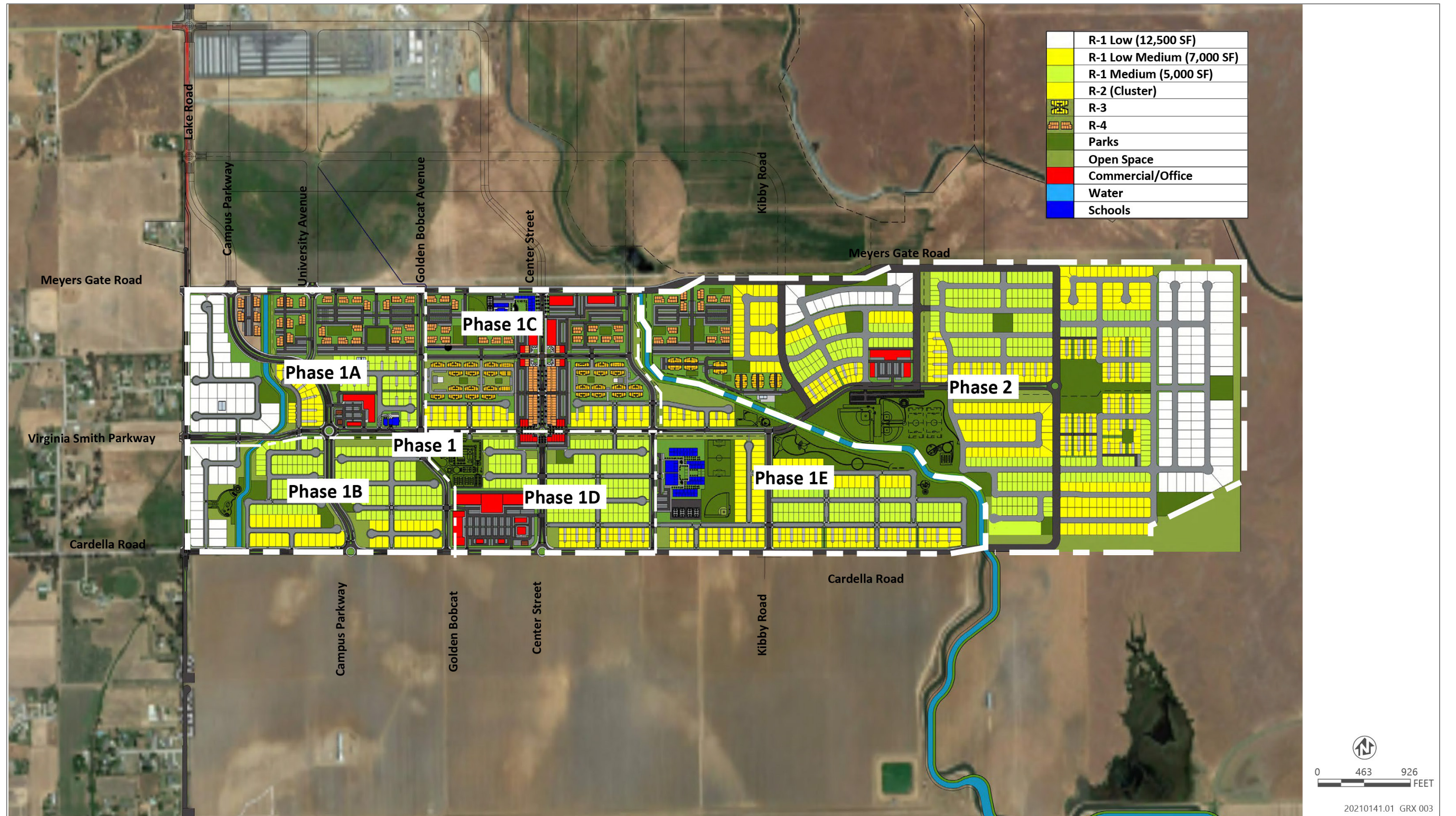
Phase 2

Phase 2 of the VST plan area was planned to ensure connectivity to Phase 1 and to provide land uses that complement uses in Phase 1. Overall, Phase 2 is planned to include 1,316 dwelling units, including 615 R-1 units of various densities, 225 R-2 Cluster units, 140 R-3 units and 336 R-4 units. Phase 2 would include approximately 45.6 acres for parks, including the bulk of the regional sports park on the east side of the Fairfield Canal, and a small 54,500-sq-ft neighborhood shopping center.

Phase 2 is described here in the aggregate, but it is expected that it would be broken down into at least four subphases that would include between 325 and 350 residential units each. Infrastructure development for Phase 2 would start in 2030 and be intermittent per each subphase, with total infrastructure development time of approximately 4 years (1 year per each subphase) during the 8-year buildout for Phase 2. Residential construction is expected to start in early 2031 and completed in late 2038. Necessary infrastructure to support development in Phase 2 includes backbone roadway network, and the West Street trunk line bypass.

ANNEXATION

The project would be entitled in the County and then annexed to the City. The VST plan area is not contiguous to the city limits but could be annexed to the City of Merced after UC Merced is annexed under the provisions of AB 3312. Following County action on project entitlements including adoption of the VST Specific Plan and certification of the EIR, and subject to the annexation of UC Merced, the VST plan area would be submitted to the City of Merced, and then subsequently to LAFCo for the formal annexation. The City and County have a tax sharing agreement in place to ensure that a proper plan of services is in place to guide orderly development of the annexed property. The Merced City Council reviewed the potential annexation of the project site at a pre-annexation hearing on November 15, 2021. Formal initiation of the annexation will occur after completion of the Pre-Annexation Development Agreement and the required CEQA processes and documents.



Source: Image provided by Peck Planning and Development, Virginia Smith Trust Land Plan, June 2022.

Figure 2-11 VST Specific Plan Phasing

DEVELOPMENT REVIEW PROCESS

Zoning Boundaries and Subdivisions

If created through a Zoning Ordinance Amendment, the City may apply an "SP" overlay to each property in the VST plan area indicating that it is regulated by the Specific Plan. The designated residential zone boundaries may be adjusted slightly to reflect subdivision maps as they are approved if the Director of Development Services makes a finding that the adjustment is consistent with the intent of the Specific Plan, zoning, UCP, and City of Merced General Plan.

The precise location of streets, utilities, and boundaries of development sites would be determined upon approval of tentative subdivision maps. With discretionary review or approval, changes may be made in the phasing boundaries or individual sub-phases if they are within 15 percent of the planned total square footage. Changes may also be made in the configuration of the streets and rights of way, and street location as long as the streets have the same lane configurations and operational functionality.

Architectural Review

Commercial, multifamily residential and single-family tract construction would undergo architectural review through the project's Master Homeowner Association's Covenants, Conditions, and Restrictions and per City requirements. Development projects would be first reviewed by the Master Homeowner Association's architectural review committee for compliance with Specific Plan standards, and then submitted to the City for review and concurrence. For projects subject to architectural review, the Director of Development Services may adopt a compliance checklist so that applicants can self-certify compliance. The Director of Development Services may also authorize application of the "minor or incidental" procedure to those projects meeting this Specific Plan's design guidelines and standards.

Building Permits

The City building permit process of plan-check, inspection, and occupancy release would typically be the final and most detailed step in City review of private site development. Impact fees would be due at the time certificates of occupancy are issued.

2.6 CONSTRUCTION ASSUMPTIONS

Per City and County regulations, construction activity, including activities in staging areas and hauling of materials, would be restricted to daytime hours (7:00 a.m. to 6:00 p.m.), unless special permits are issued. No night construction is planned or anticipated. Grading of the site would be a balanced cut and fill operation. No soil or other earthen material would be excavated from the VST plan area and hauled away. Construction access to the VST plan area would be primarily Lake Road to Yosemite Avenue, then east to Campus Parkway (65 percent) and west to Yosemite Avenue; or Lake Road to Bellevue Road then west (35 percent). Construction would not require any pile driving, blasting with explosives, or boring.

2.7 REQUIRED DISCRETIONARY ACTIONS

The project includes a number of other entitlements related to adoption of the VST Specific Plan, including several General Plan elements, amendments to the UCP, rezoning, a vesting tentative subdivision map, a parcel map, a development agreement, and a pre-annexation agreement, annexation to the City of Merced, (potential) annexation to MID, and detachment of the VST Specific Plan portion of the UCP from the Merced Subbasin GSA area and attachment to the Merced Irrigation-Urban GSA. While the VST Specific Plan would be entitled by the County, the VST plan area would be annexed to the City after completion of the VST Specific Plan. The development regulations contained in the VST Specific Plan would pass through to and be implemented by the City after annexation.

2.7.1 Lead Agency

The County of Merced will be the Lead Agency for the CEQA evaluation of the proposed UCP Update and VST Specific Plan.

The project would require the following actions, permits, or approvals from the County:

- Certification of Subsequent EIR,
- Adoption of Mitigation Monitoring and Reporting Plan,
- Adoption of findings and any statement of overriding considerations,
- General Plan Amendment,
- Community Plan Amendment,
- Specific Plan approval,
- Vesting Tentative Map approval, and
- Parcel Map approval.

2.7.2 Approval of a Pre-annexation Development Agreement Responsible and Permitting Agencies

Adoption of the specific plan, development agreement approval, and approval of the annexation will require discretionary action by the City of Merced, and Merced LAFCo.

MERCED COUNTY LOCAL AGENCY FORMATION COMMISSION

The project would require the following actions, permits, or approvals from LAFCo:

- Interim Out of Boundary Service Agreement (if necessary), and
- Annexation of the VST Specific Plan into the City of Merced.

CITY OF MERCED

The project would require the following actions, permits, or approvals from the City:

- General Plan Amendment,
- Rezoning,
- Pre-annexation Development Agreement, and
- Tentative Subdivision Map approval for subphases 1A-1E.

Specific amendments to the County General Plan would include: amending Table LU-2 for consistency with densities and product types proposed for VST Specific Plan; amending the General Plan Urban Community—University Community map/graphic to correctly show UCP boundary (with the adjusted LRDP properties) and VST Specific Plan land uses (or reference to the “VST Specific Plan area”); amending and modifying Circulation Element Table CIR-1 to provide for an “urban” section of Campus Parkway north of Yosemite Avenue which provides for 100 to 110 feet of rights of way, intersection spacing no more frequently than ¼ mile, four through lanes, direct access limited to major activity centers with auxiliary/frontage lanes, and vehicle speeds of 35 miles per hour and a minimum 500-foot centerline radius; amending General Plan Circulation Element Figure 4.1 to add the UCP Circulation Diagram; amending General Plan Circulation Diagram Figure 4.2 showing Campus Parkway north of Yosemite Avenue to Bellevue as adopted by the County of Merced in June, 2021; amending Circulation Element policies and standards to

include a "Class IV" protected bike lane, as provided for in the VST Specific Plan and Caltrans Design Guidelines; and miscellaneous changes to maps and figures to correspond to the UCP Update.

The proposed project would require the following discretionary approvals from other agencies for modifications to the Fairfield Canal:

- Clean Water Act Section 404 Permit (US Army Corps of Engineers),
- Section 7 Biological Opinion (US Fish and Wildlife Service),
- Clean Water Act Section 401 Water Quality Certification/Waiver or Issuance of Waste Discharge Requirements (Central Valley Regional Water Quality Control Board), and
- MID authorization.

The project also would require various ministerial grading permits, building permits, and certificates of occupancy.

This page intentionally left blank.

3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

FORMAT OF THE ENVIRONMENTAL ANALYSIS

Sections 3.1 through 3.8 of this Draft SEIR present a discussion of regulatory background, existing conditions, environmental impacts associated with implementing the proposed UCP Update and VST Specific Plan, new mitigation measures to reduce impacts, and residual levels of significance. Issues evaluated in these sections consist of the environmental topics identified for review in the notice of preparation prepared for the project (Appendix A). A discussion of resource topics dismissed from detailed analysis is provided in Chapter 1, "Introduction."

Setting

Each section begins with descriptions of applicable regulatory and environmental settings, and these are the conditions against which potential impacts are evaluated and are based on the environmental and regulatory setting information published in the 2001/2004 UCP EIR. Where the setting information provided in that document remains applicable to the analysis of the UCP Update and VST Specific Plan, it is incorporated by reference. Where changes to the environmental or regulatory setting (e.g., new information, regulatory changes) are relevant to understanding the UCP Update's or VST Specific Plan's potential impacts, additional background information is provided in these resource sections. As described in Chapter 2, "Project Description," the long-term vision for UC Merced and the adjacent, supporting property is annexation into the City of Merced. Should UC Merced be annexed into the City of Merced, the UCP area would be eligible for annexation as well and would be subject to the City of Merced Vision 2030 General Plan (City of Merced 2012). For this reason, relevant City regulations are summarized. In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15125, the discussions of the environmental setting focus on information relevant to the issue under evaluation.

Impact Evaluation

The setting description in each section is followed by an impacts and mitigation discussion. The thresholds used to determine the level of significance of the environmental impacts for each resource topic are provided, in accordance with State CEQA Guidelines Sections 15126, 15126.2, and 15143. These thresholds of significance are based on the checklist presented in Appendix G of the State CEQA Guidelines; best available data; and the applicable regulatory standards of the City, County, State, and other agencies. In turn, impact statements are based upon the thresholds of significance and are prefaced by a number in bold-faced type. The impact number consists of the section of the Draft SEIR in which that impact is identified followed by a dash to indicate the number of the impact in that section. For example, Impact 3.1-1 is the first impact identified in Section 3.1.

The impact evaluation in Sections 3.1 through 3.8 of this Draft SEIR includes discussion of both project and cumulative impacts. A summary impact statement precedes a more detailed discussion of the environmental impact. The discussion includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. The determination of level of significance of the impact is identified in bold text. A "less-than-significant" impact is one that would not result in a substantial adverse change in the physical environment. A "potentially significant" impact or "significant" impact is one that would result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation. Per Public Resources Code Section 21061.1, feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account, economic, environmental, legal, social, and technological factors. Where mitigation measures are identified, a discussion of impact significance with the implementation of these measures follows.

In this Draft SEIR, each impact discussion is divided into three parts. First, the impact discussion and conclusion in the 2001/2004 UCP EIR are summarized. Relevant adopted mitigation measures from the 2001/2004 UCP EIR are provided. Next, the programmatic impact of the UCP Update is evaluated. Finally, the impact of the VST Specific Plan is evaluated. As appropriate, these two impact evaluations identify whether the adopted mitigation would address the potential impacts and includes a statement regarding whether there would be a new significant effect and/or if the impact could be more severe than the impact identified in the 2001/2004 UCP EIR. Additional mitigation measures are identified, as feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts, in accordance with the State CEQA Guidelines Section 15126.4. All mitigation measures pertinent to each individual impact follow directly after the impact determination. The degree to which the identified mitigation measure(s) would reduce the impact is also described.

For an evaluation of alternatives to the project that could reduce environmental effects, the reader is referred to Chapter 4, "Alternatives," which presents a reasonable range of alternatives and evaluates the environmental effects of those alternatives relative to the UCP Update and VST Specific Plan, as required by Section 15126.6 of the State CEQA Guidelines. The full references associated with the parenthetical references found throughout Sections 3.1 through 3.8 can be found in Chapter 7, "References," organized by section number.

APPROACH TO THE ENVIRONMENTAL ANALYSIS

Adverse physical impacts to the environment associated with implementation of the UCP Update and VST Specific Plan are the focus of this environmental analysis. Physical changes could result from subsequent development pursuant to land use designations established through the UCP Update and VST Specific Plan and offsite or indirect development that is necessitated by the UCP Update and VST Specific Plan (e.g., new facilities, infrastructure upgrades). The UCP Update and VST Specific Plan would be required to comply with all previously adopted mitigation, and the potential for a new or substantially more severe impact are evaluated assuming implementation of these measures, unless otherwise indicated.

The level of significance for each impact is determined by comparing the impacts of physical changes anticipated with implementation of the UCP Update and VST Specific Plan to the environmental setting, with a focus on how the land uses that may be developed under the UCP Update and VST Specific Plan could change the significance of the impacts identified in the 2001/2004 UCP EIR. Specific methodology is described in each resource section. The Draft SEIR uses the same assumptions as the 2001/2004 UCP SOI EIR whenever appropriate. Where the 2001/2004 UCP EIR concluded that there would be no impacts or impacts would be less than significant without the application of mitigation for specific threshold criteria and there is no evidence of potential impacts due to the proposed UCP Update and VST Specific Plan, the impacts have been dismissed from further analysis with a brief explanation provided in the resource section.

The analysis herein reflects changes in applicable regulations (including CEQA) and standards of review. It is important to note that environmental impact analyses under CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents, unless the proposed project might cause or risk exacerbating environmental hazards or conditions that already exist (CCR Section 15126.2[a]). In those specific instances, it is the project's impact on the environment and not the environment's impact on the project that compels an evaluation of how future residents or users could be affected by exacerbated conditions (*California Building Industry Association v. Bay Area Air Quality Management District* [2015] 62 Cal. 4th 369). Further, where an existing law, regulation, or permit specifies mandatory and prescriptive actions about how to fulfill the regulatory requirement, leaving little discretion in its implementation, and would avoid an impact or maintain it at a less-than-significant level, the environmental protection afforded by the regulation is considered before determining impact significance. Where existing laws or regulations specify a mandatory permit process for future projects, performance standards without prescriptive actions to accomplish them, or other requirements that allow substantial discretion in how they are accomplished, or have a substantial compensatory component, the level of significance is determined before applying the influence of the regulatory requirements. In this circumstance, the impact would be potentially significant or significant, and the regulatory requirements would be included as a mitigation measure.

ADOPTED MITIGATION MEASURES

The 2001/2004 UCP EIR included mitigation measures intended to reduce the potentially significant environmental effects of implementing the Adopted UCP. Unless otherwise indicated in the analysis that follows, these adopted measures remain applicable to the proposed amendments and would be implemented. In addition, new or revised mitigation measures are proposed to address new or substantially more severe impacts and to replace previously adopted mitigation to reflect changes in applicable regulations (including CEQA) and standards of review. These new mitigation measures are presented in the sections that follow and summarized in the "Executive Summary" of this Draft SEIR.

Table 3-1 Adopted Mitigation Measures from the 2001/2004 UCP EIR

2001/2004 UCP EIR Mitigation Measures
<p>Aesthetics</p> <p>Adopted Mitigation Measure 4.1-1</p> <p>New above-ground infrastructure in the UCP shall be designed to the following standards:</p> <ol style="list-style-type: none"> (a) Screen above-ground infrastructure from view from public rights-of-way or scenic vistas, via landscaping, fencing, or other architectural screening; (b) Require creative measures to camouflage structures by integrating them with existing buildings and among other existing uses; (c) Locate above-ground infrastructure on sites that are not visible from visually sensitive areas, such as residential communities and open space areas; (d) Require providers to co-locate their structures on a single site, where technically feasible and visually desirable; and (e) Locate antennae and equipment on other existing community facility sites, such as on water tanks or utility poles.
<p>Air Quality</p> <p>Adopted Mitigation Measure 4.3-1</p> <p>Compliance with the following SJVUAPCD mitigation measure listed in Table 6-3 of the GAAMAQD would further reduce dust created during construction activities:</p> <p>Limit traffic speeds on unpaved roads to 15 mph.</p>
<p>Adopted Mitigation Measure 4.3-2</p> <p>Construction contracts shall include the following specifications:</p> <ul style="list-style-type: none"> • Minimize idling time to a maximum of ten minutes when construction equipment is not in use; • Employ construction activity management techniques such as extending the construction period outside the ozone season of May through October, reducing the number of hours of construction and scheduling activities during off peak hours; • Tuning engines to manufacture's specifications; • When feasible, schedule equipment usage to avoid simultaneous use of equipment.
<p>Adopted Mitigation Measure 4.3-4</p> <ol style="list-style-type: none"> (a) Outdoor electrical outlets shall be installed in the front and backyards of all housing units. (b) Use solar or low emission water heaters. (c) Orient buildings to take advantage of solar heating and natural cooling and use passive solar design. (d) Increase wall and attic insulation.
<p>Biological Resources</p> <p>Adopted Mitigation Measure 4.4-3</p> <p>The County shall ensure that at least 551 acres of upland annual grassland is preserved in conjunction with and to support at least 61.2 acres of vernal pool fairy shrimp habitat (for a total of 612 acres).</p>

2001/2004 UCP EIR Mitigation Measures

Adopted Mitigation Measure 4.4-4(a)

The County shall ensure that Swainson's hawk foraging habitat is preserved off-site in sufficient quality and quantity, as determined through consultation with CDFG, to mitigate for the loss resulting from the proposed UCP.

The preservation of annual grasslands (through Policy PA 2.3) that are suitable as foraging habitat for Swainson's hawk shall be located within 10 miles of a current or historic Swainson's hawk nest site (consistent with CDFG guidance).

Adopted Mitigation Measure 4.4-4(b)

The County shall require pre-construction surveys to identify active raptor nests prior to onsite of construction activities within 1,000 feet of any ground-disturbing activities (i.e., construction site). The pre-construction surveys will be conducted in accordance with USFWS and/or CDFG guidelines. If no active raptor nests are identified within 1,000 feet of the construction site, no further mitigation would be necessary.

If active nests are found within 1,000 feet of the construction site, the CDFG shall be consulted to determine appropriate mitigation measures to minimize the effect. At a minimum, construction shall be delayed within an appropriate buffer zone, as determined by consultation with CDFG, until the young have fledged.

Adopted Mitigation Measure 4.4-5

Project applicants shall conduct surveys for dens/burrows that could be occupied by vagrant San Joaquin kit fox prior to any ground-disturbing activities within the UCP area. The surveys shall be conducted within two weeks or less of any ground-disturbing activities. If dens/burrows meeting the criteria suitable for use by San Joaquin kit fox are found, the dens/burrows shall be cleared using the methodologies that are consistent with those described in the June 1999 Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance.

Adopted Mitigation Measure 4.4-6

Seed collection from the shining navarretia located within the UCP area shall be conducted prior to the loss of the populations in the UCP area. Seed collection shall be conducted by a qualified botanist or restoration biologist. Collected seeds shall be dispersed within suitable habitat (i.e., seasonally moist clay flats in grassland). Seeds shall be dispersed only within suitable habitats where shining navarretia does not currently occur to avoid impacts on the genetic composition of existing populations.

Seeds from shining navarretia shall be dispersed in suitable habitat within the annual grassland preserved in conjunction with loss of vernal pool habitat (Impact 4.4.1) and/or Swainson's hawk habitat (Impact 4.4.4), if feasible. However, if mitigation lands to serve both purposes cannot be found, the applicant will be responsible for negotiating a conservation easement with a land owner in the vicinity such that a minimum of seven populations of shining navarretia receive long-term protection.

Cultural Resources

Adopted Mitigation Measure 4.5-4

The County shall document that appropriate cultural resource surveys and measures to protect cultural resources, if present, are completed prior to construction of offsite improvements outside of the UCP area.

Hydrology and Water Quality

Adopted Mitigation Measure 4.8-12

The County shall develop Best Management Practices and prepare a Stormwater Pollution Prevention Plan and a stormwater monitoring program consistent with National Pollution Discharge System Phase 2 Permit Criteria.

Adopted Mitigation Measure 4.8-15

The County shall work with the Merced County Flood Control District, MID, and the City of Merced to update the Merced County Critical Area Flooding and Drainage Plan to identify a strategy for managing storm drainage runoff associated with future development within the Merced area. The plan update shall include at a minimum: existing hydrologic and hydraulic conditions, identification of base flood elevations that meet FEMA 44 CFR part 60 requirements, if such data have not been developed, and a process to evaluate the one-foot cumulative increase criteria; estimates of future peak flows and volumes based on anticipated land uses; performance standards for new development that address both peak flows and volumes while downstream conditions are not worsened; strategies to coordinate the development of local storm drainage and flood protection improvements with Merced County Streams Group projects; and mechanisms to update or revise the plan as needed as new information becomes available.

Adopted Mitigation Measure 4.8-16

MID and the County shall coordinate to ensure that additional stormwater drainage systems do not add flows into the Fairfield Canal that would exceed the canal's capacity restrictions, potentially creating levee failure or overtopping conditions downstream of the UCP area.

2001/2004 UCP EIR Mitigation Measures

Noise

Adopted Mitigation Measure 4.10-3(a)

The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise levels.

Adopted Mitigation Measure 4.10-3(b)

For development within the UCP area, noise considerations should be taken into account during initial site planning, in order to maximize shielding by the planned structures or other on-site features.

Adopted Mitigation Measure 4.10-4

Construction contractors shall comply with the following or an equivalent noise control program:

- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with exhaust mufflers and air-inlet silencers, where appropriate, in good operating condition that meet or exceed original factory specification.
 - Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
 - All mobile or fixed noise-producing equipment used on the project, that is regulated for output by local, state or federal agency, shall comply with such regulation while engaged with project-related activities.
 - Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable.
 - Material stockpiles and mobile equipment staging, parking and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
 - The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. No project-related public address loudspeaker, two-way radio, or music system shall be audible at any adjacent noise-sensitive receptor except for emergency use.
 - The erection of temporary noise barriers will be considered where project activity is unavoidably close to noise-sensitive receptors.
-

Adopted Mitigation Measure 4.10-5

Limit groundborne vibration due to construction activities to 0.2 in/sec velocity (limit of potential for damage to structures) in the vertical direction at sensitive receptors. For construction adjacent to highly sensitive uses, apply additional measures as feasible, including advance notice to occupants of sensitive facilities to ensure precautions are taken in those facilities to protect ongoing activities from the effects of vibration.

Public Services

Adopted Mitigation Measure 4.12-7

The County shall ensure that the County Library's level of service does not fall below the current service level.

Transportation and Circulation

Adopted Mitigation Measure 4.14-1

Development under the UCP shall contribute its fair share towards the annual monitoring of traffic conditions along major approach routes to the UCP area and shall contribute its fair share toward implementation of interim improvements as warranted.

Adopted Mitigation Measure 4.14-4

Merced County will, and the City of Merced can and should, ensure adequate maintenance of the existing path along Lake Road and other regional bicycle and pedestrian facilities that provide access to the proposed UCP.

Adopted Mitigation Measure 4.14-7(a)

UCP development shall contribute its fair share toward the following Tier road improvements that are shown in Figure 4.14-3

- Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road
 - Highway 59, new segment between Highway 99 and 140
 - Yosemite Avenue, extend from R Street to Highway 59
 - Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street
 - Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway
-

2001/2004 UCP EIR Mitigation Measures

- R Street, extend from Yosemite Avenue to Bellevue Road
- Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road
- Highway 59, new alignment along Mission Avenue
- Mission Avenue, widen to 4 lanes, Highway 99 to Highway 59
- Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 59

Adopted Mitigation Measure 4.14-7(b)

For development through year 2025, UCP development shall only contribute its fair share toward the following Tier road improvements, which are shown on Figure 4.14-4:

- Yosemite Avenue, extend from R Street to Highway 59
- Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street
- R Street, extend from Yosemite Avenue to Bellevue Avenue
- Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road
- Bellevue Road, widen to 4 lanes, Highway 59 to Campus Parkway

Adopted Mitigation Measure 4.14-7(c)

For development through Year 2015, the County shall analyze the expected future operations of the Lake/Yosemite intersection at the following milestone points: (1) determination of conceptual alignment for Campus Parkway, (2) preparation of the Geometric Approval Drawings for Campus Parkway, and (3) each October, beginning in the opening year of the UC Merced Campus. If any of these analyses determine that the Lake/Yosemite intersection will operate at unacceptable LOS, the proposed UCP shall contribute its fair share toward the cost of any improvements deemed necessary at the intersection. Monitoring of the Lake/Yosemite intersection shall end upon completion of the Campus Park extension from Yosemite Avenue to Bellevue Road.

4.14-7(d) The County shall work with the City of Merced, Caltrans and MCAG to establish rights-of-way and access management requirements along the routes identified above.

Adopted Mitigation Measure 4.14-8(a)

Implement Mitigation Measure 4.14-7(a). In addition, UCP development shall contribute its fair share toward intersection improvement along G Street between Highway 99 and Childs Avenue.

Adopted Mitigation Measure 4.14-8(b)

Implement Mitigation Measure 4.14-7(d).

CUMULATIVE IMPACTS

State CEQA Guidelines Section 15355 defines a cumulative impact as “two or more individual effects which, when considered together, are considerable.” An individual effect need not itself be significant to result in significant cumulative effects; the impact is the result of the incremental effects of the project combined with the effects of “other closely related past, present, and reasonably foreseeable probable future projects.” CEQA does not define “closely related,” but the Code of Federal Regulations (40 CFR 1508.25) indicates that a “closely related” project is one that is automatically triggered by the project; one that cannot proceed without the project first proceeding (mutual dependency); one that requires the project for justification or is an interdependent part of the same action; or one that is a similar action with common timing, geography, and other features.

Cumulative Impact Analysis Methodology

Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

[t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

A proposed project is considered to have a significant cumulative effect if:

- the cumulative effects of development without the project are not significant and the project's additional impact is substantial enough, when added to the cumulative effects, to result in a significant impact; or
- the cumulative effects of development without the project are already significant and the project contributes measurably to the effect.

The cumulative impact analysis provided in this chapter evaluates whether the proposed UCP Update and VST Specific Plan project could result in potentially new cumulatively considerable impacts or an increase in the severity of previously identified cumulative impacts that were identified in the 2001/2004 UCP EIR pursuant to State CEQA Guidelines Section 15162(b).

Scope of the Cumulative Analysis

The 2001/2004 UCP EIR included cumulative analyses based on projections provided by the Merced County Association of Governments (MCAG) were used, which extended to 2025, and buildout of the SUDPs and rural residential centers is assumed. Development of the UC Merced campus was assumed in both UCP buildout and cumulative scenarios in the 2001/2004 UCP EIR (page 4.0-2).

Since certification of the 2001/2004 UCP EIR, MCAG population projections have increased. MCAG estimates in the 2001/2004 UCP EIR were 95,679 housing units and a population of 351,488 (not including growth related to UC Merced). As summarized in Chapter 1, "Introduction," according to current MCAG projections, the County population is projected to increase to 431,300 residents by 2030.

Development on the UC Merced campus remains generally consistent with the assumptions in the 2001/2004 UCP EIR, although more growth is now projected. The analysis in the 2001/2004 UCP EIR assumed 16,150 people living on the campus in 4,418 housing units. A total of 6,248 jobs were assumed. The 2020 Long Range Development Plan for UC Merced envisions development of the 1,026-acre campus to support projected enrollment of 15,000 students and a total campus population of 17,411 people through 2030. Further, the City's SUDP has been expanded and now includes more area surrounding UC Merced, including the UCP area.

To address changes since certification of the 2001/2004 UCP EIR, the cumulative analysis includes consideration reasonably foreseeable future projects, summarized in Table 3-2.

Table 3-2 Cumulative Project List

Name	Location	Description	Status ¹
Advanced Chemical Transportation (ACT)	265 Riggs Ave Merced	Hazardous waste collection and disposal	Complete
Campus Vista Unit 2	Campus Drive and West El Portal Drive, Merced	60 lot subdivision on 8.23 acres	Complete
Mansionette Estates Unit 5	Southeast Corner of Mercy Ave & Mansionette Drive, Merced	20 lot subdivision on 5.92 acres	Complete
Moraga Subdivision Phase 1	South of Yosemite between McKee & Lake Rd, Merced	249 lot subdivision on 602 acres	Complete
Prime Shine	16th St & P St (930 W. 16th St), Merced	Car wash	Complete
Sandcastle Phase 2 and 3 Subdivision	Northeast corner of Gerard and Coffee Streets	144 lots in a subdivision on 40 acres	Complete
Shadow Creek at Compass Point	North of Yosemite and West of R Street in Merced	293 lots in a subdivision on 108.8 acres	Complete
Sierra Vista Units 2 and 3	East of Coffee Rd, North of Childs Ave, Merced	44 lots in a subdivision on 41 acres	Complete

Name	Location	Description	Status ¹
Super Shop	North of 14th St, West of V St (1535 W 14th St)	Automotive Repair Shop and Future Shell Building	Complete
The Meadows Subdivision	South of Gerard Ave, West of Barroso Ave, Merced	58 lots in a subdivision on 19.9 acres	Complete
Towne Place Suites	247 South Parsons Avenue, Merced	Hotel	Complete
Tuscany East Subdivision	North of Childs Ave, West of Hartley Lateral	47 lots in a subdivision on 8.6 acres	Complete
UC Merced LRDP	5200 North Lake Rd. Merced	1.8 million sq ft of building space to serve the projected enrollment level of 15,000 students by 2030	Approved and
University Park II, Phase 2 Subdivision	Snelling Highway at Belcher Avenue, Merced	Tentative Subdivision Map: 125 lots on 18.98 acres	Approved
Bellevue Ranch Large Lot Map	Bellevue Road at G Street, Merced	Tentative Subdivision Map: 29 lots on 520 acres	Approved
Bellevue Ranch North Village 23	Bellevue Road at G Street, Merced	Tentative Subdivision Map: 106 lots on 37.7 acres	Approved
Bellevue Ranch West Villages 17 & 18	Bellevue Road at G Street, Merced	Tentative Subdivision Map: 249 lots on 44.1 acres	Approved
Bianchi/Norcal Cajun Annexation	Northwest Corner of Santa Fe Dr & N Hwy 59	Retail/Commercial: 42,000 sq ft on a 7.83-acre site	Approved but Unconstructed
Bright Development	McKee Road at Silverstone Drive, Merced	Tentative Subdivision Map: 168 lots on 40 acres	Approved
Bruno Apartments	West side of San Augustine Ave at Pacific Drive	Apartments: 164 units on 10.73 acres	Approved but Unconstructed
Campus Parkway Plaza	Southwest Corner of Campus Parkway and Coffee Street	Shopping Center w/ 4 Fast-food Restaurants, 2 Dine-in Restaurants, Gas Station, and 5-Story, 134-Room Hotel	Approved but Unconstructed
Carol Avenue - Gas Station/Convenience Market/Car Wash	Carol Ave, North of Childs (764 & 782 Carol Ave)	Gas Station, Convenience Market, and Retail Space: 6,400 sq ft on a 1-acre site	Partially Constructed
Childs & Parsons	Southwest Corner of Childs & Parsons	Arco Gas Station/Car Wash/Market, KFC, and Fast-food Restaurant: 12,000 sq ft on a 3.21-acre site	Approved and Partially Constructed
Childs Court Apartments	Northwest Corner of Childs Ave & B St	Apartments/Permanent Supportive Housing: 199 units on 4.9 acres	Under Construction (as of March 2022)
Compass Pointe II Apartments	Southeast Corner of Horizons & Pacific	Apartments: 136 units on a 10.42-acre parcel	Building Permits Submitted
Cypress Terrace	East Gerard Avenue, Merced	Tentative Subdivision Map: 260 lots on 46.2 acres	Approved
Devonwood Apartments	South of Devonwood, East of Wal-Mart	Apartments: 156 units on 6.39 acres	Approved but Unconstructed
DRA Development	1250 W 9th St, Merced	4,749 acres of retail commercial on a 0.35-acre site	Approved but Unconstructed

Name	Location	Description	Status ¹
El Capitan Hotel	209 West Main Street, Merced	Hotel	Approved and Constructed
Fineline Industries/Centurian Boats	2047 Grogan Ave, Merced	30,000 SF Expansion of Existing Boat Manufacturer	Approved but Unconstructed
Gateway Commons	Southeast Corner of Gerard Ave & Coffee Street	Apartments: 200 units on 9.3 acres	Approved but Unconstructed
Gateway Terrace II	416 West 12 th Street, Merced	50 apartments	Approved but Unconstructed
Lantana Estates Phases 2 & 3	Bricka Brack Boulevard at Central Yosemite Highway, Merced County	Tentative Subdivision Map: 99 lots on 20.58 acres	Approved
Lawler Excavation & Pipeline	2275 & 2284 Cessna Way, Merced	222-unit mini-storage on a 2.02-acre parcel	Approved but Unconstructed
Mainzer Theater	655 West Main Street, Merced	Music venue	Approved and Constructed
Mansionette Commercial Development	Mansionette Drive, Merced	Tentative Subdivision Map: 17 lots on 21.5 acres	Approved
Merced Gateway Center	NE & SE Corner of Coffee & Campus Pkwy	Shopping Center (523,000 sq ft), Apartments 178 units), and Fire Station on a 77.5-acre site	Approved and Partially Constructed
Merced Mall Expansion & Redevelopment	Northeast Corner of West Olive Ave & R Street	Mall Expansion in 2 Phases, including 50,000 SF Retail & expanded 72,000 SF Theater	Approved but Unconstructed
Merced Station	Southeast Corner of Yosemite Ave & Lake Rd	Apartments (student housing)/Retail: 270 units on 14.5 acres	Approved and Constructed
Mercy Village	Southeast corner of Loughborough Drive & Meadows Avenue	161 apartments and 12,666 sq ft medical clinic on 6.93 acres	Pending (as of March 2022)
Mission Ranch Phase 2	East Mission Avenue and South G Street, Merced	Tentative Subdivision Map: 70 lots on 7.78 acres	Approved
Northview Medical Offices	Southeast Corner of Mercy Ave & Sandpiper Dr	Medical offices (four buildings): 66,450 sq ft on a 6-acre site	Approved and Partially Constructed
O'Keeffe's Window Manufacturing	1850 Grogan Avenue, Merced	Manufacturing facility	Approved and Constructed
Pro Lube	Northwest Corner of G St & 23rd St	Pro-Lube/Car Wash/Sandwich Shop	Partially Constructed
Regency Court Apartments	North of Merrill Dr (extended), East of G St.	Apartments: 180 units on a 9.8-acre parcel	Approved but Unconstructed
Sage Creek	Merced	Tentative Subdivision Map: 103 lots on 15.93 acres	Approved
Sage Creek Apartments	Southeast Corner of Cardella Road (extended) & Horizons Ave (extended)	Apartments: 248 units on 13.5 acres	Approved by Unconstructed
Shoppes at Merced Mall (Seritage)	Northeast Corner of W. Olive Ave & R St	Remodel of Old Sears into 8 Tenant Spaces/ Addition of 2 Pads	Under Construction

Name	Location	Description	Status ¹
Stoneridge South	Zion Canyon Court, Merced	Tentative Subdivision Map: 161 lots on 39.7 acres	Approved
Terrazo	Merced	Tentative Subdivision Map: 46 lots on 11.84 acres	Approved
The Crossing at River Oaks	Merced	Tentative Subdivision Map: 277 lots on 66.78 acres	Approved
The Hub 2.0	Southeast Corner of Yosemite Ave and McKee Road	225 apartments, 20,044 sq ft of retail, and 14,445 sq ft of office	Approved by Unconstructed
The Palisades	Merced	Tentative Subdivision Map: 140 lots on 29.35 acres	Approved
Valley Childrens Clinic	Northeast Corner of W. Yosemite Ave & Sandpiper Dr	Pediatric Medical Offices: 44,250 sq ft on 4.54 acres	Approved but Unconstructed
Yosemite Crossing	Northeast Corner of Yosemite Ave & G Street	Shopping Center w/ 4 Fast-food Restaurants (16,166 SF), 2,586 SF Coffee Shop, 22,000 SF Grocery Store, Gas Station with 4,086 SF CStore, 5,381 SF Car Wash, 18,010 SF Other Retail, 33,048 SF Medical Offices or Hotel	Under Construction
Yosemite Village Apartments	Northwest Corner of Yosemite Ave and Compass Pte Ave	Multi-Family Housing (200 units) and Neighborhood Commercial (10,000 SF Retail; Gas Station/Mini Mart/Car Wash; Future Drive-Thru Restaurant	Approved but Unconstructed

¹ as of March 2022, unless otherwise noted

Source: Compiled by Ascent based on data provided by VRPA technologies and obtained from the City of Merced

3.1 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable air quality regulations, and an analysis of potential short-term and long-term air quality impacts that could result from implementation of the UCP Update and the VST Specific Plan. The methods of analysis for short-term construction, long-term regional (operational), local mobile-source, and toxic air emissions are consistent with the recommendations of the San Joaquin Valley Air Pollution Control District (SJVAPCD), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (EPA). Mitigation is developed as necessary to reduce significant air quality impacts to the extent feasible.

The 2001/2004 UCP EIR included Section 4.3, "Air Quality," which evaluated the potential effects of the Adopted UCP. The 2001/2004 UCP EIR concluded that respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less (PM₁₀) from construction activities would have a less-than-significant impact after implementation of Adopted UCP Policy AQ 5.1 and Adopted Mitigation Measure 4.3-1. In addition, construction activities that would generate oxides of nitrogen (NO_x), reactive organic gases (ROG), carbon monoxide (CO) would have a less than significant impact after implementation of Adopted UCP Policies AQ 5.2 through 5.4 and Adopted Mitigation Measure 4.3-2.

With implementation of the Adopted UCP, the 2001/2004 UCP EIR determined that operational emissions associated with the Adopted UCP area would exceed SJVAPCD standards and would have a significant and unavoidable impact with the implementation of Adopted UCP Policies AQ 2.4, AQ 2.5, AQ 2.6, AQ 6.1, and AQ 7.1; LU 4.1, LU 4.3, LU 5.8, and LU 5.16 and Adopted Mitigation Measure 4.3-4. The 2001/2004 UCP EIR also concluded that although project-related traffic would increase CO concentrations at specific intersections, there would be less-than-significant project and cumulative impacts with implementation of Adopted UCP Policies AQ 2.2, AQ 2.4, and AQ 2.5; LU 4.1, LU 4.3, LU 5.8, and LU 5.16; and T 7.1, T 7.3, and T 7.4. Adopted UCP Policies AQ 4.1, AQ 4.3, AQ 5.1, and AQ 5.3; T 4.2, T 4.3, T 4.4, T 4.5, T 5.5, T 5.6, T 7.1, T 7.2, T 7.3, and T 7.4 address the UCP's contributions to cumulative effects on air quality. Nonetheless, emissions from buildout of the Adopted UCP, in combination with UC Merced and other development in the county, were determined to contribute to the degradation of air quality, which would be a cumulatively significant and unavoidable impact.

The 2001/2004 UCP EIR also determined that future residents of the Adopted UCP area could be exposed to pesticide spray drift from adjacent agricultural operations, which would result in a less-than-significant impact after implementation of Adopted UCP Policy A 4.1. Future residents could also be exposed to toxic air contaminants (TACs) from stationary sources within the Adopted UCP area. This would be a less-than-significant impact after implementation of Adopted UCP Policy AQ 3.1. Finally, future residents could be exposed to odors from sources within the UCP area and odors and dust from adjacent land uses. This would also be a less-than-significant impact after implementation of Adopted UCP Policies AQ 3.1, A 2.2, and A 4.1.

No comments related to air quality were received in response to the notice of preparation for this SEIR.

3.1.1 Regulatory Setting

Air quality in the region is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work to improve air quality through legislation, planning, policymaking, education, and a variety of other programs. The regulatory setting provided in the 2001/2004 UCP EIR remains applicable to this analysis. The regulatory information provided on pages 4.3-5 through 4.3-18 of the 2001/2004 UCP EIR includes a description of ambient air quality standards; air quality attainment plans; TAC regulations; SJVAPCD rules regulations; applicable policies of the County's General Plan; and Adopted UCP policies. Air Quality standards, and the attainment status of each criteria air pollutant with respect to the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) in Merced County, has been updated since certification of the 2001/2004 UCP EIR. Additional regulatory information has been provided below.

FEDERAL

Criteria Air Pollutants

The Clean Air Act (CAA) established the requirement that each state prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The NAAQS are shown in Table 3.1-1. The federal CAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.1-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS) ^{a,b}	National (NAAQS) ^c	
			Primary ^{b,d}	Secondary ^{b,e}
Ozone	1-hour	0.09 ppm (180 µg/m ³)	— ^e	Same as primary standard
	8-hour	0.070 ppm (137 µg/m ³)	0.070 ppm (147 µg/m ³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	Same as primary standard
	8-hour	9 ppm ^f (10 mg/m ³)	9 ppm (10 mg/m ³)	
Nitrogen dioxide (NO ₂)	Annual arithmetic mean	0.030 ppm (57 µg/m ³)	53 ppb (100 µg/m ³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)	—
Sulfur dioxide (SO ₂)	24-hour	0.04 ppm (105 µg/m ³)	—	—
	3-hour	—	—	0.5 ppm (1300 µg/m ³)
	1-hour	0.25 ppm (655 µg/m ³)	75 ppb (196 µg/m ³)	—
Respirable particulate matter (PM ₁₀)	Annual arithmetic mean	20 µg/m ³	—	Same as primary standard
	24-hour	50 µg/m ³	150 µg/m ³	
Fine particulate matter (PM _{2.5})	Annual arithmetic mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
	24-hour	—	35 µg/m ³	Same as primary standard
Lead ^f	Calendar quarter	—	0.15 µg/m ³ ^g	Same as primary standard
	30-Day average	1.5 µg/m ³	—	—
	Rolling 3-Month Average	—	0.15 µg/m ³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m ³)	No national standards	
Sulfates	24-hour	25 µg/m ³		
Vinyl chloride ^f	24-hour	0.01 ppm (26 µg/m ³)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

^a California standards for ozone, carbon monoxide, SO₂ (1- and 24-hour), NO₂, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

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

- ^c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. The PM_{2.5} 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.
- ^d National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ^e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ^f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ^g In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarterly average) also remain in effect.

Source: CARB 2019; EPA 2022.

Hazardous Air Pollutants and Toxic Air Contaminants

TACs, or in federal parlance, hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A 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 low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.1-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology standards. These standards are authorized by Section 112 of the 1970 CAA and the regulations are published in 40 CFR Parts 61 and 63.

STATE

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish CAAQS (see Table 3.1-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 ("Hot Spots Act") (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1,3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL

San Joaquin Valley Air Pollution Control District

Criteria Air Pollutants

The following discussion provides explanation of specific SJVAPCD rules not mentioned in the 2001/2004 UCP EIR that could be applicable to the proposed project, as well as a summary of select regulations and rules that were included in the 2001/2004 UCP EIR that inform the analysis in this SEIR.

- **Regulation VIII—Fugitive Dust PM10 Prohibitions:** Rules 8011–8081 are designed to reduce PM10 emissions (predominantly dust and dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, and landfill operations. Compliance with Regulation VIII is mandatory and enforced through civil penalties, so compliance by the project proponent is assumed in this analysis. SJVAPCD is made aware of actions that violate their regulations and rules, such as Regulation VIII, and may investigate claims that, if found to be accurate, may incur financial penalties.
- **Rule 3135—Dust Control Plan Fee:** This rule requires applicants to submit a fee in addition to a dust control plan. The purpose of this fee is to recover SJVAPCD's cost for reviewing such plans and conducting compliance inspections.
- **Rule 4002—National Emissions Standards for Hazardous Air Pollutants:** This rule applies to all sources of HAPs and requires the sources to comply with the standards, criteria, and requirements set forth therein.
- **Rule 4101—Visible Emissions:** This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

- **Rule 4102—Nuisance:** This rule applies to any source operation that emits or may emit air contaminants or other materials. If such emissions create a public nuisance, the owner/operator could be in violation and be subject to enforcement action by SJVAPCD.
- **Rule 4601—Architectural Coatings:** This rule limits volatile organic compounds from architectural coatings by specifying storage, cleanup, and labeling requirements for architectural coatings.
- **Rule 8021—Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities:** This rule limits fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities.
- **Rule 9510—Indirect Source Review.** Also known as the ISR, this rule is intended to reduce or mitigate emissions of NO_x and PM₁₀ from new land use development in the SJVAPCD. This rule requires specific percentage reductions in estimated onsite construction and operation emissions, and/or payment of a prescribed off-site mitigation fee for required reductions that cannot be met on the project site. Construction emissions of NO_x and PM₁₀ exhaust must be reduced by 20 percent and 45 percent, respectively, compared to total unmitigated project emissions. Operational emissions of NO_x and PM₁₀ must be reduced by 33.3 percent and 50 percent, respectively, compared to total unmitigated project emissions. The rule applies to residential projects proposing 50 or more units and commercial development projects of 2,000 square feet and larger.

In addition, if modeled construction- or operation-related emissions for a project exceed SJVAPCD's mass emission thresholds for criteria air pollutants and precursors, SJVAPCD recommends implementing mitigation to reduce these emissions. SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) states that as of 2015, SJVAPCD has adopted CEQA thresholds of significance (100 tons per year [TPY] of CO, 10 TPY of NO_x and ROG, 27 TPY of sulfur oxides (SO_x), and 15 TPY of PM₁₀ and fine particulate with an aerodynamic resistance diameter of 2.5 micrometers or less [PM_{2.5}]) and recommends conducting an ambient air quality analysis (AAQA) if criteria air pollutants exceed a screening criteria of 100 pounds per day (lb/day) for all pollutants. As a form of mitigation, a project proponent may enter into a voluntary emission reduction agreement (VERA) with SJVAPCD to reduce the project-related impact on air quality to a less-than-significant level. A VERA is a mitigation mechanism by which a project proponent provides pound-for-pound mitigation of emissions increases through a process that funds and implements emission reduction projects (SJVAPCD 2015). SJVAPCD's mass emission thresholds are presented below in Section 3.1.3, "Environmental Impacts and Mitigation Measures."

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures. Under SJVAPCD Rule 2010 ("Permits Required"), Rule 2201 ("New and Modified Stationary Source Review"), and Rule 2550 ("Federally Mandated Preconstruction Review for Major Sources of Air Toxics"), all sources that possess the potential to emit TACs are required to obtain permits from SJVAPCD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. SJVAPCD limits emissions and public exposure to TACs through multiple programs. SJVAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people or facilities that generally house people (e.g., residences, schools, hospitals) that may experience adverse effects from unhealthful concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generate citizen complaints to local governments and SJVAPCD. SJVAPCD Rule 4102 ("Nuisance") regulates odorous emissions.

Merced County General Plan

Relevant policies from the 2030 Merced County General Plan (County of Merced 2013) related to air quality are listed below:

- **Policy AQ-1.1: Energy Consumption Reduction.** Encourage new residential, commercial, and industrial development to reduce air quality impacts from energy consumption.

- **Policy AQ-2.1: Air Quality Plan Compliance** Require all development projects to comply with applicable regional air quality plans and policies.
- **Policy AQ-2.3: Cumulative Impacts.** Encourage the reduction of cumulative air quality impacts produced by projects that are not significant by themselves, but result in cumulatively significant impacts in combination with other development.
- **Policy AQ-2.4: Mitigation.** Require that local and regional air quality impacts identified during CEQA review for projects reviewed and approved by the County are consistently and fairly mitigated.
- **Policy AQ-2.5: Innovative Mitigation Measures.** Encourage innovative mitigation measures and project redesign to reduce air quality impacts by coordinating with the San Joaquin Valley Air Pollution Control District, project applicants, and other interested parties.
- **Policy AQ-2.7: Air District Best Performance Standards.** Require the County to use the Best Performance Standards adopted by SJVAPCD during the development review and decision-making process to ensure new projects meet the targets set by the district.
- **Policy AQ-4.1: Decrease Vehicle Miles Traveled.** Require diverse, higher-density land uses (e.g., mixed-use and infill development) to decrease vehicle miles traveled.
- **Policy AQ-4.4: Transportation Alternatives.** Require employers and developers to provide employees and residents with attractive, affordable transportation alternatives, such as transit stops, van pool pick-up and dropoff locations, and biking paths/storage.
- **Policy AQ-4.6: Non-Motorized Transportation.** Encourage non-motorized transportation corridors within and between communities.
- **Policy AQ-4.7: Planning Integration.** Require land use, transportation, and air quality planning to be integrated for the most efficient use of resources and a healthier environment.
- **Policy AQ-6.1: Particulate Emissions from Construction.** Support the San Joaquin Valley Air Pollution Control District's efforts to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible and consistent with State and Federal regulations.
- **Policy AQ-6.2: Emissions from County Roads.** Require PM₁₀ and PM_{2.5} emission reductions on County-maintained roads to the maximum extent feasible and consistent with State and Federal regulations.
- **Policy AQ-6.3: Paving Materials.** Require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.
- **Policy AQ-6.6: Prohibition on Wood Stoves.** Prohibit wood stoves and wood burning heaters in all newly constructed residences in unincorporated Merced County that have access to natural gas. Natural gas stoves have substantially lower PM₁₀ and PM_{2.5} emissions as compared to wood stoves.
- **Policy AQ-6.8: Voluntary Emissions Reduction Agreement.** Require all project applicants, where project emissions for any criteria pollutant have been evaluated to exceed SJVAPCD significance thresholds, to consult with the SJVAPCD regarding the establishment of a Voluntary Emissions Reduction Agreement between the applicant and the SJVAPCD. Support the SJVAPCD in its efforts to fund the Emission Reduction Incentive Program.
- **Policy CIR-1.2: Efficient Transportation Network.** Encourage land use patterns that promote shorter travel distances between residences and employment centers within Merced County, allow for non-auto travel, plan for multi-modal access for communities near I-5 and other major roadways, provide traffic calming on local roadways, and promote the efficient expansion and maintenance of transportation-related infrastructure to avoid constructing new roadways that would cause the physical division of existing communities.

- **Policy CIR-1.7: Alternative Transportation Modes.** Require development projects that have the potential to reduce existing level of service to plan for and accommodate alternatives modes of transportation (i.e., bicycle, pedestrian, transit).
- **Policy CIR-1.22: Complete Streets.** Require new urban streets within Urban Communities to be designed and constructed to not only accommodate automobile, truck, and bus traffic, but to also serve all users, including pedestrians, bicyclists, and transit passengers of all ages and abilities. This includes:
 - Creating multi-modal street connections in order to establish a comprehensive, integrated, and connected transportation network;
 - Minimizing curb cuts along non-local streets;
 - Consider planting street trees adjacent to curbs and between the street and sidewalk to provide a buffer between the pedestrian and the automobile, where appropriate;
 - Constructing sidewalks on both sides of streets, where feasible;
 - Coordinating with other agencies and cities to ensure connections are made between jurisdictions; and
 - Incorporating traffic calming devices such as roundabouts, bulb-outs at intersections, and traffic tables.
- **Policy CIR-2.2: Shared Parking Facilities.** Seek to reduce the amount of land devoted to parking at new non-residential developments and encourage the use of shared parking facilities in Urban Communities.
- **Policy CIR-2.3: Comprehensive Parking Program.** Develop and adopt a comprehensive parking program that prioritizes shared parking, walking, biking, and public transportation use during the drafting of Community Plans in Urban Communities.
- **Policy CIR-2.4: Priority Parking.** Require the identification of priority parking areas for vanpools, carpools, and energy efficient and low-pollution vehicles, including consideration of recharge stations for electric vehicles in all Commercial and Business Park-designated development projects.
- **Policy CIR-3.3: Alternative Transit Fuels.** Encourage transit providers to reduce pollution from transit fleet vehicles, such as purchasing vehicles that use alternative fuels or providing fueling/charging stations.
- **Policy CIR-3.6: Park-and-Ride Facilities.** Establish park-and-ride facilities in Urban Communities with a high commuter population.
- **Policy CIR-3.7: Commute Trip Reduction.** Support efforts to reduce auto commute trips, such as mixed-use developments or private shuttle vans at large employment centers.
- **Policy CIR-4.1: Bicycle and Pedestrian System.** 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.
- **Policy CIR-4.2: Bicycle Lanes and Pedestrian Paths.** Require all new or major reconstructed streets within Urban Communities to accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the costs of including bikeways and walkways would be excessively disproportionate to the need or probable use.
- **Policy CIR-4.5: Bicycle Storage Facilities.** Require the installation of bicycle storage facilities at major transportation terminals and commercial and employment centers.
- **Policy CIR-4.10: Bicyclist Amenities.** Require non-residential developments to provide amenities for bicyclists, including bicycle racks, showers, and changing facilities.

- **Policy HE-1.5:** The County shall support infill residential development and other mid- to large-sized residential projects in unincorporated urban communities that have the infrastructure necessary to support such development.
- **Policy HE-1.7:** The County shall encourage the consolidation of parcels to facilitate multi-family residential development.
- **Policy HE-1.8:** The County shall encourage residential development projects to develop at the maximum allowable density.
- **Policy HE-1.10:** The County shall encourage key services and facilities (e.g., public transit, child care facilities, schools, parks, and neighborhood shopping centers) to be located within walking distance of higher density residential development.
- **Policy HE-6.1:** The County shall ensure that new construction meets Title 24 energy conservation requirements.
- **Policy HE-6.2:** The County shall encourage and support residential projects that include sustainable development principles.
- **Policy HE-6.4:** During the review of tentative maps, the County shall encourage new subdivision lots to be oriented to allow for both passive and active solar design to minimize energy losses.
- **Policy HE-6.5:** The County shall encourage the use of solar, wind, other renewable energy resources, and use of water conservation and water recycling systems in residential buildings.
- **Policy HS-6.4: Public Health Facilities and Program.** Support the expansion of public health facilities and programs that address increases in extreme weather events (e.g., heat waves) and reduced air quality.

City of Merced General Plan

The following policies from the Sustainable Development Element of the Merced Vision 2030 General Plan (City of Merced 2012) are applicable to the UCP Update and VST Specific Plan:

- **Policy SD-1.1:** Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Merced.
- **Policy SD-1.6:** Reduce emissions of PM₁₀ and other particulates with local control potential.
- **Policy SD-3.1:** Promote the use of solar energy technology and other alternative energy resources.
- **Policy SD-3.2:** Encourage the use of energy conservation features, low-emission equipment, and alternative energy sources for all new residential and commercial development.

3.1.2 Environmental Setting

The project site is located in the San Joaquin Valley Air Basin (SJVAB). The SJVAB includes all of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties and the valley portion of Kern County. Ambient concentrations of air pollutants are determined by the levels of emissions released by pollutant sources and the ability of the atmosphere to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. The following discussion includes natural setting and regional air quality concentration data and information that has been updated since the 2001/2004 UCP EIR was certified. The topography of the air basin and Merced County can be referenced on page 4.3-1 of the 2001/2004 UCP EIR.

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. Ozone, PM₁₀, and PM_{2.5} are the criteria air pollutants of primary concern in this analysis due to their nonattainment status with respect to the applicable NAAQS and/or CAAQS in the SJVAB. Emission source types and health effects are summarized in Table 3.1-2. The attainment status of each criteria air pollutant with respect to the NAAQS and the CAAQS in Merced County have been updated since certification of the 2001/2004 UCP EIR and are provided in Table 3.1-3.

Table 3.1-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute ¹ Health Effects	Chronic ² Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO _x in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO _x results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO ₂)	Combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO ₂)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO ₂ exposure to chronic health impacts
Respirable particulate matter (PM ₁₀), Fine particulate matter (PM _{2.5})	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO ₂ and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing	Reproductive/ developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases.

¹ "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

² "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Source: EPA 2022.

Table 3.1-3 Attainment Status Designations for Merced County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	—	Nonattainment (1-hour) Classification-Extreme ¹
	Nonattainment (8-hour) ² Classification-Extreme	Nonattainment (8-hour)
Respirable particulate matter (PM ₁₀)	Maintenance Classification-Serious	Nonattainment (24-hour)
	—	Nonattainment (Annual)
Fine particulate matter (PM _{2.5})	Nonattainment (24-hour)	—
	Nonattainment (Annual)	Nonattainment (Annual)
Carbon monoxide (CO)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO ₂)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO ₂)	Unclassified/Attainment (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (particulate)	Unclassified/Attainment (3-month rolling avg.)	Attainment (30-day average)
Hydrogen sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibility-reducing particles		Unclassified (8-hour)
Vinyl chloride		Unclassified (24-hour)

¹ Per Health and Safety Code Section 40921.5(c), the classification is based on 1989–1991 data and therefore does not change.

² 2015 Standard.

Sources: CARB 2020; EPA 2022.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Diesel PM poses the greatest health risk among the TACs mentioned. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

3.1.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Emissions Modeling

The VST Specific Plan portion of the UCP area is anticipated to be built over a 14-year period between 2025 and 2039, with the UCP South portion of the UCP area likely constructed from 2030 to 2049. Construction and operational emissions of criteria air pollutants and precursors were calculated using CalEEMod Version 2020.4.04 computer program, as recommended by SJVAPCD, which reflects the baseline year for analysis. Modeling was based on project-specific information (e.g., acreage, area to be graded, area to be paved, number of units proposed) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type.

Construction

Construction of the UCP Update (including the VST Specific Plan) was assumed to begin in early 2025 and end in 2049, with construction emissions presented in annual mass emissions by year. Emissions are also presented in daily estimates to evaluate whether the UCP Update would generate daily emissions in exceedance of 100 lb/day (see discussion under the heading, "Thresholds of Significance," for additional information). A scenario using construction equipment type, numbers, and level of activity derived from actual construction activity anticipated with implementation of the UCP Update and VST Specific Plan was developed to represent a worst-case construction day. This worst-case construction scenario could occur at any point during the project's 25-year construction period and was used to provide the most conservative estimate of potential emissions. The construction emissions modeling is based on fuel efficiency at the start of the construction period, although emissions from heavy-duty equipment is expected to become more fuel-efficient over time as regulatory mechanisms improve the fuel efficiency of engines and decrease the carbon content of fuels.

Operation

The first year of full operations (complete buildout) for the VST Specific Plan portion of the project would be 2040. The UCP South portion of the project is assumed to buildout in 2050. CalEEMod default energy values were amended to reflect compliance with the 2022 California Energy Code. Notably, the California Energy Code is updated triennially; therefore, residential and nonresidential buildings constructed throughout the lifespan of the UCP Update and VST Specific Plan would likely be more energy efficient and emit less air pollution than is assumed in this analysis as the Title 24 California Building Code continues to decarbonize (i.e., transition to carbon-free sources of power) and become more energy efficient. Projects within the UCP Update would be required to comply with the version of the building code in effect at the time of project application. Emissions standards typically become more restrictive with each code update; as a result, the actual emissions from projects within the UCP area may be less than the values assumed in this analysis.

The operational modeling for the VST Specific Plan reflects policy commitments established in the plan. As indicated in Chapter 2, "Project Description," single family detached dwelling units would be constructed to be 10 percent more efficient than the 2022 Title 24 standards and multifamily residential and non-residential structures would be at least 25 percent more energy efficient than the 2022 Title 24 standards to account for the special design features included in section 13.1 of the VST Specific Plan. The VST Specific Plan project would be built to be Zero Net Energy (ZNE) and all residential units, meaning that units would have rooftop or solar canopy photovoltaic (PV) systems sufficient to meet 100 percent of the dwelling units' electrical energy demand or equivalent energy saving improvements to achieve the energy efficiency standards. The VST Specific Plan portion of the project would also be constructed without wood-burning fireplaces and on-site natural gas would be limited to commercial and education land uses.

Criteria air pollutant emissions for landscaping activity was derived using CalEEMod default values. Emissions estimates are presented in annual and daily values and compared to the applicable thresholds of significance and screening criteria (discussed in greater detail below under the heading "Thresholds of Significance"). Specific model assumptions and inputs for these calculations can be found in Appendix D.

Approach to Impact Assessment

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, and odors were assessed in accordance with SJVAPCD-recommended methodologies. The project's emissions are compared to SJVAPCD-adopted thresholds using SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015).

CO impacts are also assessed qualitatively, using the screening criteria set forth by SJVAPCD and results from the project-specific traffic study (Appendix E).

Impacts related to odors were also assessed qualitatively, based on proposed construction activities, equipment types and duration of use, overall construction schedule, and distance to nearby sensitive receptors. To evaluate an odor impact, SJVAPCD recommends the lead agency provide the buffer distance and a description of the land features and topography in the buffer zone that separates nearby sensitive receptors and the odor source. The focus of the analysis is construction related odors as the UCP Update and VST Specific Plan does not include any uses that would generate odors different from typical existing urban development in the area.

Typically, air districts develop thresholds of significance for CEQA evaluation (summarized below) in consideration of maintaining or achieving attainment under the NAAQS and CAAQS for the geographical area they oversee (long-term regional air quality planning). These thresholds are tied to an air district in nonattainment's SIP for criteria air pollutants within a cumulative context. These SIPs are submitted to CARB and contain an inventory of existing ambient air pollutant concentrations and, if applicable, a suite of measures to reduce air pollution and a projected date of achieving attainment under the NAAQS and CAAQS. Air quality plans identify a budget that accounts for new, future sources of pollution from land use development and stationary sources. These budgets inform the development of CEQA thresholds of significance and represent an allowable level of pollution. Projects that result in emission volumes below such thresholds would not conflict with an air district's long-term regional air quality planning or attainment date.

As discussed previously, the NAAQS and CAAQS represent concentrations of criteria air pollutants protective of human health and are substantiated by extensive scientific evidence. EPA and CARB recognize that ambient air quality below these concentrations would not cause adverse health impacts to exposed receptors. In connecting an air district's (e.g., SJVAPCD) thresholds of significance to its anticipated date of attainment, projects that demonstrate levels of construction and/or operational emissions below the applicable thresholds would be consistent with long-term regional planning efforts. These projects would not result in emissions that would conflict with an area achieving future attainment status under the NAAQS and CAAQS as outlined by an applicable air quality plan. Similarly, projects that demonstrate emissions levels in exceedance of an applicable threshold could contribute to the continued nonattainment designation of a region or potentially degrade a region from attainment to nonattainment, resulting in acute or chronic respiratory and cardiovascular illness associated with exposure to concentrations of criteria air pollutants above what EPA and CARB consider safe. Symptoms can include coughing, difficulty breathing, chest pain, eye and throat irritation and, in extreme cases, death caused by exacerbation of existing respiratory and cardiovascular disease, cancer, and impaired immune and lung function.

Determination of Potential Health Effects

Since the certification of the 2001/2004 UCP EIR, the California Supreme Court issued a ruling in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 regarding an air quality analysis prepared for the Friant Ranch Development Project EIR in December 2018 ("Friant"). The Friant Court concluded that the air quality analysis performed for that project did not adequately explain the nature and magnitude of long-term air quality impacts from emissions of criteria pollutants and ozone precursors. The Court held that air quality analysis needs to determine if a connection exists between significant project emissions and the human health impacts, and if so, explain what that connection is. According to the Court, the EIR could estimate the level of ozone that would be produced from the project, measure to what extent human health would be affected, and describe where daily exceedances of the NAAQS and CAAQS would occur in an air basin. This detailed approach to modeling assumes that such analysis would produce estimates of meaningful accuracy.

However, the exact location and magnitude of specific health impacts that could occur as a result of project-level construction- or operation-related emissions is infeasible to model with a high degree of accuracy. While dispersion modeling of project-generated PM may be conducted to evaluate resulting ground-level concentrations, the secondary formation of PM is similar to the complexity of ozone formation, and localized impacts of directly emitted PM do not always equate to local PM concentrations due to the transport of emissions. Ozone is a secondary pollutant formed from the oxidation of ROG and NO_x in the presence of sunlight. Rates of ozone formation are a function of a variety of complex physical factors, including topography, building influences on air flow (e.g., downwash), ROG and NO_x concentration ratios, multiple meteorological conditions, and sunlight exposure (Seinfeld and Pandis 1996:298). For example, rates of ozone formation are highest in elevated temperatures and when the ratio of ROG to NO_x is 5.5:1. When temperatures are lower and this ratio shifts, rates of ozone formation are stunted (Seinfeld and Pandis 1996:299–300). In addition, ROG emissions are composed of many compounds that have different levels of reactivity leading to ozone formation. Methane, for instance, is the most common ROG compound, yet it has one of the lowest reactivity potentials (Seinfeld and Pandis 1996:309, 312). Moreover, some groups may develop more severe health impacts than others. For instance, infants, children, the elderly, and individuals with preexisting medical conditions are more susceptible to developing illnesses from exposure to air pollutants.

Notably, during the litigation process in the Friant Ranch case, SJVAPCD submitted an amicus curiae brief that provided scientific context and expert opinion regarding the feasibility of performing regional dispersion modeling for ozone. In the brief, SJVAPCD states that “CEQA does not require an EIR to correlate a project’s air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.” SJVAPCD reiterates that (SJVAPCD 2015):

the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the [SJVAB] can accommodate without affecting the attainment date for the NAAQS. The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources must ‘offset’ their emissions...Thus the CEQA air quality analysis for criteria air pollutants is not really localized, project-level impact analysis but one of regional ‘cumulative impacts.’

The brief asserts that these CEQA thresholds of significance are not intended to be applied such that any localized human health impact associated with a project’s emissions could be identified. Rather, CEQA thresholds of significance are used to determine whether a project’s emissions would obstruct a region’s capability of attaining the NAAQS and CAAQS according to the emissions inventory prepared in a SIP, which is then submitted and reviewed by CARB and EPA. This sentiment is corroborated in an additional brief submitted by the South Coast Air Quality Management District (SCAQMD 2015).

SJVAPCD has not developed a dispersion model to evaluate resulting human health impacts for project-level emissions with resulting concentrations of ozone precursors within the SJVAB. It is foreseeable that such a model could be developed to quantify potential human health impacts in connection with locations of nonattainment of an air basin; however, at the time of writing this Draft SEIR, SJVAPCD has not developed a model nor endorsed an existing model.

As discussed below under the heading, “Thresholds of Significance,” SJVAPCD has established annual thresholds of significance and daily mass emissions screening criteria for project-level emissions. Annual thresholds of significance are tied to long-term regional air quality planning while the daily mass emissions screening criteria are used as a trigger point for additional air dispersion modeling. Projects that exceed these criteria are encouraged by the district to prepare an AAQA to determine whether a project’s emissions would result in a violation of an ambient air quality standard (AAQS) within the SJVAB. However, an AAQA is not intended to be used to quantify or predict specific human health impacts. For instance, the degree or severity of an adverse health outcome is not determined solely based on exposure to a certain concentration of a criteria air pollutant as other factors such as age, genetics, preexisting conditions, proximity to existing sources of pollution, and exposure period would also contribute to an individual’s susceptibility to be adversely affected by air pollution. This information is private and not available to a lead agency and, thus, cannot be included in a model to qualitatively predict future health impacts in the context of exposure to concentrations of air pollution in exceedance of an AAQS. However, as discussed above, the NAAQS and CAAQS were developed in consideration of ample scientific research indicating that human health impacts may occur from exposure to certain concentrations of criteria air pollutants; therefore, a correlation between a violation of an

AAQS and adverse health impacts can be made if a specific exceedance can be identified. Thus, for the reasons stated above, human health impacts are evaluated qualitatively rather than quantitatively in this analysis.

The level of health risk from exposure to construction- and operation-related TAC emissions was assessed qualitatively. This assessment was based on the proximity of TAC-generating construction activity to off-site sensitive receptors, the number and types of diesel-powered construction equipment being used, and the duration of potential TAC exposure.

THRESHOLDS OF SIGNIFICANCE

The 2001/2004 UCP EIR used thresholds in effect at the time of document preparation. While some of the thresholds have remained relatively unchanged, SJVAPCD has published new guidance for the evaluation of air pollutants during CEQA review. For instance, at the time of preparing the 2001/2004 UCP EIR, SJVAPCD did not recommend that lead agencies quantify construction-generated emissions of criteria pollutants. Additionally, SJVAPCD's most recent guidance provides mass emissions thresholds for SO_x and PM_{2.5}, which were not pollutants evaluated in the 2001/2004 UCP EIR.

In its March 2015 GAMAQI, SJVAPCD provides evidence to support the development and applicability of its thresholds of significance for project-generated emissions of criteria air pollutants and precursors, which may be used at the discretion of a lead agency overseeing the environmental review of projects located within the SJVAB. CEQA-related air quality thresholds of significance are tied to long-term air quality planning. The thresholds focus on achieving or maintaining attainment designations with respect to the NAAQS and CAAQS for criteria air pollutants, which are scientifically substantiated, numerical concentrations considered to be protective of human health. As stated in the "Methodology" section, these thresholds are inherently cumulative as they are developed in consideration of multiple sources of air pollution within the air basin and designed to assist the air district in attaining the NAAQS and CAAQS for those pollutants for which the SJVAB is in nonattainment. These numerical thresholds for construction- and operation-related emissions of criteria air pollutants and precursors determine whether a project's discrete emissions would result in a regional contribution (i.e., significant) to the baseline nonattainment status of SJVAPCD. In developing thresholds of significance for individual project emissions, SJVAPCD analyzed emissions values against the SJVAPCD's offset thresholds to ozone precursors, which, when applied, prevent further deterioration of ambient air quality in the SJVAB. Thresholds for PM₁₀ and PM_{2.5} were adopted from the SJVAPCD's PM₁₀ New Source Review offset thresholds for stationary sources, which represent the greatest component of SJVAPCD's long-term regional air quality planning (SJVAPCD 2015:82). Using these parameters, SJVAPCD developed quantitative thresholds of significance for project-level CEQA evaluation that may be used to determine the extent to which a project's emissions of criteria air pollutants and precursors would contribute to the regional degradation of ambient air quality within the SJVAB. According to SJVAPCD, projects with emissions below these thresholds of significance would demonstrate consistency with SJVAPCD's air quality plans. Notably, annual mass emissions thresholds of significance are not designed to determine whether a project's contribution of emissions would directly result in a violation of the NAAQS or CAAQS, which are hourly, concentration-based standards (SJVAPCD 2015).

SJVAPCD has also developed daily mass emissions screening criteria for ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} to determine whether project emissions would result in a violation of an AAQS. Unlike SJVAPCD's annual mass emissions thresholds, which are used to evaluate a project's consistency with long-term regional air quality planning, these daily mass emissions screening criteria serve to determine where an exceedance of an AAQS, and resulting adverse health impacts, could occur. Because the NAAQS and CAAQS are concentration-based standards presented hourly, daily mass emissions are a more suitable estimate to determine whether a project would contribute to a violation of an AAQS. Projects that emit emissions below these mass daily screening criteria would likely not generate emissions in levels that would result in a violation of an AAQS, and air dispersion modeling would not be required. Consequently, projects that emit emissions above these criteria are recommended to perform an AAQS to evaluate whether an exceedance, and resulting health impact, would occur.

Notably, in 2019 the Appendix G example checklist questions for air quality of the State CEQA Guidelines were amended to remove criterion item "B" (violate any air quality standard or contribute substantially to an existing or

projected air quality violation). SJVAPCD's 100 lb/day screening criteria were developed in consideration of this criterion. SJVAPCD's use of the 100 lb/day screening criteria is not intended to be used to make a CEQA significance determination, but is a trigger for the preparation of an AAQA.

Also of note, the 100 lb/day screening criteria are not scaled based on the attainment status of the SJVAB. SJVAPCD's annual mass emissions thresholds used for CEQA determinations are scaled with the understanding that certain pollutants are of greater concern given the SJVAB's attainment designations. For example, SJVAPCD's recommends a 10 TPY threshold for ROG and NO_x, which are precursor emissions to the secondary formation of ozone (a criteria pollutant for which the SJVAB is in severe nonattainment) while also recommending a 100 TPY threshold for CO with the understanding of the SJVAB's attainment of the AAQS for that pollutant. Therefore, while SJVAPCD's screening criteria are used in this analysis, they are not intended to be used to make significance determinations.

Using federal and state guidance pertaining to TACs, in addition to the findings of several scientific studies, SJVAPCD developed cancer risk and non-cancer health hazard thresholds for TAC exposure. Unlike criteria air pollutants, there is no known safe concentration of TACs for cancer risk. Moreover, TAC emissions contribute to the deterioration of localized air quality and due to the dispersion characteristics of TACs, emissions generally do not cause regional-scale air quality impacts. SJVAPCD's thresholds are designed to ensure that a source of TACs does not contribute to a localized, significant impact to existing or new receptors.

Based on the criteria established in Appendix G of the State CEQA Guidelines and SJVAPCD's GAMAQI, air quality impacts from project implementation would be found to be significant if it would:

- generate emissions during project construction that exceed SJVAPCD's mass emissions threshold of 10 TPY for ROG and NO_x, 15 TPY for PM₁₀ and PM_{2.5}, and 27 TPY for SO_x;
- generate emissions during project operation that exceed 10 TPY, PM₁₀, and PM_{2.5} that exceed 15 TPY, and SO_x that exceed 27 TPY;
- generate levels of TACs so that the probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 20 in 1 million or an acute or chronic Hazard Index that equals or exceeds 1 for the MEI for non-carcinogens;
- contributes CO leading to CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour; and/or
- generate emissions that expose members of the public to objectionable odors.

PLAN CHARACTERISTICS

UCP Update

The proposed UCP Update includes the following policies relevant to air quality (shown with edits to the Adopted UCP policies tracked):

- **Policy LU 4.1:** ~~Adoption of the UCP shall be dependent upon the prior adoption of The Long-Range Development Plan (LRDP) and approval of Phase I for UC Merced by the Regents of the University of California.~~
- **Policy LU 4.3:** Development in the University Community shall be phased to create complete, cohesive, and integrated districts and neighborhoods. This shall be accomplished through the preparation and adoption of specific plans ~~Specific Plans~~ for the UCP North/VST and the UCP South/Hunt subareas of the UCP. The location of each of these subareas is shown on Figure 1, the UCP Land Use Diagram. ~~each planning sub-area, as conceptually shown on Figure 6, which~~ Each specific plan shall provide the opportunity for public review and comment. These boundaries and the number of Residential Villages within each of these subarea specific plans may be modified to reflect site conditions and land use development market projections at the time of the preparation of the Specific Plan, provided that the UCP's underlying goals, objectives, and policies for urban form, development character, and community and neighborhood identity are achieved.

- **Policy LU 5.8:** Develop the Town Center with the highest densities in the University Community to reinforce its role as the “heart” of the community and foster pedestrian and transit use, according to the following standards:
 - ~~C-MU r~~ Retail and office uses (free-standing): Minimum floor area ratio (FAR) of 0.75 ~~0.74~~ and maximum of 3.0 (one to six stories).
 - ~~C-MUR m~~ Mixed use Town Center (housing/retail or office): Minimum FAR of 0.75 ~~1.5~~ and maximum 3.0.
 - ~~C-MUS~~ Mixed uses zone for services, institutional uses and visitor oriented uses with a minimum FAR of 0.40 ~~0.35~~ and maximum of 1.0 for retail or office components (three to six stories).
 - Parking in the Town Center may be one space per 500 square feet. Parking requirements elsewhere in the UCP shall be per the City of Merced zoning ordinance.
 - Residential: An average range of 8 to 35 ~~32~~ units per net acre (~~minimum height of two stories~~). Individual sites may be developed at lesser densities provided that the average density for the Town Center planning area is achieved.
- **Policy LU 5.16:** Develop and design public streetscapes to enhance pedestrian activity including the integration of landscape, street furniture, signage, lighting, public art, distinctive paving materials, and other amenities. ~~Local and/or campus artists should be involved in the design of streetscapes, in lieu of the exclusive use of traditional “catalogue” elements, to impart a distinctive character and enhance ownership by the community.~~
- **Policy AQ 1.1:** Determine air quality effects of projects using analysis methods and significance criteria recommended by the SJVAPCD. This would help to ensure impacts identified during CEQA review are consistently and fairly mitigated with feasible, implementable, and cost-effective strategies.
- **Policy AQ 1.2:** Work with the City of Merced and other jurisdictions and agencies to address cross-jurisdictional and regional transportation and air quality issues. Encourage staff planners to participate in activities of neighboring jurisdictions and regional agencies. The aim would be to examine congestion in other jurisdictions caused by University Community projects, effects of projects on viability of regional transit and pedestrian-oriented projects, progress of jurisdictions to construct segments of regional bikeway plans, proposed land use or circulation changes that would alter traffic flow or increase urban sprawl in jurisdictions.
 - ▶ **Policy AQ 2.1:** Integrate planning efforts by considering air quality when planning land use and transportation systems and considering air quality and mobility when reviewing any proposed change to the land use pattern.
 - ▶ **Policy AQ 2.2:** Develop a system congestion management plan to reduce motor vehicle trips, as defined by the UCP’s transportation policies (T 7.1 to 7.4). These include policies for (a) the provision of grid streets and “flexible corridors” that provide travel-mode options and that encourage future capacity and (b) street design standards for bicyclists, pedestrians, and traffic calming.
- **Policy AQ 2.3:** Establish land use pattern, densities, and pedestrian-enhanced infrastructure, in accordance with Land Use policies, to encourage the use of alternative transportation modes and reduce the length and number of motor vehicle trips. These encompass policies to manage the density and intensity of development; develop a planned “heart” of the community, parklands, pedestrian-oriented mixed use districts, neighborhood convenience commercial, neighborhood schools, and centralized large-scale commercial and office uses in village centers with appropriate transportation services; as well as compact and orderly outward expansion of contiguous development and infrastructure through “land use phasing” and urban limit lines.
- **Policy AQ 2.4:** Design streetscapes, housing, and village centers to improve access by pedestrians and bicyclists. Land Use policies provide a structure that maximizes pedestrian activity and transit use.
- **Policy AQ 2.5:** Implement a transportation infrastructure that provides opportunity for reduced trip lengths and minimized new trips while anticipating a multi-modal system in accordance with Transportation policies. This should include internal and regional public transit systems, supporting transit infrastructure and amenities (shelters, benches, bus turnouts, route signs, park and ride lots, and so on), multi-modal connections to regional

transportation system (airports and passenger rail facilities), a comprehensive system of bikeways, required bicycle storage and parking at appropriate sites, and infrastructure for telecommunication facilities.

- **Policy AQ 2.6:** Require the installation of electrical outlets in residential, commercial, and industrial buildings to support the use of low emission landscape and property maintenance equipment.
- **Policy AQ 2.7:** Comply with SJVUAPCD published guidelines and mitigation measures for analyzing and mitigating air quality impacts related to development of the University Community.
- **Policy AQ 3.1:** Adequately separate or buffer sensitive uses from sources of odors and dust. Require new point sources of pollution, including sources of odors and dust, to be located an adequate distance from sensitive receptors.
- **Policy AQ 5.1:** Implement measures to reduce dust and particulates created during construction activities including limiting traffic on unpaved roads, installing erosion control measures to prevent silt runoff onto public roads, use of wheel washers for construction vehicles, installation of windbreaks, suspension of excavation and grading during high winds, and similar techniques.
- **Policy AQ 5.2:** Promote the use of alternative fuel construction equipment, where feasible, and the use of low emission on-site stationary equipment.
- **Policy AQ 5.3:** Limit the hours of operation of heavy-duty construction equipment and the amount of construction equipment in use at any time.
- **Policy AQ 5.4:** Curtail construction activities during periods of high ambient air pollution concentration.
- **Policy AQ 6.1:** Require the installation of low emitting, EPA-certified wood-burning appliances, natural gas fireplaces, or pellet stoves in residential developments when such heating units are incorporated in any development.
- **Policy AQ 7.1:** Identify opportunities for and encourage the procurement and use of alternative fuel vehicle fleets by large employers in the University Community and UC Merced. Collaborate with UC Merced on an alternative fuel vehicle shuttle system servicing the campus, the University Community, and the City of Merced.
- **Policy A 4.1: (Revised and renumbered to Policy A 3.1)**
- **Policy A 3.1:** Establish an adequate ~~100-foot~~ open space buffer ~~from the property line to nearest habitable residential structure~~ along the edges of the University Community planning area abutting ~~non-agricultural open space~~ agricultural lands. This buffer may accommodate passive uses such as open space, parks, ~~trails, or~~ certified organic farming, natural preserves, or treated wastewater storage.
- **Policy T 4.2:** Work with UC Merced to establish convenient pedestrian and bicycle access routes to and through Campus.
- **Policy T 4.3:** Install amenities to serve bicyclists and pedestrians, such as secure and convenient bicycle parking and shaded seating areas at public facilities.
- **Policy T 4.4: DELETED** ~~Establish bicycle parking standards for new development.~~
- **Policy T 4.5: DELETED** ~~Work with the transit provider to encourage transit-bicycle transfers by installing bike racks on buses.~~
- **Policy T 5.5:** Establish development standards, such as inclusion of handicap-accessible bus stops and shelters, to make transit attractive. Require development to fund its fair share of necessary transit facilities.
- **Policy T 5.6: DELETED** ~~Establish a County/City/University transportation clearinghouse and website that provides information on local transit services and alternative travel options.~~
- **Policy T 7.1: DELETED** ~~Encourage non-residential developments to offer telecommute and flexible work-hour opportunities, and provide employee incentives for using transit, ridesharing, bicycling, and walking.~~

- **Policy T 7.2: ~~DELETED~~** Locate parking at strategic intercept points to minimize driving into and through central areas of the Community and Campus. Serve remote parking with frequent transit shuttles.
- **Policy T 7.3: ~~DELETED~~** Promote ridesharing through public information and outreach.
- **Policy T 7.4: ~~DELETED~~** Encourage non-residential developments to provide amenities for bicyclists, including showers and changing facilities.

VST Specific Plan

Specific policies related to air quality include the following:

- **Policy 1.16:** Pedestrian linkages to nearby neighborhoods and commercial services should be provided within all zones.
- **Policy 2.5:** The character of Center Street on the Village Commercial area should provide a pedestrian-friendly environment with accessible sidewalks, bulbouts, parkway landscaping, street trees, limited driveway access points, and reduced front building setbacks.
- **Policy 2.6:** Roundabouts, bulbouts, and decorative paving should be incorporated at primary intersections locations and within subdivisions to enhance pedestrian access and provide traffic calming. Roundabouts shall provide decorative landscaping, including trees that provide for monumentation and reference points within the project, as shown on Figure 14. The Campus Parkway roundabouts at University and Campus Parkway will provide a transition for the project to UC Merced and shall provide thematic improvements such as those illustrated on Figure 15. At-grade crossing, curb extensions and bulbouts shall be used on local and minor streets no less frequently than one every 500 feet to ensure that traffic speeds along longer stretches of local streets are limited to 25 miles per hour or less. Figure 16 shows examples of the use of these figures.
- **Policy 13.1:** In order to reduce greenhouse gas emissions, provide savings for project residents, and reduce the need for offsite energy sources, the project will integrate special energy conservation and production features. All residential units shall be all-electric, with natural gas infrastructure extended only to non-residential uses. The cumulative effect of these code modifications will be the reduction of greenhouse emissions from building sources (non-mobile or indirect sources) by 50 percent, and annual energy cost savings to homeowners of \$1,000 to \$1,500. The additional features and mitigations described here are estimated to reduce total vehicle miles travelled by 25 percent, and shift an additional 25 percent of trips from fueled vehicle trips to EV trips, bikes and pedestrians. A total of 50 percent reduction on gasoline and diesel fueled vehicles miles is conservatively estimated resulting in a 35-45 percent overall reduction in GHG emissions. The energy sources for the project are estimated to be 95% carbon free, in conformance with California Air Resources Board's (CARB) 2022 Scoping Plan and "High Electrification" strategy. If necessary, the City shall adopt the necessary amendments to the City's building code to implement the inclusion of Non-Mandatory Energy Code features and Tier 1 and Tier requirements specified herein.
- The overall intent of the recommendations, standards and guidelines below is to implement CalGreen Tier 1 and Tier 2 requirements in the project. These changes anticipate likely California energy code changes in 2025. When combined with the requirements for Solar PV in Section 13.2 below, it is expected that the structures will meet the California Energy Commission's Energy Design Rating criteria for Time Dependent Value ("TDV") Zero Net Energy. The energy conservation measures described below are those which have a demonstrable positive benefit to cost ratio.
- **Policy 13.1.1:** All buildings and structures shall meet the 2022 "Net Zero" energy conservation standards adopted by the State of California, and CALGreen Tier 1 and Tier 2 requirements.
- **Policy 13.1.2:** Energy conservation measures should give priority to the thoughtful design of structures to take advantage of passive cooling and heating, including cross ventilation, solar exposure, solar thermal massing strategies.
- **Policy 13.1.3:** Building and structures shall use high-performance Advance Framing (AF) and/or Structurally Insulated Panel (SIP) techniques, where technically feasible, to reduce the amount of framing lumber and the

heating and cooling loss associated with frequent framing intervals. Advanced framing techniques qualify as Reduced Thermal Bridging under section 4.4.5 of the Energy Star Thermal Enclosure System Rater Checklist (ver. 3, rev. 5). Advance Framing techniques may include, but are not limited to the following:

- a) Increased framing member spacing, typically to 24 inches on center, effectively trimming the number of required studs by about one-third. Perimeter walls may be built with 2x6 wood framing spaced 24 inches on center have deeper, wider insulation cavities than conventional 2x4 framing spaced 16 inches on center, thereby increasing the amount of insulation inside the wall to at least R-20 and improving the whole-wall R-value.
- b) Use of insulated corners to eliminate the isolated cavity found in conventional three- or four-stud corners, making it easier to install insulation and providing for more cavity insulation space. Advanced framing wall corners can include insulated three-stud corners or two-stud corner junctions with ladder blocking, drywall clips, or an alternative means of supporting interior or exterior finish.
- c) Advanced framing ladder junctions should be used at wall intersections with 2x blocking at 24-inch on center vertical spacing. This method requires less than 6 feet of blocking material in a typical 8-foot tall wall. In conventional walls, interior wall intersections include a stud at each side of the intersecting wall, which can require as much as 16 feet of stud lumber plus additional blocking material.
- d) Advanced framing headers offer increased energy efficiency by replacing framing materials with space for cavity insulation inside the header. Advanced framing headers are sized for the loads they carry and are often installed in single plies rather than double. Wood structural panel box headers are another option to consider that maximize the insulatable cavity while providing the structural support via the wood structural panels that are already used on the exterior of the building.

- **Policy 13.1.4:** Quality Insulation Installation (“QII”) shall be used per California Energy Commission standards and Insulation Stage Checklists to ensure high performing insulation systems. QII ensures that insulation is installed properly in floors, walls, and roofs/ceilings to maximize the thermal benefit of insulation. Depending on the type of insulation used, QII can be simple to implement for only the additional cost of HERS verification. Batt insulation may require an increase in installation time over standard practice because batts may need to be cut to fit around penetrations and special joists.
- **Policy 13.1.5:** Compact Plumbing (“CP”) strategies shall be used to reduce water and water heating waste. These will include reducing the total run from the water heating unit to the hot water dispensing appliances, “demand” recirculating hot water systems, back-to-back and stacked plumbing fixtures, and other techniques.
- **Policy 13.1.6:** The buildings and structures in the project shall provide for indoor water use that is at least 25 percent below current citywide average, and outdoor water use that is 30 percent below the City of Merced average, to achieve a targeted average usage of 100 gallons per day per capita. WaterSense fixtures, or their equivalent, shall be used for all appliances, and all appliances shall comply with CalGreen standards for water use efficiency.
- **Policy 13.1.7:** Passive solar strategies shall be used in all buildings to the greatest degree practicable. At least 75 percent of the structures in a neighborhood should have the longer roof line axis within 15 degrees of east-west. Buildings should be designed to include roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows (passive solar design). Roofing materials shall be used which have a solar reflectance value meeting the EPA/DOE Energy Star® rating to reduce summer cooling needs.
- **Policy 13.1.8:** City infrastructure should utilize strategies and improvements to conserve energy. These include: 1) usage of roundabouts where possible to avoid the usage of electrically powered traffic signals; 2) usage of high-efficiency LED street lights; 3) usage of high-efficiency LED traffic signals. Where traffic signals are modified as part of this project, signal heads with low-efficiency incandescent fixtures shall be modified to have high efficiency LED fixtures, where possible; 4) bus stops shall include PV systems to support the power requirements; and, 5) street lighting, park lighting and area lighting shall be designed to limit errant light.
- **Policy 13.1.9:** Design plans for units shall provide for the use of battery powered or electric landscape maintenance equipment for new development. At least one exterior convenience outlet shall be provided for

each yard area that requires regular maintenance. Two outdoor outlets shall also be provided for any private outdoor activity/patio areas.

- **Policy 13.1.10:** Each dwelling unit shall be designed to provide a convenient storage area for bicycles that is easily accessible. This may include storage space in garage for bicycle and bicycle trailers, or covered racks / lockers to service the residential units, or front porch bike lockers.
- **Policy 13.1.11:** Residences shall use all-electric appliances.
- **Policy 13.1.12:** To encourage the use of electric vehicles, private residential garages shall be equipped with a dedicated 240V/40A circuit or outlet for electrical vehicle charging in conformance with the California Green Building Code and the National Electrical Code. Residences with common parking areas such as the R-3, R-4 and Neighborhood Commercial areas shall be equipped with electric vehicle charging receptacles and stations in conformance with CALGreen Tier 1 and Tier 2 standards.
- **Policy 13.2:** Solar PV systems shall be included on all structures and buildings sufficient to produce 100 percent of the projected electrical demand for the type of building unit (but not including electrical demand for EV charging stations). This may be provided through a combination of solar canopies for R-3, R-4, Neighborhood Commercial/Town Center and public park uses, rooftop solar panels, solar shingles and other methods. Guidelines for specific unit types and land uses are as follows:
 - **Policy 13.2.1:** R-1 Single Family. These uses should provide between 350 and 400 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 10,000 kWh per year, or as may be calculated in the energy analysis for the structure.
 - **Policy 13.2.2:** R-2 Cluster Single Family. These uses should provide between 325 and 375 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit (to generate at least 7,800 kWh per year, or as may be calculated in the energy analysis for the structure. Because of the orientation of these uses from a common driveway from an east-west street, care should be taken to orient the longer roof along the east-west axis where possible. There are limited opportunities for solar canopies in guest parking areas, except where these spaces are used for car sharing stations.
 - **Policy 13.2.3:** R-2 Cluster Single Family. These uses should provide between 275 and 325 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 7,500 kWh per year, or as may be calculated in the energy analysis for the structure. Because of the orientation of these uses from a common driveway from an east-west street, care should be taken to orient the longer roof along the east-west axis where possible. There are limited opportunities for solar canopies in guest parking areas, except where these spaces are used for car sharing stations. Surface material and finish shall be non-glare for airport compatibility.
 - **Policy 13.2.4:** R-3 Units. These uses should provide 275 and 325 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 7,500 kWh per year, or as may be calculated in the energy analysis for the structure. Solar canopies in guest parking spaces may provide the predominant share of the total requirement of 7,500-8,000 square feet of total solar array area, and the solar canopies are the preferred method of achieving this objective because of the required orientation of these uses, and the sensitive architectural setting. Where possible, units should provide rooftop solar water heating units. Surface material and finish shall be non-glare for airport compatibility.
 - **Policy 13.2.5:** R-4 Apartment Units. These uses should provide 175 to 225 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 5,000 kWh per year, or as may be calculated in the energy analysis for the structure. Solar canopies in guest parking spaces may provide all or the predominant share of the total requirement of 17,750 square feet of total solar array area, and the solar canopies are the preferred method of achieving this objective because of the required orientation of these uses, and the sensitive architectural setting. Where possible, these units should provide solar water heating units or pre-heating units. Surface material and finish shall be non-glare for airport compatibility. These solar canopies are to be located around the perimeter of the site along the west and north boundaries so that they function as noise attenuation barriers as well.

- **Policy 13.2.6:** If necessary, the City shall adopt the necessary amendments to the City's building code to implement the inclusion of Non-Mandatory Energy Code features and Tier 1 and Tier requirements specified herein.
- **Policy 13.2.7:** For commercial buildings larger than 5,000 SF, solar PV shall be installed to provide a minimum of 25 percent of the electrical requirement for the structure, if feasible based on roof area and building constraints.

ISSUES NOT DISCUSSED FURTHER

All issues related to air quality are discussed below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.1.1: Generation of Short-Term, Construction-Related Emissions of ROG, NO_x, PM₁₀, and PM_{2.5}

The 2001/2004 UCP EIR qualitatively evaluated construction emissions of criteria pollutants during construction of the Adopted UCP. Although emissions were not quantified, the 2001/2004 UCP EIR concluded that construction activities would generate substantial increases in ROG, NO_x, and PM₁₀ emissions from site grading and excavation, road paving, application of architectural coatings, motor vehicle exhaust, and operation and movement of heavy-duty construction equipment. The UCP Update and VST Specific Plan would entail similar types of construction activities over a similarly sized project site. Nonetheless, since certification of the 2001/2004 UCP EIR, SJVAPCD has updated its guidance for determining construction-related air quality analysis and recommends that emissions be quantified and evaluated against annual mass emissions thresholds and daily mass emissions screening criteria. In light of this new guidance, annual construction-generated emissions were quantified for the UCP Update and VST Specific Plan to determine whether construction of the UCP Update and VST Specific Plan would exceed the thresholds. Due to the differences in land uses compared to the Adopted UCP, the UCP Update and VST Specific Plan would result in fewer emissions of criteria air pollutants as compared to the Adopted UCP. The UCP Update emissions would exceed SJVAPCD's daily mass emissions screening criteria, which could result in an exceedance of an AAQS, as concluded in the 2001/2004 UCP EIR. There is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would be **less than significant with mitigation**.

Summary of 2001/2004 UCP EIR Impact

Impact 4.3-1 of the 2001/2004 UCP EIR provided a qualitative discussion of construction emissions and assumed that due to the project's size and construction phasing, construction emissions would produce a potentially significant regional air quality impact without the application of best management practices (BMPs). At the time the 2001/2004 UCP EIR was certified, SJVAPCD did not require environmental documents to quantify construction emissions; however, since certification of the 2001/2004 UCP EIR, SJVAPCD has updated its CEQA guidance (GAMAQI) to require that construction emissions be quantified and compared to a mass emissions threshold (SJVAPCD 2015).

The Adopted UCP included the construction of approximately 11,616 residential units, retail stores, offices, schools, parks, and civic and cultural facilities on approximately 2,133 acres of land. The 2001/2004 UCP EIR determined that construction-generated emissions of PM₁₀ would be significant (Impact 4.3-1, pages 4.3-21 to 4.3-22), and mitigation was adopted. With the application of Adopted UCP Policy AQ 5.1 and Adopted Mitigation Measure 4.3-1, this impact was concluded to be less than significant. Per the 2001/2004 UCP EIR, construction-generated emissions of ROG, NO_x, and CO would exceed SJVAPCD's threshold of significance and would be significant and unavoidable following implementation of Adopted UCP Policies AQ 5.2 through AQ 5.4 and Mitigation Measure 4.3-2 (Impact 4.3-2, pages 4.3-22 to 4.3-24).

Adopted Mitigation Measure 4.3-1 Compliance with the following SJVAPCD mitigation measure listed in Table 6-3 of the GAAMAQD would further reduce dust created during construction activities:

- Limit traffic speeds on unpaved roads to 15 mph.

Adopted Mitigation Measure 4.3-2 Construction contracts shall include the following specifications:

- Minimize idling time to a maximum of ten minutes when construction equipment is not in use;
- Employ construction activity management techniques such as extending the construction period outside the ozone season of May through October, reducing the number of hours of construction and scheduling activities during off peak hours;
- Tuning engines to manufacturer's specifications;
- When feasible, schedule equipment usage to avoid simultaneous use of equipment.

UCP Update

Construction-related activities associated with the Adopted UCP and UCP Update would generate emissions of ROG, NO_x, and PM₁₀ from site preparation (e.g., excavation, clearing), use of off-road equipment, material delivery, worker commute trips, and other miscellaneous activities (e.g., asphalt paving, application of architectural coatings). Fugitive dust emissions of PM₁₀ and PM_{2.5} are associated primarily with site preparation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and vehicle miles traveled (VMT) on and off the site. Emissions of the ozone precursors ROG and NO_x are primarily associated with construction equipment and on-road mobile exhaust. Paving and the application of architectural coatings result in off-gas emissions of ROG. PM₁₀ and PM_{2.5} exhaust are also generated from vehicle movement.

In general, on-site construction activities would require the use of typical heavy-duty construction equipment, including forklifts, cranes, compressors, loaders, backhoes, excavators, dozers, scrapers, pavement compactors, welders, concrete pumps, concrete trucks, and off-road haul trucks, as well as other diesel-fueled equipment as necessary. The UCP Update construction activities could begin as early as January 2025 and would be expected to be complete by late 2049. Conservative assumptions were used to model construction emissions and individual phases were overlapped (e.g., site preparation, grading, building construction) to account for construction activities occurring simultaneously. For this reason, reported emissions represent a conservative estimate of maximum daily emissions (i.e., likely higher than actual emissions). For specific assumptions and modeling inputs, refer to Appendix D.

Additionally, SJVAPCD Rule 8021 within Regulation VIII, which addresses fugitive dust emissions, would apply to the project. The following measures are required pursuant to SJVAPCD Rule 8021 to be implemented by the project during various construction phases to reduce fugitive dust (SJVAPCD 2004):

- Pre-water site sufficient to limit visible dust emissions (VDE) to 20 percent opacity.
- Phase work to reduce the amount of disturbed surface area at any one time.
- Apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity; or construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity. If utilizing wind barriers, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity as well.
- Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
- Restrict vehicular access to the area.
- Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface. If an area having 0.5 acre or more of disturbed surface area remains unused for seven or more days, the area must comply with the conditions for a stabilized surface area as defined in section 3.58 of Rule 8011.¹
- Limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.

¹ Rule 8011 serves to reduce ambient concentrations of PM₁₀ by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. This rule applies to specified outdoor fugitive dust sources such as agricultural activity, vehicle trips, and blasting activities.

- Post speed limit signs that meet State and Federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
- Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever VDE exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
- Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
- Submit a Dust Control Plan to the air pollution control officer (APCO) prior to the start of any construction activity for the project, which includes moving, depositing, and relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a Dust Control Plan shall apply to all such activities conducted for the project.

Using the mitigation module of CalEEMod, these regulatory measures were applied to the project's construction emissions. Additionally, also using CalEEMod's mitigation module, watering of disturbed areas at least three times per day and limiting vehicle travel speeds on unpaved roads within the construction area to a maximum of 15 miles per hour was incorporated. The project's construction emissions were also amended to reflect compliance with the standards of Rule 9510, "Indirect Source Review," which requires projects to reduce construction NO_x and PM₁₀ emissions by 20 and 45 percent, respectively.

Table 3.1-4 summarizes the modeled unmitigated annual emissions from construction activities, by year, over the estimated 25-year buildout period (ending in 2049) for the UCP Update and VST Specific Plan.

As shown in Table 3.1-4, annual emissions of criteria air pollutants would exceed SJVAPCD's applicable threshold for NO_x during part of the construction period. Because the SJVAPCD-suggested thresholds for annual emissions would be exceeded for NO_x in 2027 and 2031 through 2046, construction emissions could contribute to the existing nonattainment condition of the SJVAB with respect to CAAQS and NAAQS for ozone. For this reason, construction-generated NO_x emissions would be significant.

As discussed above under the heading, "Thresholds of Significance," annual mass emissions thresholds are not determinative of whether a violation of an AAQS would occur, as AAQS are presented as hourly, concentration-based standard. Thus, to determine whether the project would generate substantial construction emissions that could result in a violation of an AAQS, maximum daily emissions for a worst-case construction scenario were modeled.

SJVAPCD has established daily mass emissions screening criteria for criteria air pollutants. These criteria were developed to assess the likelihood that a project would cause or contribute to a violation of the NAAQS or CAAQS under a worst-case daily construction emissions scenario. The UCP Update would be constructed over the course of a 25-year period (2025–2049), and the yearly maximums provide a more conservative representation of maximum daily emissions under a worst-case single day construction scenario. Heavy-duty construction equipment would continually become more fuel efficient and produce fewer emissions as regulatory mechanisms unfold over the construction period. As discussed under the heading, "Methodology," the number and type of equipment assumed under this worst-case scenario could occur at any point during the project's 25-year construction period. Due to inherent uncertainty surrounding the timing of when this worst-case single day scenario would occur in the UCP area, daily maximums were calculated for each pollutant for each year. This estimate should be interpreted independently of the unmitigated annual emissions estimates summarized in Table 3.1-4, which are representative of total unmitigated annual emissions rather than a one-day emissions estimate.

Table 3.1-4 Unmitigated Construction-Generated Emissions of Criteria Air Pollutants by Year for the UCP Update and VST Specific Plan (2025–2049)^{1, 2}

Year	ROG (TPY)	NO _x (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
2025	<1	2.4	4.0	<1	<1	<1
2026	<1	3.2	5.9	<1	<1	<1
2027	1.4	8.4	13.8	<1	2.1	1.4
2028	5.6	7.2	13.5	<1	1.8	<1
2029	<1	4.4	7.9	<1	1.2	<1
2030	1.7	6.3	13.5	<1	2.5	1.5
2031	7.5	8.7	17.8	<1	3.3	1.7
2032	2.8	8.2	15.8	<1	3.2	1.5
2033	2.6	<u>15.2</u>	<u>27.1</u>	<1	7.1	<u>3.1</u>
2034	4.0	13.5	23.4	<1	6.7	2.9
2035	2.1	13.3	22.9	<1	6.7	2.9
2036	2.1	13.3	23.0	<1	6.7	2.9
2037	2.1	13.3	22.9	<1	6.7	2.9
2038	6.4	11.2	19.6	<1	5.7	2.5
2039	<u>7.8</u>	10.2	17.2	<1	5.4	2.3
2040	5.1	10.1	16.0	<1	5.3	2.3
2041	5.1	10.1	16.0	<1	5.3	2.3
2042	5.1	10.1	16.0	<1	5.3	2.3
2043	5.1	10.1	16.0	<1	5.3	2.3
2044	5.1	10.1	16.0	<1	5.3	2.3
2045	5.0	10.0	15.5	<1	5.3	2.3
2046	5.0	10.0	15.5	<1	5.3	2.3
2047	4.7	7.9	12.5	<1	4.1	1.8
2048	5.6	<1	2.1	<1	<1	<1
2049	3.8	<1	2.0	<1	<1	<1
SJVAPCD Threshold of Significance	10	10	100	27	15	15
Exceeds Thresholds?	No	Yes	No	No	No	No

Notes: TPY = tons per year, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

Underlined values indicate the highest annual emissions over the construction period.

- ¹ Emissions would differ throughout the years based on construction phasing. For instance, grading, which occurs at an early phase of construction, generates more fugitive dust than any other construction phase. Additionally, ROG emissions are greatest during the architectural coating phase of construction, which occurs at the end of the construction process.
- ² Emissions shown in this table reflect compliance with SJVAPCD's Indirect Source Review, which is a regulatory requirement applicable to the UCP Update and VST Specific Plan and requires projects to reduce construction NO_x and PM₁₀ emissions by 20 and 45 percent, respectively. Emissions also account for the construction best management practices of Rule 8021 within Regulation VIII.

Source: Modeling performed by Ascent Environmental in 2023 using CalEEMod v. 2020.4.0.

The daily scenario assumes a level of overlapping operation of heavy-duty construction equipment. Therefore, the emissions presented in Table 3.1-5 summarize the unmitigated maximum daily emissions under a worst-case construction scenario by year for the UCP Update. Refer to Appendix D for a detailed summary of the modeling assumptions, inputs, and outputs.

Table 3.1-5 Unmitigated Maximum Daily Emissions of Criteria Air Pollutants for the UCP Update and VST Specific Plan Under a Worst-Case Scenario (2025–2049)

Year	ROG (lb/day)	NO _x (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
2025	8.8	53.3	45.3	<1	14.7	8.2
2026	16.4	48.0	62.3	<1	17.5	7.9
2027	26.5	92.4	129.1	<1	31.0	14.8
2028	22.0	79.3	123.2	<1	24.7	8.2
2029	15.5	44.1	68.8	<1	15.2	4.9
2030	28.1	79.7	136.6	<1	45.8	19.4
2031	66.3	110.3	183.2	<1	52.6	17.9
2032	71.1	<u>153.5</u>	<u>237.9</u>	<u>1.1</u>	<u>88.0</u>	<u>24.8</u>
2033	33.9	151.7	229.2	1.0	87.5	24.6
2034	<u>93.7</u>	139.7	210.9	<1	81.8	23.0
2035	30.0	130.3	190.8	<1	80.6	22.5
2036	30.0	130.3	190.8	<1	80.6	22.5
2037	30.0	130.3	190.8	<1	80.6	22.5
2038	26.6	130.3	190.8	<1	80.6	22.5
2039	39.6	101.9	150.6	<1	67.3	18.7
2040	23.9	99.0	133.7	<1	64.8	18.0
2041	23.9	99.0	133.7	<1	64.8	18.0
2042	23.9	99.0	133.7	<1	64.8	18.0
2043	23.9	99.0	133.7	<1	64.8	18.0
2044	23.9	99.0	133.7	<1	64.8	18.0
2045	22.8	98.7	129.7	<1	64.8	18.0
2046	22.8	98.7	129.7	<1	64.8	18.0
2047	22.8	98.7	129.7	<1	64.8	18.0
2048	13.0	3.7	19.6	<1	10.1	2.7
2049	13.0	1.7	19.6	<1	10.1	2.7
SJVAPCD Threshold of Significance	100	100	100	100	100	100
Exceeds Thresholds?	No	Yes	Yes	No	No	No

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

Underlined values indicate the highest annual emissions over the construction period.

¹ Emissions would differ throughout the years based on construction phasing. For instance, grading, which occurs at an early phase of construction, generates more fugitive dust than any other construction phase. Additionally, ROG emissions are greatest during the architectural coating phase of construction, which occurs at the end of the construction process.

Source: Modeling performed by Ascent Environmental in 2023 using CalEEMod v. 2020.4.0.

SJVAPCD recommends that an AAQA be performed for a project if emissions of any criteria air pollutant or ozone precursor exceed 100 lb/day. As shown in Table 3.1-5, maximum daily emissions of NO_x and CO would exceed the 100 lb/day screening criteria set forth by SJVAPCD. However, an AAQA is more appropriate for assessing single site, discrete project construction emissions. The UCP Update would apply to an 1,841-acre area. The proposed land uses under the UCP Update would be constructed incrementally with inherent uncertainty surrounding the schedule and location of where land uses would be constructed. Based on the modeling, as summarized in Table 3.1-5, the UCP

Update would generate emissions of NO_x and CO in exceedance of SJVAPCD's 100 lb/day screening criteria. Given this uncertainty regarding the actual timing, intensity, and location of construction, the preparation of an AAQA for this programmatic analysis would not generate a meaningful conclusion. However, as required for the Adopted UCP, the UCP Update requires that all subsequent development within the UCP area is completed pursuant to a specific plan, approval of which would require review under CEQA. This SEIR evaluates development of the VST Specific Plan (below). At the time of subsequent project review for portions of the UCP outside of the VST Specific Plan area, additional details may be available to inform preparation on an AAQA for those specific plans. Because modeled worst-day emissions would exceed the daily screening levels, project-generated emissions would be considered significant and could contribute to a violation of an AAQS within the SJVAB.

The UCP Update and VST Specific Plan would also be subject to SJVAPCD's Rule 9510, "Indirect Source Review," which applies to emissions from new land use development. As summarized above in Section 3.1.1, "Regulatory Setting," Rule 9510 requires that the on-site construction emissions of NO_x and PM₁₀ exhaust are reduced by 20 and 45 percent, respectively. Compliance with Rule 9510 is a regulatory requirement for projects constructed under the purview of SJVAPCD. Future land uses constructed under the UCP Update would be required to demonstrate compliance with Rule 9510 as a condition of project approval. While compliance with Rule 9510 would reduce total NO_x and PM₁₀ exhaust emissions by the 20 and 45 percent requirement, as shown in Table 3.1-4, it is possible that during a day with exceptionally high construction activity this reduction would not be sufficient to reduce construction emissions to a less-than-significant level (i.e., below 100 lb/day for criteria air pollutants and ozone precursors).

Cumulative construction emissions under the UCP Update would exceed SJVAPCD's annual mass emissions threshold for NO_x in 2027 and 2031 through 2046. Additionally, daily construction emissions would exceed SJVAPCD's mass emissions screening criteria for NO_x and CO. Adopted Mitigation Measure 4.3-1 and 4.3-2 would continue to apply to the UCP Update and VST Specific Plan.

Adopted Mitigation Measure 4.3-1 requires implementation of feasible control measures that would reduce construction emissions. While this measure includes actions that may continue to be implemented to reduce construction emissions, new protocols have been developed since the certification of the 2001/2004 UCP EIR. Mitigation Measures 3.1-1a and 3.1-1b shown below reflect the new control measures.

Both the 2001/2004 UCP EIR and this analysis identify a significant impact related to construction emissions using the standards and analysis procedures in effect at the time of analysis. There is no new significant impact, and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **significant** as identified in the 2001/2004 UCP EIR.

VST Specific Plan

Construction emissions anticipated to occur from the VST Specific Plan area are included in the overall construction modeling associated with the Updated UCP presented in Tables 3.1-4 and 3.1-5. Table 3.1-6 summarizes the modeled unmitigated annual emissions from construction activities, by year, over the estimated 14-year buildout period (ending in 2039) for the VST Specific Plan portion of the UCP Update.

Similar to the modeling prepared for the UCP as a whole, the mitigation module of CalEEMod was used to show compliance with SJVAPCD Rule 8021. The VST Specific Plan's construction emissions were also amended to reflect compliance with the standards of Rule 9510, "Indirect Source Review," which requires projects to reduce construction NO_x and PM₁₀ emissions by 20 and 45 percent, respectively.

Table 3.1-6 Unmitigated Construction-Generated Emissions of Criteria Air Pollutants by Year for the VST Specific Plan (2025–2039)^{1, 2}

Year	ROG (TPY)	NO _x (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
2025	<1	2.4	4.0	<1	<1	<1
2026	<1	3.2	5.9	<1	<1	<1
2027	1.4	8.4	<u>13.8</u>	<1	2.1	1.4
2028	5.6	7.2	13.5	<1	1.8	<1
2029	<1	4.4	7.9	<1	1.2	<1
2030	1.5	6.3	13.5	<1	<u>2.5</u>	<u>1.5</u>
2031	<u>7.1</u>	7.2	15.2	<1	2.5	1.1
2032	2.1	5.1	9.9	<1	1.9	<1
2033	<1	4.8	9.3	<1	1.7	<1
2034	<1	3.1	5.8	<1	1.3	<1
2035	<1	3.0	5.7	<1	1.3	<1
2036	<1	3.0	5.8	<1	1.3	<1
2037	<1	3.0	5.7	<1	1.3	<1
2038	4.8	<1	2.4	<1	<1	<1
2039	2.4	<1	<1	<1	<1	<1
SJVAPCD Threshold of Significance	10	10	100	27	15	15
Exceeds Thresholds?	No	No	No	No	No	No

Notes: TPY = tons per year, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

Underlined values indicate the highest annual emissions over the construction period.

- ¹ Emissions would differ throughout the years based on construction phasing. For instance, grading, which occurs at an early phase of construction, generates more fugitive dust than any other construction phase. Additionally, ROG emissions are greatest during the architectural coating phase of construction, which occurs at the end of the construction process.
- ² Emissions shown in this table reflect compliance with SJVAPCD's Indirect Source Review, which is a regulatory requirement applicable to the UCP Update and VST Specific Plan and requires projects to reduce construction NO_x and PM₁₀ emissions by 20 and 45 percent, respectively. Emissions also account for the construction best management practices of Rule 8021 within Regulation VIII.

Source: Modeling performed by Ascent Environmental in 2023 using CalEEMod v. 2020.4.0.

As shown in Table 3.1-6, annual emissions of criteria air pollutants would not exceed SJVAPCD's applicable thresholds. Because the SJVAPCD-suggested thresholds for annual emissions would not be exceeded, construction emissions would not contribute to the existing nonattainment condition of the SJVAB with respect to CAAQS and NAAQS for ozone. For this reason, construction-generated emissions would be less than significant.

The worst-case daily scenario assumes a level of overlapping operation of heavy-duty construction equipment. Therefore, the emissions presented in Table 3.1-7 summarize the unmitigated maximum daily emissions under a worst-case construction scenario by year for the VST Specific Plan. Refer to Appendix D for a detailed summary of the modeling assumptions, inputs, and outputs.

Table 3.1-7 Unmitigated Maximum Daily Emissions of Criteria Air Pollutants for the VST Specific Plan Under a Worst-Case Scenario (2025–2039)

Year	ROG (lb/day)	NO _x (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
2025	8.8	53.3	45.3	<1	14.7	8.2
2026	16.4	48.0	62.3	<1	17.5	7.9
2027	28.0	<u>92.4</u>	129.1	<1	31.0	<u>14.8</u>
2028	22.8	79.3	123.2	<1	24.7	8.2
2029	16.3	44.1	68.8	<1	15.2	4.9
2030	27.6	66.0	117.4	<1	33.8	14.1
2031	61.3	82.8	<u>143.1</u>	<1	<u>35.8</u>	10.4
2032	55.9	50.1	82.8	<1	23.0	6.6
2033	19.6	49.0	78.4	<1	22.5	6.5
2034	<u>79.5</u>	37.5	64.0	<1	16.8	4.9
2035	16.6	29.5	47.1	<1	15.8	4.4
2036	16.6	29.5	47.1	<1	15.8	4.4
2037	16.6	29.5	47.1	<1	15.8	4.4
2038	13.1	29.5	47.1	<1	15.8	4.4
2039	13.1	1.0	6.8	<1	2.5	<1
SJVAPCD Threshold of Significance	100	100	100	100	100	100
Exceeds Thresholds?	No	No	Yes	No	No	No

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

Underlined values indicate the highest annual emissions over the construction period

Source: Modeling performed by Ascent Environmental in 2023 using CalEEMod v. 2020.4.0.

As shown in Table 3.1-7, maximum daily emissions of CO would exceed the 100 lb/day screening criteria set forth by SJVAPCD. Notably, as stated above under the heading, “Thresholds of Significance,” the State CEQA Guidelines were updated in 2019 and eliminated the criterion related to exceedance of an AAQS from the Appendix G checklist, and SJVAPCD’s 100 lb/day screening criteria were developed in consideration of this criterion. SJVAPCD’s use of the 100 lb/day screening criteria is not intended to be used to make a CEQA significance determination, but is a trigger for the preparation of an AAQA. As shown in Table 3.1-8, the only pollutant that would exceed the 100 lb/day screening criteria is CO, a criteria air pollutant for which the SJVAB has been in attainment for the NAAQS since 1994 and has maintained that designation consistently since.

Also of note, the 100 lb/day screening criteria are not scaled based on the attainment status of the SJVAB. For instance, SJVAPCD’s annual mass emissions thresholds used for CEQA determinations are scaled with the understanding that certain pollutants are of greater concern given the SJVAB’s attainment designations. For instance, SJVAPCD’s recommends a 10 TPY threshold for ROG and NO_x, which are precursor emissions to the secondary formation of ozone (a criteria pollutant for which the SJVAB is in severe nonattainment) while also recommending a 100 TPY threshold for CO with the understanding of the SJVAB’s attainment of the AAQS for that pollutant. Therefore, while CO emissions would exceed the 100 lb/day screening criteria, the likelihood that this contribution of emissions would result in an exceedance of an AAQS is virtually zero, and an AAQA is not required for the VST Specific Plan.

The 2001/2004 UCP EIR identified a significant impact related to construction emissions using the standards and analysis procedures in effect at the time of analysis. However, this analysis finds that construction emissions would be less than significant as emissions would be below SJVAPCD’s annual mass emissions thresholds. There is no new significant impact, and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.1-1a: Utilize the Cleanest Available Off-Road Construction Equipment, Including the Latest Tier Diesel or Electric Equipment (e.g., Scrapers, Graders, Trenchers, Tractors, Loaders, Backhoes, etc.) (UCP South)

All construction specifications shall require use off-road construction equipment that meet EPA's Tier 4 emission standards as defined in 40 CFR 1039 and comply with the appropriate test procedures and provisions as contained in 40 CFR Parts 1065 and 1068. Tier 3 models can be used if a Tier 4 version of the equipment type is not yet produced by manufacturers. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. Implementation of this measure shall be required in the contract the project applicant establishes with its construction contractors. The applicant shall demonstrate its plan to fulfill the requirements of this measure in a report or in project improvement plan details submitted to the discretionary land use authority (City of Merced or Merced County) prior to the use of any off-road, diesel-powered construction equipment.

Mitigation Measure 3.1-1b: Preparation of an Ambient Air Quality Analysis (UCP South)

SJVAPCD recommends that construction and operational emissions that exceed 100 lb/day prepare an AAQA to assess whether a project would violate an AAQS. Prior to the approval of a Final Map, the project applicant shall prepare a project-level analysis of emissions for development in the UCP area that is subject to SJVAPCD oversight to confirm whether the particular land use development would result in emissions that exceed this 100 lb/day screening criterion. In cases where a project's construction activity would generate emissions above this screening criterion (i.e., 100 lb/day), the project applicant shall prepare an AAQA. If, following the preparation of an AAQA, emissions are found to contribute to an exceedance of an AAQS, the project applicant shall either implement additional emission reduction measures as part of the project or, once all feasible on-site reduction measures have been exhausted, engage in regional programs that serve to reduce air pollution in the San Joaquin Valley. An example of a potential program includes the Valley Clean Air Now (Valley CAN) organization, which improves public health through investments in vehicle repair and replacement programs. Emissions reduction programs must demonstrate a quantifiable reduction and must be located within the SJVAB so air pollution reductions are realized in the basin. Alternatively, if regional air pollution reduction programs are unavailable, the project applicant may enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD to reduce emissions to below 100 lb/day for any pollutant that exceeds the screening criteria. If conditions warrant participation in a VERA, the VERA shall demonstrate a pound-for-pound reduction in emissions that exceed 100 lb/day through a process that funds and implements emissions reduction projects within the SJVAB. The types of emission reduction projects that could be funded include electrification of stationary internal combustion engines (such as well pumps), replacing old heavy-duty trucks with cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. If a VERA is found to be required to meet thresholds, and the applicant elects to enter into one, the project applicant shall engage in a discussion with SJVAPCD prior to the adoption of the VERA to ensure that feasible mitigation has been identified to reduce emissions to a less-than-significant level.

Significance after Mitigation

UCP Update

Adopted Mitigation Measures 4.3-1 and 4.3-2 would continue to apply to the UCP Update. However, as described above, SJVAPCD now recommends additional measures to address construction emissions that are not included in these adopted measures.

Implementation of Mitigation Measure 3.1-1a would reduce NO_x, PM₁₀, and PM_{2.5} emissions through use of cleaner construction equipment. Table 3.1-8 summarizes the UCP Update's annual estimated construction emissions and Table 3.1-9 shows the project's daily maximum estimated construction emissions after the implementation of Mitigation Measure 3.1-1a.

Table 3.1-8 Mitigated Construction-Generated Emissions of Criteria Air Pollutants by Year for the UCP Update (2025–2049)¹

Year	ROG (TPY)	NO _x (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
2025	<1	<1	4.4	<1	<1	<1
2026	<1	1.7	6.4	<1	1.1	<1
2027	<1	3.9	15.1	<1	2.6	<1
2028	5.2	4.6	14.2	<1	2.5	<1
2029	<1	3.0	8.3	<1	1.7	<1
2030	1.1	4.8	18.3	<1	3.4	1.1
2031	7.1	6.9	19.5	<1	4.9	1.5
2032	2.5	7.7	17.2	<1	4.9	1.4
2033	2.4	<u>16.9</u>	27.7	<1	<u>10.9</u>	<u>3.0</u>
2034	3.9	15.4	<u>23.8</u>	<1	10.2	2.9
2035	2.0	15.4	23.2	<1	10.2	2.9
2036	2.0	15.4	23.3	<1	10.3	2.9
2037	2.0	15.4	23.2	<1	10.2	2.9
2038	<u>6.3</u>	13.0	19.9	<1	8.7	2.4
2039	4.0	12.2	17.4	<1	8.2	2.3
2040	1.3	12.0	16.2	<1	8.2	2.3
2041	1.3	12.0	16.2	<1	8.2	2.3
2042	1.3	12.0	16.2	<1	8.2	2.3
2043	1.3	12.0	16.2	<1	8.2	2.3
2044	1.3	12.0	16.2	<1	8.2	2.3
2045	1.2	11.9	15.6	<1	8.2	2.3
2046	1.2	12.0	15.7	<1	8.2	2.3
2047	<1	9.3	12.7	<1	6.4	1.8
2048	5.6	<1	2.3	<1	<1	<1
2049	<1	2.0	<1	1.1	<1	<1
SJVAPCD Threshold of Significance	10	10	100	27	15	15
Exceeds Thresholds?	No	Yes	No	No	No	No

Notes: TPY = tons per year, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

Underlined values indicate the highest annual emissions over the construction period

¹ Emissions would differ throughout the years based on construction phasing. For instance, grading, which occurs at an early phase of construction, generates more fugitive dust than any other construction phase. Additionally, ROG emissions are greatest during the architectural coating phase of construction, which occurs at the end of the construction process.

Source: Modeling performed by Ascent Environmental in 2022 using CalEEMod v. 2020.4.0.

Table 3.1-9 Mitigated Maximum Daily Emissions of Criteria Air Pollutants Under a Worst-Case Scenario for the UCP Update (2025–2049)

Year	ROG (lb/day)	NO _x (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
2025	8.8	10.0	38.3	<1	9.4	4.7
2026	16.4	16.8	70.5	<1	16.1	6.6
2027	26.5	39.4	140.3	<1	28.7	12.2
2028	22.0	39.0	129.1	<1	23.0	6.6
2029	15.5	23.7	71.8	<1	14.4	4.1
2030	28.1	51.6	151.6	<1	58.8	24.4
2031	66.3	85.7	188.8	<1	71.3	<u>25.4</u>
2032	71.1	<u>133.9</u>	<u>240.7</u>	<u>1.1</u>	<u>87.8</u>	24.6
2033	33.9	132.2	232.0	1.0	87.3	24.4
2034	<u>93.7</u>	120.3	213.8	<1	81.7	22.8
2035	30.0	117.7	192.3	<1	80.6	22.4
2036	30.0	117.7	192.3	<1	80.6	22.4
2037	30.0	117.7	192.3	<1	80.6	22.4
2038	26.6	117.7	192.3	<1	80.6	22.4
2039	39.6	95.3	150.6	<1	67.3	18.7
2040	23.9	92.6	133.7	<1	64.8	18.0
2041	23.9	92.6	133.7	<1	64.8	18.0
2042	23.9	92.6	133.7	<1	64.8	18.0
2043	23.9	92.6	133.7	<1	64.8	18.0
2044	23.9	92.6	133.7	<1	64.8	18.0
2045	22.8	92.3	129.7	<1	64.8	18.0
2046	22.8	92.3	129.7	<1	64.8	18.0
2047	22.8	92.3	129.7	<1	64.8	18.0
2048	13.0	3.7	19.6	<1	10.1	2.7
2049	13.0	1.5	19.6	<1	10.1	2.7
SJVAPCD Threshold of Significance	100	100	100	100	100	100
Exceeds Thresholds?	No	Yes	Yes	No	No	No

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

Underlined values indicate the highest daily emissions over the construction period

¹ Emissions would differ throughout the years based on construction phasing. For instance, grading, which occurs at an early phase of construction, generates more fugitive dust than any other construction phase. Additionally, ROG emissions are greatest during the architectural coating phase of construction, which occurs at the end of the construction process.

Source: Modeling performed by Ascent Environmental in 2022 using CalEEMod v. 2020.4.0.

As shown in Tables 3.1-8 and 3.1-9, implementation of Mitigation Measure 3.1-1a would reduce annual NO_x and emissions associated with project construction to less than SJVAPCD's significance level of 10 TPY for 2027, 2031, and 2032; however, NO_x would exceed this threshold from 2033 to 2046.

However, construction-generated CO and NO_x emissions would continue to exceed SJVAPCD's daily screening criteria of 100 lb/day following the implementation of Mitigation Measure 3.1-1a, thus necessitating Mitigation Measure 3.1-1b. At this programmatic stage, the preparation of an AAQA for construction emissions is highly

speculative as the exact timing, location, magnitude, and types of construction equipment are unknown. With implementation of Mitigation Measure 3.1-1b, future development under the UCP Update would be able to determine the need for an AAQA and may engage in a VERA, as determined necessary to comply with Mitigation Measure 3.1-1b, to offset the project's emissions and meet SJVAPCD's thresholds of significance. Notably, the project encompasses 1,841 acres, which makes emission tracking difficult. Additionally, the daily maximum emissions estimates yield higher worst-case scenarios than reality. Phasing of construction would overlap, but equipment would be shared throughout the project, so the actual maximum daily emissions level would likely be lower than, shown above in Tables 3.1-5, 3.1-7, and 3.1-9, as it is unlikely that each phase will start construction of the residential units until the construction of the residential units of the previous phase is completed. Therefore, there is no new significant impact, and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. Implementation of Mitigation Measures 3.1-1a and 3.1-1b would reduce cumulative construction impacts to a **less-than-significant** level.

VST Specific Plan

No mitigation is necessary. (As described above, emissions generated by the VST Specific Plan would not exceed established thresholds [see Tables 3.1-6 and 3.1-7], and the impact is less than significant.)

Impact 3.1-2: Long-Term, Operational (Regional) Emissions of Criteria Air Pollutants and Precursors

The 2001/2004 UCP EIR evaluated the generation of long-term regional emissions of criteria air pollutants and ozone precursors and determined that emissions of ROG, NO_x, and CO would exceed SJVAPCD's thresholds of significance. Since certification of the 2001/2004 UCP EIR, SJVAPCD has issued new guidance and thresholds of significance for determining long-term operational emissions of criteria air pollutants and ozone precursors. The UCP Update and VST Specific Plan would generate emissions of ROG, NO_x, CO, PM₁₀, and PM_{2.5} in exceedance of SJVAPCD's operational thresholds of significance, consistent with the findings of the 2001/2004 UCP EIR. However, the UCP Update would result in fewer total emissions of NO_x, ROG, SO₂, PM₁₀, and PM_{2.5} and greater total CO emissions as compared to the Adopted UCP (Table 4.3.6 of the 2001/2004 UCP EIR). Therefore, this impact would be less severe than the impact identified in the 2001/2004 UCP EIR. This impact would be **less than significant with mitigation**.

Summary of 2001/2004 UCP EIR Impact

Impacts 4.3-4 and 4.3-11 of the 2001/2004 UCP EIR estimated operational emissions of ROG, NO_x, and PM₁₀ and evaluated these emissions against the SJVAPCD thresholds of significance that were in effect in 2001. Vehicles accessing the project site would generate operational emissions of criteria air pollutants. The combustion of natural gas, electricity demand, use of landscaping equipment and consumer products, and periodic application of architectural coatings would also contribute to operational emissions. Based on the modeling conducted, the 2001/2004 UCP EIR estimated that the entire Adopted UCP would generate approximately 367.1 TPY of ROG, 189.2 TPY of NO_x, and 25 TPY of PM₁₀ at full buildout. At the time of the 2001/2004 UCP EIR, SJVAPCD recommended that ROG and NO_x be evaluated against a 10 TPY threshold of significance. Thus, the 2001/2004 UCP EIR determined that emissions of ROG and NO_x would exceed SJVAPCD's thresholds of significance, resulting in a potentially significant impact. Mitigation Measure 4.3-4 was adopted; however, it was not sufficient to minimize this impact to a less-than-significant level, and this impact was, therefore, concluded to be significant and unavoidable.

Adopted Mitigation Measure 4.3-4

- (a) Outdoor electrical outlets shall be installed in the front and backyards of all housing units.
- (b) Use solar or low emission water heaters.
- (c) Orient buildings to take advantage of solar heating and natural cooling and use passive solar design.
- (d) Increase wall and attic insulation.

UCP Update

Table 3.1-12 summarizes the cumulative modeled operational emissions associated with the UCP Update for the first full year of operation (i.e., 2050). The project's operational emissions were also amended to reflect compliance with the standards of Rule 9510, "Indirect Source Review," which requires projects to reduce operational NO_x and PM₁₀ emissions by 33.3 and 50 percent, respectively. See Appendix D for detailed modeling assumptions.

Table 3.1-12 Maximum Daily and Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the UCP Update (2050)

	ROG (TPY)	ROG (lb/day)	NO _x (TPY)	NO _x (lb/day)	CO (TPY)	CO (lb/day)	SO _x (TPY)	SO _x (lb/day)	PM ₁₀ (TPY)	PM ₁₀ (lb/day)	PM _{2.5} (TPY)	PM _{2.5} (lb/day)
UCP Update (2050)	108.3	473.7	38.7	45.6	245.6	417.5	0.3	0.4	15.2	3.6	9.3	7.2
2001/2004 UCP EIR Emission totals	107.1	586.9	85.6	463.3	217.4	1,191.3	2.6	14.4	3.4	18.5	- ¹	- ¹
Net Difference Between 2050 and 2001/2004 UCP EIR	1.2	-95.2	-46.9	-417.7	28.2	-773.8	-2.3	-14	11.8	-14.9	9.3 ¹	7.2 ¹
SJVAPCD Significance/ Screening Criteria ²	10	100	10	100	100	100	27	100	15	100	15	100
Exceeds Threshold/ Screening Criteria?	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	No

Notes: TPY = tons per year, lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

¹ The 2001/2004 UCP EIR did not estimate emissions of PM_{2.5}.

² Emissions are presented as project total (i.e., the emissions of the UCP Update, including the VST Specific Plan).

Source: Modeling conducted by Ascent Environmental in 2023 using CalEEMod v. 2020.4.0.

As shown in Table 3.1-12, operational emissions associated with the UCP Update of ROG, NO_x, and CO would exceed SJVAPCD's CEQA annual mass emissions thresholds of significance (10 TPY of ROG and NO_x, 100 TPY of CO, 27 TPY of SO_x, and 15 TPY of PM₁₀ and PM_{2.5}) and ROG, and CO, would exceed SJVAPCD's 100 lb/day screening criteria.²

As noted above, the 2001/2004 UCP EIR determined that operational emissions of criteria air pollutants would be significant (Impacts 4.3-4 and 4.3-11), and mitigation was adopted. With the application of Adopted Mitigation Measure 4.3-4, operational emissions under this impact were reduced, but not to a less-than-significant level. Adopted Mitigation Measure 4.3-4 requires implementation of on-site project design features that would reduce operation emissions of criteria air pollutants and ozone precursors.

SJVAPCD states in its GAMAQI that "[d]esign elements, mitigation measures, and compliance with District rules and regulations may not be sufficient to reduce project-related impacts on air quality to a less than significant level. In such situations, project proponents may enter into a Voluntary Emission Reduction Agreement (VERA) with the District to reduce the project related impact on air quality to a less than significant level" (SJVAPCD 2015: 116). SJVAPCD directs project applicants to reduce project-level emissions to the best extent, then allows project applicants to engage in regional programs or a VERA to further reduce emissions to a less-than-significant level.

Notwithstanding these mitigation measures and project design features, the UCP Update would generate operational emissions in exceedance of applicable thresholds consistent with the findings of the 2001/2004 UCP EIR; and yearly PM₁₀, CO, and ROG and daily operational emissions would be greater under UCP Update as compared to the Adopted UCP. Operational impacts would remain **significant** as identified in the 2001/2004 UCP EIR.

² Note that the 2009 LRDP EIR, which evaluated a slightly larger university community in approximately the same area as the UCP (see Figure 2-4 in Chapter 2, "Project Description," of this SEIR), reported substantially larger emissions of most pollutants (205.6 TPY and 1,126.4 lb/day for ROG; 87.7 TPY and 480 lb/day for NO_x; 1,065.5 TPY and 5,835 lb/day for CO; 2.6 TPY and 14.1 lb/day for SO_x; 94.2 TPY and 516.4 lb/day for PM₁₀; and 70.4 TPY and 385.8 lb/day for PM_{2.5}). This modeling was conducted based on the land use diagram proposed under the LRDP following the modeling methodology in place at that time.

VST Specific Plan

Table 3.1-13 summarizes the cumulative modeled operational emissions associated with the VST Specific Plan portion of the UCP Update for the assumed first full year of operation (i.e., 2039). The project's operational emissions were also amended to reflect compliance with the standards of Rule 9510, "Indirect Source Review," which requires projects to reduce operational NO_x and PM₁₀ emissions by 33.3 and 50 percent, respectively. See Appendix D for detailed modeling assumptions.

Table 3.1-13 Maximum Daily and Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the VST Specific Plan (2039)

Year	ROG (TPY)	ROG (lb/day)	NO _x (TPY)	NO _x (lb/day)	CO (TPY)	CO (lb/day)	SO _x (TPY)	SO _x (lb/day)	PM ₁₀ (TPY)	PM ₁₀ (lb/day)	PM _{2.5} (TPY)	PM _{2.5} (lb/day)
VST Specific Plan (2039)	38.6	167.7	10.6	12.1	82.4	165.1	0.1	0.1	3.8	1.7	2.3	1.7
SJVAPCD Significance/ Screening Criteria ²	10	100	10	100	100	100	27	100	15	100	15	100
Exceeds Threshold/ Screening Criteria?	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No

Notes: TPY = tons per year, lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter, SJVAPCD = San Joaquin Valley Air Pollution Control District

¹ The 2001/2004 UCP EIR did not estimate emissions of PM_{2.5}.

Source: Modeling conducted by Ascent Environmental in 2023 using CalEEMod v. 2020.4.0.

As shown in Table 3.1-13, operational emissions associated with the VST Specific Plan of ROG and NO_x would exceed SJVAPCD's CEQA annual mass emissions thresholds of significance (10 TPY of ROG and NO_x, 100 TPY of CO, 27 TPY of SO_x, and 15 TPY of PM₁₀ and PM_{2.5}) and ROG and CO would exceed SJVAPCD's 100 lb/day screening criteria.

Notably, the VST Specific Plan includes various project design features that would reduce emissions as compared to what was analyzed in the 2001/2004 UCP EIR. For instance, the VST Specific Plan would prohibit natural gas infrastructure for all residential land uses, would construct residences to be ZNE, and would provide sufficient electric vehicle charging stations that meet the Tier 2 requirements of the CalGreen Code. Therefore, by comparison, the VST Specific Plan would result in less emissions than what was previously analyzed in the 2001/2004 UCP EIR. Operation-generated emissions from implementation of the VST Specific Plan would not result in a substantially more severe air quality impacts that was addressed in the 2001/2004 UCP EIR and cumulative operational impacts would remain **significant**.

Mitigation Measures

Mitigation Measure 3.1-2a: Implement On-Site Project Design Features to Reduce Emissions of Criteria Air Pollutants (UCP South)

Prior to the issuance of any development permits, the project applicant shall implement the following measures to reduce the project's emissions:

- Use low-VOC (50–100 grams per liter) paint for external residential applications on all construction drawings for review and approval by staff of the discretionary land use authority (City of Merced or Merced County).
- Incorporate traffic calming measures including marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts, and on-street parking throughout the site plan. Specific calming measures and locations shall be identified by a qualified transportation specialist.
- Electric water heaters in all residences (no gas storage tank heaters).
- Electric heating, ventilation, and air conditioning (HVAC) units in residences (no gas units).
- Meet Tier 2 electric vehicle charging standards of the most recent version of Part 11 of the Title 24 California Building Code (CalGreen Code) for all land use types.

Mitigation Measure 3.1-2b: Engage in Regional Programs to Offset Project Emissions of ROG, NO_x, CO, and PM₁₀ (UCP South and VST Specific Plan)

UCP South

Once the on-site reduction measures listed above under Mitigation Measure 3.1-2a have been incorporated, an air quality assessment shall be prepared to determine whether any SJVAPCD annual mass emissions thresholds are exceeded. If no thresholds are exceeded, no further action is necessary. If one or more thresholds are exceeded, prior to the issuance of Certificates of Occupancy, the project applicant shall enter into a VERA through coordination with SJVAPCD to reduce emissions to meet SJVAPCD's annual mass emissions thresholds for any pollutant that exceeds their respective threshold. The project applicant shall engage in a discussion with SJVAPCD prior to the adoption of the VERA to ensure that feasible mitigation has been identified to reduce emissions to a less-than-significant level consistent with the direction given in SJVAPCD's GAMAQI. As allowed by SJVAPCD, the project applicant shall be provided the opportunity to perform an additional quantification of the project's operational emissions following the implementation of the proposed measures listed above under Mitigation Measure 3.1-2a to estimate the TPY needed to reduce emissions to meet SJVAPCD's annual thresholds of significance.

VST Specific Plan

A project-level evaluation of potential emissions has been performed for the VST Specific Plan. Based on SJVAPCD's guidance, various project design features have been incorporated into the design of the VST Specific Plan to reduce emissions, such as transportation management strategies and the elimination of onsite natural gas infrastructure for residential land uses. Based on this data (see Table 3.1-13), the applicant shall enter into a VERA with SJVAPCD to fully compensate for ROG, NO_x, and CO emissions that exceed SJVAPCD's CEQA annual mass emissions thresholds of significance.

Significance after Mitigation

UCP Update

Mitigation Measure 3.1-2a would reduce emissions of criteria air pollutants through the application of on-site emissions reduction design features. This mitigation measure would apply only to the portions of the UCP Update outside of the VST Specific Plan and would be implemented during development of the specific planning documents required by the UCP. Following the completion of project-level air quality evaluation, Mitigation Measure 3.1-2b would further reduce emissions through an obligation to address air quality emissions that exceed the applicable annual significance thresholds through a VERA. SJVAPCD's VERA is a locally implemented mitigation program verified by the air district. Through the VERA, project proponents contribute money to fund programs with measurable air quality benefits, such as repair of older high polluting vehicles, electrifying or replacing existing diesel-powered off-road equipment, or incentivizing purchase cleaner personal vehicles. For projects in the UCP Update area outside of the VST Specific Plan area, the degree (i.e., the TPY necessary to offset any exceedance of SJVAPCD's thresholds of significance) that the project applicant would rely on the VERA would be based on the effectiveness of the measures outlined in Mitigation Measure 3.1-2a, which can be determined through coordination with SJVAPCD during the ISR process.

To implement a VERA, the project proponent shall enter into a contractual agreement with SJVAPCD in which the project proponent agrees to mitigate project-specific emissions by providing funds for the SJVAPCD's incentives programs. These funds are disbursed by SJVAPCD in the form of grants for projects that achieve emission reductions. In implementing a VERA, SJVAPCD verifies the actual emission reductions that have been achieved as a result of completed grant contracts, monitors the emission reduction projects, and ensures the enforceability of achieved reductions. After the project is mitigated, SJVAPCD certifies to the project applicant and Lead Agency that the mitigation is completed, providing the project applicant and Lead Agency with an enforceable mitigation measure demonstrating that project-specific regional emissions have been mitigated to a less-than-significant level. The VERA program was not available to mitigate the significant impacts of the Adopted UCP. This mitigation would result in a less severe impact than disclosed in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

As evaluated in this SEIR, the VST Specific Plan has incorporated all feasible reduction measures and completed the required emission quantification. Project-specific commitments made in the analysis of the VST Specific Plan and the quantification included herein would be used to inform the mitigation commitments pursuant to Mitigation Measure 3.1-2b. Based on the analysis conducted in this SEIR, the VERA would be designed to address 10 TPY of ROG and NO_x, 100 TPY of CO, 27 TPY of SO_x, and 15 TPY of PM₁₀ and PM_{2.5} (see Table 3.1-13); however, the VERA may be based on updated or different modeling at the discretion of the air district.

As described above, SJVPACD's VERA is a locally implemented mitigation program verified by the air district. Through the VERA, project proponents contribute money to fund programs with measurable air quality benefits. Because reducing operational emissions below applicable thresholds can be assured through a VERA, this impact would be reduced, thus avoiding the potential for individuals to be exposed to unhealthy concentrations of criteria air pollutants that could result in adverse health outcomes. Therefore, there is no new impact and impacts would not be substantially more severe than what was analyzed in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Impact 3.1-3: Increases in Local Mobile Source CO Concentrations

The 2001/2004 UCP EIR evaluated the generation of CO from project-generated vehicle trips. The 2001/2004 UCP EIR concluded that the Adopted UCP would not contribute to CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. The proposed land uses under the UCP Update and VST Specific Plan would result in the redistribution of trips as compared to what was evaluated in the 2001/2004 UCP EIR. However, this redistribution would not result in a new impact. There is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Summary of 2001/2004 UCP EIR Impact

Impacts 4.3-3 and 4.3-10 of the 2001/2004 UCP EIR evaluated the average daily trips (ADT) and trip distribution for CO emissions and were found to be less-than-significant with the implementation of Adopted UCP Policies AQ 2.2, AQ 2.4, AQ 2.5; LU 4.1, LU 4.3, LU 5.8, and LU 5.16. The 2001/2004 UCP EIR identified that the roadway segment with the maximum ADT for the project would be Franklin Road to Highway 59 with 57,800 ADT. The 2001/2004 UCP EIR concludes that this impact would be less than significant.

UCP Update

Adopted UCP Policies AQ 2.2, AQ 2.4, AQ 2.5; LU, LU 4.3, LU 5.8, and LU 5.16 would continue to apply to the UCP Update. Although there are proposed changes to Adopted UCP Policies AQ 2.2, LU 4.3, LU 4.8, and LU 5.16, no major changes were made that would affect this analysis. For example, Policy AQ 2.2 would no longer specifically reduce motor vehicle trips, but this would not result in a greater level of CO concentrations because the policy still develops grid streets that promote bicyclists, pedestrians, and traffic calming, all of which will reduce vehicle trips and alleviate traffic. Policy LU 4.3 was changed to now require specific plans, for both the VST portion of the project and the UCP portion, that the public can comment on to create a complete, cohesive, and integrated district and neighborhood. The changes in Policy LU 5.8 modified the minimum FAR of mixed use residential units, decreasing it for mixed use Town Center, increasing it for mixed use retail, office uses, service zones, institutional uses, and visitor oriented uses, added a parking space requirement of one space per 500 square feet in the Town Center, and increased the range of units per acre. Policy LU 5.16 deleted the portion that that involved local and/or campus artists designing the streetscapes. While Policy LU 4.1 has been deleted, the policies still in effect would apply to the project and would reduce emissions of CO. The roadway segment with the highest projected ADT would be on Bellevue Road at the segment between G street and Lake Road with 33,900 ADT. When compared to the 2001/2004 UCP EIR, less daily trips and VMT would be generated by the UCP Update. Mobile-source CO emissions have historically decreased since the advent of catalytic converters, which decrease mobile-source exhaust emissions. There have also been improvements in fuel economy since 2001 through regulatory compliance implemented by EPA and CARB (e.g., the CAFE standards and Advanced Clean Cars program) that result in reduced vehicular CO emissions. There is no new

impact and impacts would not be substantially more severe than what was analyzed in the 2001/2004 UCP EIR. This impact would remain **less than significant**.

VST Specific Plan

The proposed VST Specific Plan policies, including Policies 1.16, 2.5, and 2.6 serve to reduce the anticipated level of VMT generated by the VST Specific Plan, which would limit the exposure of receptors to CO hotspots. Mobile-source CO emissions have historically decreased since the advent of catalytic converters, which decrease mobile-source exhaust emissions. There have also been improvements in fuel economy since 2001 through regulatory compliance implemented by EPA and CARB (e.g., the CAFE standards and Advanced Clean Cars program) that also result in reduced vehicular CO emissions. Therefore, there is no new impact and impacts would not be substantially more severe than what was analyzed in the 2001/2004 UCP EIR. This impact would remain **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.1-4: Exposure to Sensitive Receptors to TACs

The 2001/2004 UCP EIR did not evaluate potential TAC impacts from construction or mobile sources of TACs. The project's construction would be dispersed throughout the UCP area; at this programmatic level the specific locations of any impact cannot be assured. PM₁₀ exhaust emissions from the UCP Update (including the VST Specific Plan) would be approximately 88 lb/day, and PM₁₀ exhaust emissions for the VST Specific Plan would be 36 lb/day, both of which are below SJVAPCD's 100 lb/day screening criteria. Additionally, the UCP Update and VST Specific Plan would result in 33,900 vehicles on Bellevue Road which comprises the greatest volume of ADT within the UCP Update and VST Specific Plan area. This level of ADT is below CARB's recommendations for siting sensitive receptors. The 2001/2004 UCP EIR evaluated the potential for sensitive receptors (e.g., residences, schools) to be exposed to TAC emissions from stationary sources. Onsite and offsite facilities that may emit TACs would be required to comply with established emission standards through the SJVAPCD permitting process. SJVAPCD permitting processes would continue to be applied to potential stationary sources of TACs, resulting in similar restrictions and controls on TAC emissions. The 2001/2004 UCP EIR concluded that since there is no anticipated construction of industrial or research and development facilities, future residents would not be exposed to substantial TAC emissions. The UCP Update does not propose industrial or research and development facilities. Therefore, there is no new significant impact, and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR did not evaluate construction-related or mobile source TAC impacts.

Impact 4.3-6 of the 2001/2004 UCP EIR evaluated the potential for sensitive receptors to be exposed to onsite and offsite concentrations of TACs emanating from stationary sources. The analysis indicated that no industrial or research and development facilities would be anticipated and if any were constructed, new facilities must obtain a permit from SJVAPCD as directed by Policy AQ 3.1. This impact was concluded to be less than significant because both onsite and offsite facilities that may emit TACs would be required to comply with established emission standards through the SJVAPCD permitting process.

UCP Update

Construction

Construction-related activities would result in temporary, intermittent emissions of diesel PM from the exhaust of heavy-duty off-road diesel equipment used for grading, utilities installation, paving, building construction, and the application of architectural coatings. On-road, diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment do not operate at a single location for extended periods and, therefore, would

not expose a sensitive receptor to excessive diesel PM emissions. This analysis focuses primarily on heavy-duty construction equipment used on-site that may affect nearby off-site land uses.

Particulate exhaust from diesel-fueled engines (i.e., diesel PM) was identified as a TAC by CARB in 1998. The potential cancer risk from inhaling diesel PM outweighs the potential for all other diesel PM-related health impacts (i.e., noncancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003:K-1). Chronic and acute exposure to noncarcinogens is expressed as a hazard index, which is the ratio of expected exposure levels to an acceptable reference exposure level. Also, the maximum daily emissions of PM₁₀ exhaust, which is considered a surrogate for diesel PM, could reach up to 2 lb/day for the UCP Update during the most intense period of construction activity, which would not exceed the daily threshold of 100 lb/day. Mitigation Measures 3.1-1a, 3.1-1b, and 3.1-2a, as well as compliance with SJVAPCD's Rule 9510, would further reduce exhaust emissions from on-site construction equipment.

The dose to which sensitive receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC levels that exceed applicable standards). Dose is a function of the concentration of a substance in the environment and the duration of exposure to the substance. It is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if the exposure occurs over a longer period. According to OEHHA, health risk assessments, which determine the exposure of sensitive receptors to TACs, should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015:5-23, 5-24).

Considering the highly dispersive properties of diesel PM and the relatively low mass of diesel PM emissions that would be generated at any single place during project construction, construction-related TACs would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index of 1.0 or greater. As a result, this impact would be **less than significant**.

Stationary Source TACs

The UCP Update would continue to comply with SJVAPCD Rule 2010, which regulates sources with the potential to emit TACs through a permitting process. Permits may only be granted to these operations provided that they are constructed and operated in accordance with applicable regulations, and they include best available control technology, if applicable, based on regulations including Rule 2201 (New and Modified Stationary Source Review Rule), Rule 4001 (New Source Performance Standards), and Rule 4002 (National Emissions Standards for Hazardous Air Pollutants). Compliance with these rules would ensure that these stationary sources would meet established health standards for TACs. Given that compliance with applicable standards is required for the construction and operation of facilities that may emit TACs, the TAC emissions from the routine use of TACs in manufacturing processes, both on and off the project site, are expected to be within established standards.

Because the UCP Update would not introduce any new potential for TAC-generating land uses, and the stationary sources of TACs associated with these land uses would comply with the SJVAPCD permitting process (which reduces the potential for sensitive receptors to be exposed to substantial pollutant concentration), there is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Mobile Source TACs

Proximity to highways increases cancer risk as a result of exposure to diesel PM. Similarly, proximity to heavily traveled transportation corridors and intersections would expose residents to higher levels of diesel PM. CARB recommends avoiding siting new sensitive land uses, such as residences, schools, daycare centers, playgrounds, or medical facilities, within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day (CARB 2005). Within the planning area in a cumulative context, the roadway that supports the most vehicles per day will be Bellevue Avenue between G Street and Lake Road. This roadway segment is projected to have a maximum of 33,900 vehicle trips per day according to Figure 4-5 of the traffic impact study, which is below CARB's recommended threshold for siting sensitive receptors to mobile source emissions of TACs (VRPA Technologies 2022).

The project would result in a shift of traffic from Lake Road to Campus Parkway, with traffic on Lake Road going from 6,400 ADT to 4,000 ADT.

It is reasonably foreseeable that increased traffic on roadways resulting from the project could increase existing concentrations of TACs, resulting in a health risk for existing or new sensitive receptors. The CARB Diesel Risk Reduction Plan and Air Toxic Control Measures would help reduce future emissions of diesel PM (the primary TAC of concern in mobile emissions). The CARB Diesel Risk Reduction Plan requires all new diesel-fueled vehicles and engines to use state-of-the-art catalyzed diesel particulate filters and very low-sulfur diesel fuel. For these reasons the project would not expose sensitive land uses to mobile-source TACs and result in increased health risks above the SJVAPCD thresholds of a cancer score of more than 20 in 1 million, and the impact would be **less than significant**.

VST Specific Plan

Anticipated new TAC emissions from development under the VST Specific Plan would be similar to those disclosed above. Construction of the VST Specific Plan would occur within the footprint of the UCP Update. Operation of the VST Specific Plan would include similar stationary source and mobile source emissions as analyzed in the 2001/2004 UCP EIR. Implementation of development under the VST Specific Plan would not result in a new or substantially more severe air quality impact. Stationary source TAC impacts and construction and mobile source TAC impacts would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.1-5: Expose Sensitive Receptors to Odors

The 2001/2004 UCP EIR evaluated the potential for adverse increases in odorous emissions due to the project site's proximity to nearby existing agricultural uses. The City's Right-to-Farm Ordinance, which requires buffers between agriculture and development, protects agricultural landowners from nuisance complaints related to normal agricultural operations. County Zoning Ordinance section 18.10.040 and VST Specific Plan Policy 1.17 require 200-foot setbacks from permanent agriculture to any habitable portion of a structure, reducing the likelihood that an existing source of odor affects the inhabitants of a UCP structure. The UCP Update and VST Specific Plan would not introduce any new sources of odor compared to what was evaluated in the 2001/2004 UCP EIR and would be sited in the same location. Therefore, there is no change in odor impact conditions. There is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Summary of 2001/2004 UCP EIR Impact

Impact 4.3-7 on the 2001/2004 UCP EIR evaluated whether the residents of the UCP area would be exposed to adverse odors due to the project site's vicinity to nearby existing agricultural uses. The 2001/2004 UCP EIR concludes that the City's Right-to-Farm Ordinances protect agricultural landowners from nuisance complaints related to cultivation, irrigations, spraying, fertilizing, and other activities related to normal agricultural operations. The 2001/2004 UCP EIR also noted that the use of wastewater facilities could generate offensive odors, but with implementation of UCP Policy AQ 3.1, the odor impacts from the wastewater treatment plant would not be offensive to sensitive receptors. This impact is less than significant.

UCP Update

The UCP Update would not introduce any new sources of odor that were not identified in the 2001/2004 UCP EIR. In addition, since certification of the 2001/2004 UCP EIR, there has not been any changes in surrounding development, nor changes in planned development, that would place a new source of odorous emissions in the vicinity of the UCP project site. The wastewater treatment facility previously evaluated within the UCP area in the 2001/2004 UCP EIR is no longer proposed in the UCP Update. This would reduce the potential for the project to generate associated odors. With no change in conditions regarding odorous emissions on or off the project site, there is no new significant

impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

VST Specific Plan

Anticipated new odor sources from the VST Specific Plan would be the same those discussed above. County Zoning Ordinance section 18.10.040 and VST Specific Plan Policy 1.17 require 200-foot setbacks from permanent agriculture to any habitable portion of a structure, reducing the likelihood that an existing source of odor affects the inhabitants of a VST Specific Plan structure. The VST Specific Plan would not introduce any new sources of odor that were not identified in the 2001/2004 UCP EIR and, therefore, the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Mitigation Measures

No mitigation is required.

3.2 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur on or near the UCP Update and VST Specific Plan areas and describes potential effects of implementation of the project on those resources.

The 2001/2004 UCP EIR evaluated effects on biological resources in Section 4.4, "Biological Resources." The analysis determined that effects on freshwater marsh, wooded channels, and stock pond habitat and associated species would be less than significant with implementation of Adopted UCP policies (Impacts 4.4-1 and 4.4-3). Effects on vernal pools, swales, and seasonal wetlands would be less than significant with mitigation (Impact 4.4-2). The effects of loss of annual grassland would also be less than significant with mitigation (Impacts 4.4-4, 4.4-5, and 4.4-6). The effects of offsite infrastructure, indirect impacts to special status species, and disruption of San Joaquin kit fox (*Vulpes macrotis mutica*) movement (Impacts 4.4-7, 4.4-8, and 4.4-9) were found to be less than significant. No impact was identified in association with the potential to conflict with an adopted habitat conservation plan (Impact 4.4-10).

In response to the notice of preparation for this focused SEIR, a comment letter was received from the California Department of Fish and Wildlife (CDFW), which included comments pertaining to biological resources; specifically, the list of special-status wildlife and plant species that should be addressed in the SEIR. All of the species noted by CDFW are addressed in this section or were addressed in the previous environmental documents for the project. Refer to Appendix A for comments received on the notice of preparation.

3.2.1 Regulatory Setting

FEDERAL AND STATE

The regulatory setting provided in the 2001/2004 UCP EIR remains applicable to this analysis. The regulatory information provided on pages 4.4-21 through 4.4-32 of the 2001/2004 UCP EIR provides a description of the applicable federal, state, and local regulations designed to reduce impacts on biological resources and adequately describes these regulations. These regulations are applicable to special-status plant and wildlife species, including those listed by U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA) and by CDFW under the California Endangered Species Act (CESA), as well as those protected under California Fish and Game Code (i.e., fully protected species, nesting birds). These regulations also apply to sensitive habitats, including riparian habitat, waters of the United States, and waters of the state.

Additional permitting has been conducted for the UCP North since certification of the 2001/2004 UCP EIR and adoption of the UCP. CDFW issued an incidental take permit (ITP) in 2011 and amended the permit in 2015, providing coverage for six state-listed threatened and endangered species: California tiger salamander (*Ambystoma californiense*), Swainson's hawk (*Buteo swainsoni*), succulent owl's clover (*Castilleja campestris* var. *succulenta*), Colusa grass (*Neostapfia colusana*), San Joaquin Orcutt grass (*Orcuttia inaequalis*), and San Joaquin kit fox. The ITP includes conditions that must be met to maintain incidental take coverage. Additionally, in 2002, USFWS issued a Biological Opinion that was subsequently revised and amended in 2009 and 2016. The Biological Opinion contains Conservation Measures to avoid and minimize take of 13 federally listed threatened and endangered species: San Joaquin kit fox, hairy Orcutt grass (*Orcuttia pilosa*), Greene's tuctoria (*Tuctoria greenei*), Hartweg's golden sunburst (*Pseudobahia bahiifolia*), conservancy fairy shrimp (*Branchinecta conservancy*), vernal pool tadpole shrimp (*Lepidurus packardii*), California tiger salamander, vernal pool fairy shrimp (*Branchinecta lynchi*), succulent owl's clover, Colusa grass, valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and Hoover's spurge (*Euphorbia hooveri*). The ITP and the Biological Opinion cover activities within the UC Merced campus and the UCP North/VST Specific Plan area (including the portion of the VST Specific Plan area not analyzed in the 2001/2004 UCP EIR). In 2009, the US Army Corps of Engineers (USACE) issued a Clean Water Act (CWA) Section 404 permit to UC Merced and University Community Land Company (UCLC, a joint venture between the VST and the State UC Regents) authorizing fill of all 77.79 acres of jurisdictional waters on the UC Merced campus and UCP North, including the VST Specific Plan area. The university and UCLC also obtained water quality certification from the RWQCB in compliance with CWA Section 401 in 2009.

LOCAL

Merced County General Plan

The 2001/2004 UCP EIR referenced the Merced County Year 2000 General Plan, which at the time of certification of the EIR, was the most recent general plan update for the County. Since certification of the EIR, the 2030 Merced County General Plan (County of Merced 2013) has been adopted. The Natural Resources Element of the 2030 Merced County General Plan contains the following policies related to biological resources in the county:

- **Policy NR-1.5:** Wetland and Riparian Habitat Buffers. Identify wetlands and riparian habitat areas and designate a buffer zone around each area sufficient to protect them from degradation, encroachment, or loss.
- **Policy NR-1.6:** Terrestrial Wildlife Mobility. Encourage property owners within or adjacent to designated habitat connectivity corridors that have been mapped or otherwise identified by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service to manage their lands in accordance with such mapping programs. In the planning and development of public works projects that could physically interfere with wildlife mobility, the County shall consult with the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service to determine the potential for such effects and implement any feasible mitigation measures.
- **Policy NR-1.11:** On-Going Habitat Protection and Monitoring. Cooperate with local, State, and Federal agencies to ensure that adequate on-going protection and monitoring occurs adjacent to rare and endangered species habitats or within identified significant wetlands.
- **Policy NR-1.12:** Wetland Avoidance. Avoid or minimize loss of existing wetland resources by careful placement and construction of any necessary new public utilities and facilities, including roads, railroads, high speed rail, sewage disposal ponds, gas lines, electrical lines, and water/wastewater systems.
- **Policy NR-1.13:** Wetlands Setbacks. Require an appropriate setback, to be determined during the development review process, for developed and agricultural uses from the delineated edges of wetlands.
- **Policy NR-1.17:** Agency Coordination. Consult 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.
- **Policy NR-1.21:** Special Status Species Surveys and Mitigation. Incorporate the survey standards and mitigation requirements of state and federal resources management agencies for use in the County's review process for both private and public projects.

City of Merced Vision 2030 General Plan

The Open Space Element of the City of Merced Vision 2030 General Plan (City of Merced 2012) contains the following policies related to biological resources in the city:

- **Policy OS-1.1:** Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.
- **Policy OS-1.2:** Preserve and enhance creeks in their natural state throughout the planning area.

3.2.2 Environmental Setting

The 2001/2004 UCP EIR (pages 4.4-1 through 4.4-22) provides an overview of the environmental setting, wetlands and other waters, habitats, and special-status species present in the Adopted UCP area. As described in the 2001/2004 UCP EIR, habitats and land cover types within the UCP area include cultivated agricultural land, annual grassland, irrigated pasture, flood-irrigated pasture, and several types of potentially jurisdictional wetlands (i.e., canals, drainage ditches, freshwater marsh, vernal pools, seasonal wetlands, stock ponds, swales, and wooded channels). Numerous changes to land cover and habitat conditions within the UCP area have occurred since adoption of the 2001/2004 UCP EIR. These changes include fill of some vernal pools and swales in the UCP area and VST Specific Plan area, and deep-ripping of a majority of the VST Specific Plan area for conversion to orchards, associated

facilities, and dry-farmed fields pursuant to the Section 404 permit obtained by UC Merced and the UCLC. Current land cover types within the VST Specific Plan area are shown in Figure 3.2-1 and Table 3.2-1. Land cover in the UCP South remains consistent with the evaluation in the 2001/2004 UCP EIR. The area east of Fairfield Canal, which is outside of the Adopted UCP, is currently planted as an almond orchard (Live Oak Associates Inc. 2019).

Table 3.2-1 Land Cover Types in the VST Specific Plan Area

Land Cover Type	Approximate Acreage
Orchard	529.8
Dry-Farmed Field	81.5
Ruderal	12.8
Drainage and Seasonal Marsh	10.4
Canal	8.6
Agricultural Pond	5.2
Agricultural Ditch	1.0
Nonnative Annual Grassland	0.2
Total	649.5

Source: Live Oak Associates Inc. 2019.

Most of the vernal pool habitat is no longer present in the UCP area and there is no vernal pool habitat remaining in the VST Specific Plan area; however, some seasonal wetland and swale habitat, which can support some of the same species as those associated with vernal pools, is still present in the VST Specific Plan area (Live Oak Associates Inc. 2019). Other than conversion of vernal pool habitat, the environmental setting within, and in the vicinity of, the UCP Update and VST Specific Plan areas remains consistent with the environmental setting described in the 2001/2004 UCP EIR.

NEW SPECIAL-STATUS SPECIES

The 2001/2004 UCP EIR identified the following special status species (pages 4.4-9 through 4.4-21): Colusa grass, dwarf downingia (*Downingia pusilla*), Henderson's bent grass (*Agrostis hendersonii*), San Joaquin Valley Orcutt grass, shining navarretia (*Navarretia nigelliformis* ssp. *radians*), succulent owl's clover, vernal pool fairy shrimp, midvalley fairy shrimp (*Branchinecta mesovallensis*), California linderiella (*Linderiella occidentalis*), California tiger salamander, bald eagle (*Haliaeetus leucocephalus*), western burrowing owl (*Athene cunicularia hypugea*), short-eared owl (*Asio flammeus*), American bittern (*Botaurus lentiginosus*), mountain plover (*Charadrius montanus*), greater sandhill crane (*Grus canadensis tabida*), Swainson's hawk, Fresno kangaroo rat (*Dipodomys nitratoides exilis*), Merced kangaroo rat (*Dipodomys heermanni dixonii*), and San Joaquin kit fox. Since certification of the 2001/2004 UCP EIR, four additional plant species that may occur within the plan area and were not included in the 2001/2004 UCP EIR analysis have been assigned California Rare Plant Ranks (CRPR) that qualifies them as special-status species: watershield (*Brasenia schreberi*), forked hare-leaf (*Lagophylla dichotoma*), alkali-sink goldfields (*Lasthenia chrysantha*), and California alkali grass (*Puccinellia simplex*) (CNDDDB 2021; CNPS 2021). Two additional wildlife species may occur within the plan area and were not included in the 2001/2004 UCP EIR analysis: crotch bumble bee (*Bombus crotchii*) and western red bat (*Lasiurus blossevillii*) (CNDDDB 2021).

Watershield

Watershield is an herbaceous perennial, aquatic, native plant with long, slender, branching stems. Watershield is found submerged or floating on the water's surface on ponds, lakes, and sluggish streams. Watershield has a CRPR of 2B, a designation given to plants that are rare, threatened, or endangered in California but common elsewhere.

Forked Hare-Leaf

Forked hare-leaf is a plant that occurs in grassland and openings in woodlands. Grassland habitat required by this species is present on the site. Forked hare-leaf has a CRPR of 1B, a designation given to plants that are rare, threatened, or endangered in California and elsewhere.

Alkali-Sink Goldfields

Alkali-sink goldfields is endemic to California's Central Valley, where it grows in vernal pools and alkali flats. Alkali-sink goldfields has a CRPR of 1B, a designation given to plants that are rare, threatened, or endangered in California and elsewhere.

California Alkali Grass

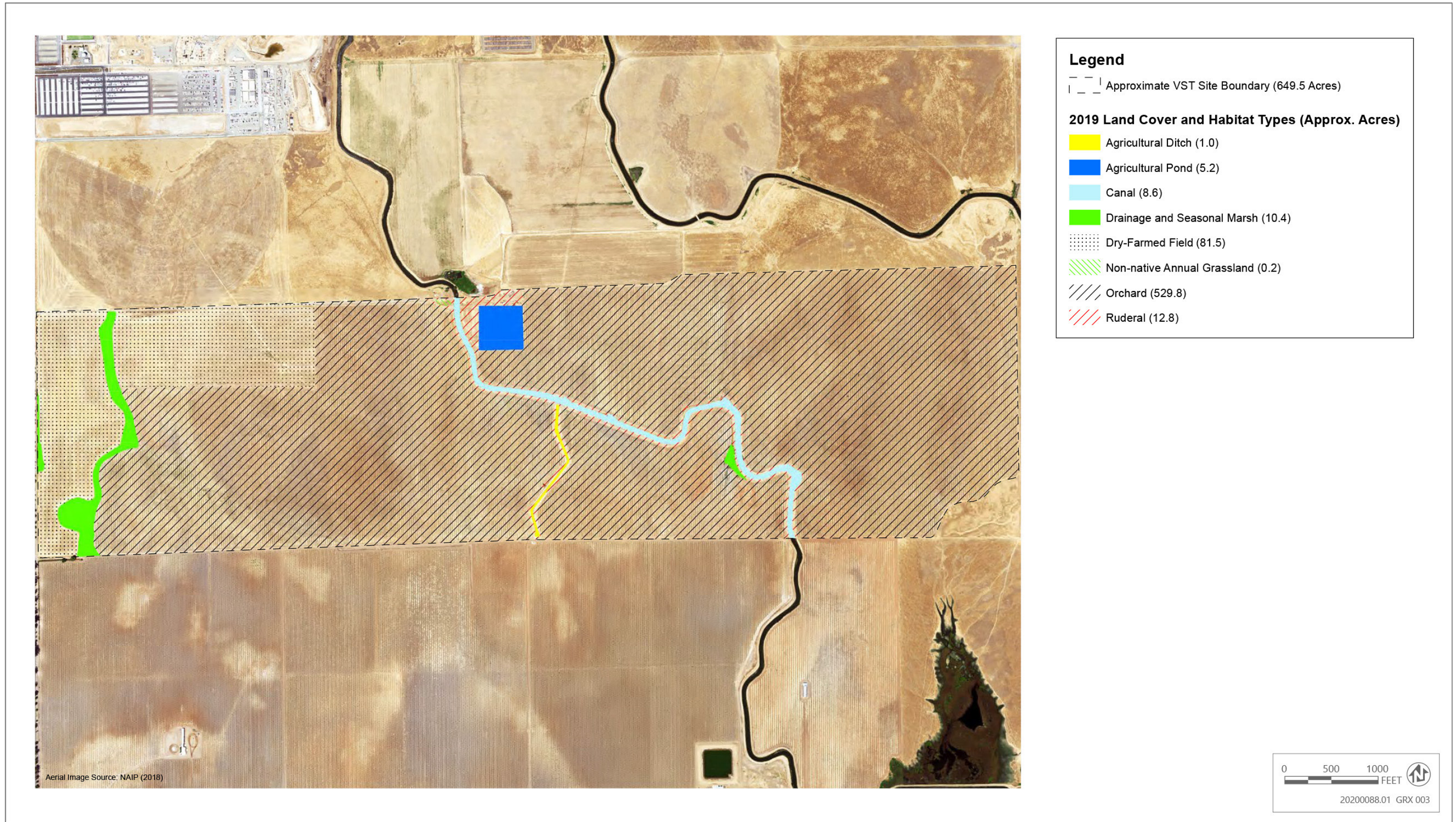
California alkali grass occurs in alkali sinks, flats, and lake margins. California alkali grass has a CRPR of 1B, a designation given to plants that are rare, threatened, or endangered in California and elsewhere.

Crotch Bumble Bee

Crotch bumble bee is found primarily in California along the Pacific coast, western desert, Great Valley, and adjacent foothills through most of southwestern California. Habitat suitable for this species includes open grassland and scrub. Crotch bumble bees nest underground. Crotch bumble bee was designated as a candidate for listing as endangered under CESA by the California Fish and Game Commission on June 12, 2019. A November 13, 2020, court decision by the Superior Court of Sacramento ruled that insects are not eligible for listing under CESA and vacated the candidacy of this and four other bumble bee species. CDFW appealed this decision, and on May 31, 2022, the Third District Court of Appeal in Sacramento ruled that insects are eligible for listing under CESA. On September 30, 2022, the candidacy of these bumble bee species was reinstated under CESA.

Western Red Bat

Western red bat is a CDFW Species of Special Concern. It is found in western lowlands and coastal regions, where it roosts in the foliage of large trees and forages over woodlands, grasslands, orchards, and agricultural fields. The plan area contains foraging habitat suitable for this species and individuals may roost in the older trees.



Source: Image provided by Live Oak Associates in 2020, Adapted by Ascent in 2020.

Figure 3.2-1 Land Cover Types

3.2.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Data reviewed in preparation of this analysis include:

- Results of California Natural Diversity Database record search of the Winton, Yosemite Lake, Haystack Mtn., Atwater, Merced, Planada, Sandy Mush, El Nido, and Plainsburg US Geological Survey (USGS) 7.5-minute quadrangles (CNDDDB 2021).
- Results of California Native Plant Society (CNPS), Inventory of Rare and Endangered Plants of California search of the Winton, Yosemite Lake, Haystack Mtn., Atwater, Merced, Planada, Sandy Mush, El Nido, and Plainsburg USGS 7.5-minute quadrangles (CNPS 2021).
- A list of species and other resources, obtained from US Fish and Wildlife Service Information for Planning and Consultation, that are known or expected to be on or near the project location or could be affected by projects in this location (USFWS 2021).
- Existing Conditions and Comparative Analysis Virginia Smith Trust 650-Acre Property (Live Oak Associates, Inc. 2019).
- Biological Evaluation for CEQA Compliance: Virginia Smith Trust Land Plan Revisions Project, UC Merced and University Community Project (Live Oak Associates, Inc. 2020a).
- UC Merced Incidental Take Permit and Biological Opinion 2019 Annual Status Reports Compliance, Virginia Smith Trust 650-Acre Parcel, Merced County, California (Live Oak Associates, Inc. 2020b).
- Biological Constraints Analysis, Virginia Smith Trust Intersections Project, Merced, CA (Live Oak Associates, Inc. 2022).
- 2018 Annual Status Report Incidental Take Permit Number 2081-2009-010-04 (UC Merced 2019a).
- 2018 Annual Status Report Biological Opinion UC Merced Project (UC Merced 2019b).
- 2030 Merced County General Plan (Merced County 2013).
- Aerial photographs of the plan areas and region.

These reports update and supplement the data used in the 2001/2004 UCP EIR and provide the necessary biological resources reconnaissance for the proposed improvements to Lake Road (including offsite sewer and water infrastructure), as well as the offsite roadway improvements identified in Chapter 2, "Project Description," of this SEIR that were not evaluated in the 2001/2004 UCP EIR. The following subsequent analysis compares the effects of the Adopted UCP disclosed in the 2001/2004 UCP EIR to the anticipated effects of the UCP Update and VST Specific Plan. Previously adopted mitigation is detailed and the potential for new significant environmental effects or a substantial increase in the severity of previously identified significant effects are evaluated assuming implementation of these mitigation measures, unless otherwise indicated.

THRESHOLDS OF SIGNIFICANCE

An impact on biological resources is considered significant if implementation of UCP Update and the VST Specific Plan would do any of the following:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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; and/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.

PLAN CHARACTERISTICS

UCP Update

The proposed UCP Update includes the following policies (shown with edits to the Adopted UCP policies tracked):

- **Policy PA 1.1:** Require that direct and indirect effects to wetland habitats be minimized through the promotion of environmentally sensitive project siting and design, to the maximum extent practicable.
- **Policy PA 1.2:** Obtain the appropriate regulatory approvals prior to the initiation of project construction.
- **Policy PA 1.3:** ~~DELETED~~ ~~Ensure protection of on-site avoided, created, or restored permanent wetlands.~~
- **Policy PA 1.4:** Ensure the protection of off-site adjacent wetland habitats, ~~including those with hydrological connections to off on-site properties wetland resources, through the implementation of measures that will protect the quality and quantity of source waters and will avoid disturbance of wetland habitats by human activity including domestic pets.~~
- **Policy PA 1.5:** Require monitoring, cleanup, and maintenance of preserved wetland habitats within and adjacent to the University Community, as necessary.
- **Policy PA 1.6:** Require the development of a habitat mitigation plan for each sub-area Specific Plan, acceptable to the USACOE, USFWS, and CDFG, that achieves *no net loss of wetland function and values* by meeting established ratios for wetland enhancement/restoration and on- and off-site compensation for the loss of wetland functions and values.
- **Policy PA 2.1:** Encourage the retention of annual grasslands to the maximum extent feasible through the promotion of environmentally sensitive project siting and design.
- **Policy PA 2.2:** Incorporate natural and man-made open space corridors into the Community Plan that allow the movement of wildlife through the Community Plan Area, to the extent feasible.
- **Policy PA 2.3:** Ensure the development of a habitat mitigation plan to provide off-site compensation for the loss of annual grassland functions within the University Community that is acceptable to the USFWS, CDFG and other relevant agencies.
- **Policy PA 3.1:** Incorporate large interconnected open space corridors throughout the Community Plan area.
- **Policy PA 3.2:** Utilize native vegetation in local landscaping to the maximum extent feasible.
- **Policy PA 3.3:** Create ~~open water park~~ features in parks and storm drainage facilities, where feasible, to provide resting areas for migrating waterfowl and shorebirds.
- **Policy PA 3.4:** Ensure the protection of wildlife and sensitive habitats through establishment of programs to control feral pet populations.

- **Policy PA 3.5:** Provide public environmental educational programs to inform the public about the natural resources of the region, including information about cohabitation with wildlife populations that are common in urban areas.
- **Policy PA 3.6:** Conduct botanical surveys to establish baseline conditions for Specific Plan applications consistent with the prevailing *CNPS Botanical Survey Guidelines*.

VST Specific Plan

The VST Specific Plan includes the following policies specific to biological resources.

- **Policy 1.9:** Buildings and improvements adjacent to the Fairfield Canal and Cottonwood Creek shall have adequate setbacks to ensure adequate fill and cut slopes, and transition area as shown in Figure 12. Within the structural influence area of the Fairfield Canal, the setbacks shall include a 25-foot canal service and access area from the top of bank, plus an additional area to ensure that there is no structural bearing from the project's improvements, as illustrated in Figure 21 of the UCP. There shall be a 10-foot setback to the nearest improvement with intervening planting to discourage access and vandalism, and a 20-foot setback to the nearest structure. A Wood Frame Hog Wire fence or a Metal Rail Horse Panel fence, as illustrated in Figure 30 with a wildlife passage, shall be provided along these corridors to discourage pedestrians and trespassing.
- **Policy 8.1.5:** Trees, shrubs, and plants chosen to be planted along the Cottonwood Creek and Fairfield Canal corridors shall utilize native, locally procured varieties.
- **Policy 9.3:** Lighting for residential, commercial, and open space uses shall provide adequate illumination levels to aide in the transitioning of urban to rural uses while also providing an appropriate illumination level to address public safety concerns. Lighting shall comply with standards from the International Dark Sky Association. Planned lighting is intended to maintain the current low lighting levels that distinctly differentiate between existing urban and rural land uses within the area.
- **Policy 9.3.7** All project lighting shall comply with the International Dark Sky Associations guidelines as follows:
 - a. Outdoor lighting shall be directed downward and away from adjacent properties and public rights-of-way.
 - b. No lighting on private property shall produce an illumination level greater than two maintained horizontal foot-candles at grade on any property within a residential zoning district except on the site of the light source.
 - c. The maximum light intensity on a residential site shall not exceed a maintained value of 10 foot-candles, when measured at finished grade.
 - d. The maximum light intensity on a nonresidential site, except auto sales lots and sports fields, shall not exceed a maintained value of 10 foot-candles, when measured at finished grade.
 - e. The maximum light intensity on an auto sales lot shall not exceed a maintained value of 40 foot-candles, when measured at finished grade.
 - f. The maximum light intensity on a sports field shall not exceed a maintained value of 50 foot-candles, when measured three feet above grade. Baseball field lighting and lighting for other recreational uses may be increased to a maintained value of 100 foot-candles with approval of the Director of Development Services.
 - g. Outdoor lighting shall be completely turned off or significantly dimmed at the close of business hours unless lighting is essential for security or safety (e.g., illumination of parking areas and plazas).
 - h. Outdoor lighting shall not blink, flash, or rotate.
 - i. Outdoor flood light projection above the horizontal plane is prohibited, unless deemed necessary for public safety purposes.
 - j. Outdoor sports fields shall not be illuminated after 11:00 p.m. except to conclude a scheduled recreational or sporting event in progress prior to 11:00 p.m.

- k. Outdoor lighting fixtures, including lighting for outdoor recreational facilities, shall be cutoff fixtures designed and installed so that no emitted light will break a horizontal plane passing through the lowest point of the fixture. Cutoff fixtures must be installed using a horizontal lamp position. Lighting fixtures should be of a design that complements building design and landscaping, and may require architectural review.
- l. Outdoor lighting shall be fully shielded or recessed.
- m. Lighting fixtures shall be appropriate in height, intensity, and scale to the use they are serving. Parking lot lights shall not exceed a height of 21 feet, and wall-mounted lights shall not exceed a height of 15 feet, from the adjacent grade to the bottom of the fixture. The VST Architectural Review Committee can approve an exception to these height standards based on specific extenuating circumstances.
- n. All luminaries mounted on the under surface of service station canopies shall be fully shielded and utilize flush-mounted canopy fixtures with flat lenses.
- o. Search lights, laser source lights, or any similar high-intensity light shall be prohibited, except, in emergencies, by police and/or fire personnel, or at their direction, or for purposes of gathering meteorological data. Exceptions may be granted in conjunction with approved temporary lighting.
- **Policy 9.3.8:** All exterior building lights facing Cottonwood Creek and the Fairfield Canal shall be hooded to prevent light spillover into those corridors. All residential street lights over 10 feet in height shall be setback a minimum of 100 feet from the top of the creek bank and hooded and/or directed away from the creek. Any night lighting adjacent to the creek (e.g., walkway lights) shall be of low voltage and hooded downward. Artificial light levels within 20 feet of the top of the creek bank shall not exceed 1-foot candle or the lowest level of illumination found to be feasible by the City.
- **Policy 12.1:** Residential lots adjacent to Cottonwood Creek, the Fairfield Canal, parks, open spaces, or walking pathway shall use open fencing types like those illustrated in Figure 32 and Figure 35.
- **Policy 12.4:** For security and wildlife migration purposes, fences shall be constructed along the edges of Cottonwood Creek and the Fairfield Canal and shall be the Wood Frame Hog Wire, Metal Rail Horse Panel or the Wood Frame Hog Wire style (or equal) illustrated in Figure 35.

ISSUES NOT DISCUSSED FURTHER

Consistency with Local Policies and Ordinances

The 2001/2004 UCP EIR determined that this impact was not applicable because the project would comply with the Adopted UCP biological resources policies and did not discuss it further. The County's Adopted UCP policies would also apply to the VST Specific Plan area. Consequently, implementation of the UCP Update and VST Specific Plan would result in the same impact as identified in the 2001/2004 UCP EIR (i.e., local policies or ordinances would not be applicable). There would be **no impact**.

Consistency with Habitat Conservation Plans

The 2001/2004 UCP EIR determined that implementation of the UCP would not result in conflict with any adopted habitat conservation plans, natural community conservation plans, or adopted biological resources recovery or conservation plans of any federal or state agency, because the UCP area is not within the coverage area of any such plan. The portion of the VST Specific Plan area that does not currently overlap the Adopted UCP area is also not within the coverage area of any adopted habitat conservation plan or natural community conservation plan. No such plans have been adopted since 2004. Thus, implementation of the UCP Update and VST Specific Plan would not result in a new significant effect and the impact is not more severe than the impact identified in the 2001/2004 UCP EIR. There would be **no impact**.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Result in Disturbance to or Loss of Special-Status Plant Species

The 2001/2004 UCP EIR determined that implementation of the UCP could result in significant adverse effects on two special-status plant species: succulent owl's clover and shining navarretia. The 2001/2004 UCP EIR concluded that, although implementation of Adopted UCP policies would reduce impacts on these species, additional mitigation measures would be required to reduce impacts to a less-than-significant level. Consistent with the conclusion of the 2001/2004 UCP EIR, implementation of Adopted Mitigation Measures 4.4-2 and 4.4-6 would reduce impacts on these two special-status plants by requiring preservation of habitat suitable for succulent owl's clover and collection and dispersal of shining navarretia seeds to establish new populations of the species within suitable habitat.

Impacts on additional special-status plant species were ruled out in the 2001/2004 UCP EIR based on habitat present in the UCP area and because these species were not detected during focused special-status plant surveys conducted in 1999, 2000, and 2001. However, take coverage for state and federally listed plant species within the VST Specific Plan was obtained from CDFW and USFWS, respectively after certification of the 2001/2004 UCP EIR. CDFW ITP conditions and USFWS Biological Opinion Conservation Measures require surveys, avoidance, and compensation for impacts on several special-status plant species. However, because the Adopted UCP policies, adopted mitigation measures, ITP conditions, and USFWS Biological Opinion Conservation Measures do not include specific measures to avoid or compensate for loss of additional special-status plant species for which habitat is present in the UCP area (including several plant species not analyzed in the 2001/2004 UCP EIR that are now considered special-status species), impacts on these species would not necessarily be reduced to a less-than-significant level with implementation of these measures. Thus, there would be potential for new significant impacts not identified in the 2001/2004 UCP EIR. Mitigation Measure 3.2-1 would require avoidance and mitigation for special-status plant species not covered by the existing CDFW incidental take permit or USFWS Biological Opinion. This impact would be **less than significant with mitigation**.

Summary of 2001/2004 UCP EIR Impact

Impacts on special-status plant species were evaluated under several impacts in the 2001/2004 UCP EIR: Impact 4.4-2, 4.4-6, Impact 4.4-7, and Impact 4.4-8. These evaluations are discussed in detail below.

Impacts on vernal pools, swales, and seasonal wetlands associated with implementation of the UCP were addressed in Impact 4.4-2 of the 2001/2004 UCP EIR (pages 4.4-38 through 4.4-42; specifically, regarding impacts on special-status plants [i.e., succulent owl's clover] associated with these habitats). Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.5, PA 2.1, PA 2.2, PA 2.3) would require project proponents to obtain approval from USFWS and CDFW for any specific plans developed for the UCP and would require project proponents to develop a habitat mitigation plan to achieve no net loss of wetland function and values, including habitat value for succulent owl's clover, which would reduce impacts on succulent owl's clover. Adopted Mitigation Measure 4.4-2 would also be implemented, which would require preservation of 612 acres of vernal pool and annual grassland habitat for vernal pool fairy shrimp, which would further reduce impacts on succulent owl's clover to a less-than-significant level, because this habitat could also support this species.

Impact 4.4-6 of the 2001/2004 UCP EIR (pages 4.4-50 through 4.4-52) evaluated the potential for impacts on special-status plants associated with implementation of the UCP and concluded that this impact would be significant. The 2001/2004 UCP EIR determined that one special-status plant species, shining navarretia, could be adversely affected by implementation of the Adopted UCP. Implementation of Adopted UCP policies (i.e., PA 2.1, PA 2.2, PA 2.3, A 3.1) would require project proponents to develop a habitat mitigation plan to provide offsite compensation for the loss of annual grassland habitat; however, impacts would not be reduced to a less-than-significant level. As a result, Adopted Mitigation Measure 4.4-6 would be implemented, which would require collection and dispersal of shining navarretia seeds to establish new populations of the species within suitable habitat.

Impact 4.4-7 of the 2001/2004 UCP EIR (pages 4.4-52 through 4.4-54) evaluated the potential for construction of offsite infrastructure associated with implementation of the Adopted UCP to result in adverse effects on special-status

plants and concluded that this impact would be significant. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.4, PA 1.6, PA 2.1, PA 2.3) would require environmentally sensitive project siting and design, protection of offsite adjacent wetland habitats, implementation of an agency-coordinated mitigation and monitoring plan, and establishment of a funding source for monitoring and reclamation practices, which would reduce impacts on special-status plants resulting from offsite infrastructure construction to a less-than-significant level.

Impact 4.4-8 of the 2001/2004 UCP EIR (pages 4.4-54 through 4.4-63) evaluated the potential for indirect impacts on special-status plants associated with implementation of the Adopted UCP (i.e., pollution, dust, human encroachment, edge effects, habitat fragmentation, downstream effects, introduction of nonnative plants) and concluded that this impact would be significant. Implementation of Adopted UCP policies (PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6, PA 2.1, PA 2.2, PA 2.3, PA 3.1, PA 3.2, PA 3.3, PA 3.5, LU 4.1, LU 4.2, LU 9.1, LU 9.2, LU 9.3, LU 9.4, LU 9.9, PP 1.5, PP 3.1, PP 4.1, PP 4.2, AQ 5.1, AQ 5.2, AQ 5.3, AQ 5.4, PS 3.5, ISW 1.2) would require environmentally sensitive project siting and design, protection of offsite adjacent wetland habitats, implementation of an agency-coordinated mitigation and monitoring plan, and promotion of utilization of native vegetation in the development of the UCP, which would reduce indirect impacts on special-status plants to a less-than-significant level.

Adopted Mitigation Measure 4.4-2: The County shall ensure that at least 551 acres of upland annual grassland is preserved in conjunction with and to support at least 61.2 acres of vernal pool fairy shrimp habitat (for a total of 612 acres).

Adopted Mitigation Measure 4.4-6: Seed collection from the shining navarretia located within the UCP area shall be conducted prior to the loss of the populations in the UCP area. Seed collection shall be conducted by a qualified botanist or restoration biologist. Collected seeds shall be dispersed within suitable habitat (i.e., seasonally moist clay flats in grassland). Seeds shall be dispersed only within suitable habitats where shining navarretia does not currently occur to avoid impacts on the genetic composition of existing populations.

Seed from shining navarretia shall be dispersed in suitable habitat within the annual grassland preserved in conjunction with loss of vernal pool habitat (Impact 4.4.1) and/or Swainson's hawk habitat (Impact 4.4.4) if feasible. However, if mitigation lands to serve both purposes cannot be found, the applicant will be responsible for negotiating a conservation easement with a land owner in the vicinity such that a minimum of seven populations of shining navarretia receive long-term protection.

UCP Update

Amendments to the UCP would modify the Adopted UCP boundary to include area not evaluated in the 2001/2004 UCP EIR, revise the policy plan, and update the land use and circulation diagram. With these amendments, development potential for the UCP Update would be reduced, including a reduction in total developed area, number of dwelling units, and square footage of commercial office use. As indicated above, the Adopted UCP policies applicable to this analysis would generally remain in place, with limited editorial revisions. As a result, the UCP Update, in and of itself, would not result in any change in impact on special-status plants.

The 2001/2004 UCP EIR determined that impacts on two special-status plant species, succulent owl's-clover and shining navarretia, could occur as a result of implementing the Adopted UCP. Impacts on additional special-status plant species were ruled out in the 2001/2004 UCP EIR based on habitat present in the Adopted UCP area and because these species were not detected during focused special-status plant surveys conducted in 1999, 2000, and 2001.

Since certification of the 2001/2004 UCP EIR, four additional plant species that may occur within the plan area and were not included in the 2001/2004 UCP EIR analysis have been assigned CRPR that qualifies them as special-status species: watershield, forked hare-leaf, alkali-sink goldfields, and California alkali grass (CNDDDB 2021; CNPS 2021). The UCP Update would not result in any changes to the plan that would increase the potential for disturbance or loss of special status plant species relative to the Adopted UCP. With implementation of Adopted UCP policies, and Adopted Mitigation Measures 4.4-2 and 4.4-6, impacts on shining navarretia and state and federally listed plants would be addressed. However, because the Adopted UCP policies and adopted mitigation do not include specific measures to avoid or compensate for loss of additional special-status plant species for which habitat is present in the UCP area,

impacts on these species would not necessarily be reduced to a less-than-significant level with these measures. Thus, there would be new significant effects not identified in the 2001/2004 UCP EIR and impacts on special-status plants would be **significant**.

VST Specific Plan

The 2001/2004 UCP EIR analysis of the portion of the VST Specific Plan area that overlaps the Adopted UCP area assumed that this area was planned for residential development. The VST Specific Plan revises density and intensity of these uses compared to what was previously proposed. It also adjusts timing and phasing for installation of parks and public services to appropriately meet demand. Transportation facilities identified in the Adopted UCP area, including roads and bike paths, would be reconfigured in the specific plan to better serve the project and existing and planned surrounding land uses. Despite these changes, the nature of development in the VST Specific Plan area under the VST Specific Plan is similar to what was analyzed in the 2001/2004 UCP EIR. Two planned elements of the VST Specific Plan—the proposed straightening of the Fairfield Canal and improvements to a portion of Lake Road directly west of the VST Specific Plan area—were not included in the 2001/2004 UCP EIR analysis.

As described above in Section 3.2.2, "Environmental Setting," many vernal pools and swales in the VST Specific Plan area have been filled, and the majority of the VST Specific Plan area has been deep-ripped for conversion to orchards, associated facilities, and dry-farmed fields pursuant to permits obtained subsequent to the 2001/2004 UCP EIR evaluation and in accordance with environmental commitments included in those permits. While vernal pool habitat is no longer present in the VST Specific Plan area, some seasonal wetland and swale habitat, which can support some of the same species as those associated with vernal pools, is still present in the VST Specific Plan area (Live Oak Associates Inc. 2019). Thus, habitat suitable for several special-status plant species that were evaluated in the 2001/2004 UCP EIR is still present in the VST Specific Plan area.

The 2001/2004 UCP EIR determined that impacts on two special-status plant species, succulent owl's-clover and shining navarretia, could occur as a result of implementing the Adopted UCP. Impacts on additional special-status plant species were ruled out in the 2001/2004 UCP EIR based on habitat present in the Adopted UCP area and because these species were not detected during focused special-status plant surveys conducted in 1999, 2000, and 2001. However, as described in Section 3.2.2, "Regulatory Setting," take coverage for state and federally listed plant species was obtained from CDFW and USFWS, respectively. The CDFW ITP and USFWS Biological Opinion cover the entire VST Specific Plan area, including the area not analyzed in the 2001/2004 UCP EIR. ITP conditions include development of salvage plans for state-listed plant species; floristic botanical surveys within intact vernal pool, swale, or wetland habitats; temporary fencing to exclude listed plant species that can be avoided; and salvage and transplant of listed plants that cannot be avoided (UC Merced 2019a). Conservation measures from the USFWS Biological Opinion require preconstruction surveys for noxious weeds and rare plant species, flagging and mapping of succulent owl's clover populations, and designation of buffer zones around listed plant species that will be fenced and monitored (UC Merced 2019b).

Since certification of the 2001/2004 UCP EIR, four additional plant species that may occur within the plan area and were not included in the 2001/2004 UCP EIR analysis have been assigned CRPR, which qualifies them as special-status species: watershield, forked hare-leaf, alkali-sink goldfields, and California alkali grass (CNDDDB 2021; CNPS 2021). Pursuant to ITP conditions and Conservation Measures from the USFWS Biological Opinion, floristic botanical surveys would be required for future projects in the VST Specific Plan portion of the UCP area. While these required surveys would likely result in detection of special-status plant species not covered under the ITP or USFWS Biological Opinion, the ITP conditions and USFWS Biological Opinion Conservation Measures do not include specific measures to avoid or compensate for loss of these species.

As indicated above, the Adopted UCP policies applicable to this analysis would generally remain in place, with limited editorial revisions. Policy PA 1.3 would be deleted because creation of wetlands is no longer planned. With implementation of Adopted UCP policies, Adopted Mitigation Measures 4.4-2 and 4.4-6, CDFW ITP conditions and USFWS Biological Opinion Conservation Measures, impacts on shining navarretia and state and federally listed plants covered by the ITP and Biological Opinion would be addressed. However, because the Adopted UCP policies, adopted mitigation measures, ITP conditions, and USFWS Biological Opinion Conservation Measures do not include specific

measures to avoid or compensate for loss of additional special-status plant species for which habitat is present in the VST Specific Plan area, impacts on these species would not necessarily be reduced to a less-than-significant level with these measures. Thus, there would be new significant effects not identified in the 2001/2004 UCP EIR and impacts on special-status plants would be **significant**.

Mitigation Measures

Mitigation Measure 3.2-1: Implement Avoidance Measure and Mitigation for Special-Status Plant Species Not Covered by the Existing CDFW Incidental Take Permit or USFWS Biological Opinion

- During implementation of preconstruction surveys required under the CDFW ITP and USFWS Biological Opinion Conservation Measures, a qualified botanist will target additional special-status plant species not covered by these permits. Surveys will follow survey methods from CDFW's *Protocols for Surveying and Evaluating Impacts on Special-Status Native Plant Populations and Natural Communities* (CDFW 2018) and will be conducted during the blooming period for these species (Table MM 3.2-1).

Table MM 3.2-1 Normal Blooming Period for Special-Status Plants That are Known to Occur or May Occur within the UCP Area and VST Specific Plan Area

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Watershield												
Hoover's calycadenia (<i>Calycadenia hooveri</i>)												
Beaked clarkia (<i>Clarkia rostrata</i>)												
Dwarf downingia (<i>Downingia pusilla</i>)												
Forked hare-leaf												
Alkali-sink goldfields												
Pincushion navarretia (<i>Navarretia myersii</i> ssp. <i>myersii</i>)												
Shining navarretia												
California alkali grass												
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)												

Source: Data compiled by Ascent Environmental in 2022; CNPS 2021.

- If special-status plant species are not found, the botanist will document the findings in a report to the discretionary land use authority (City of Merced or Merced County), and no further mitigation will be required.
- If special-status plant species are found, the area occupied by special-status plants will be avoided completely, if feasible (i.e., project objectives can still be met). This may include establishing a no-disturbance buffer around the occupied habitat and demarcation of this buffer by a qualified biologist or botanist using flagging or high-visibility construction fencing. The size of the buffer will be determined by the qualified biologist or botanist and will be large enough to avoid direct or indirect impacts on the plant.
- If special-status plants are found during special-status plant surveys and cannot be avoided, the project applicant shall, in consultation with CDFW or USFWS as appropriate depending on species status, develop and implement a site-specific mitigation strategy to achieve no net loss of occupied habitat or individuals. It is likely that existing mitigation efforts for state and federally listed plant species required under the ITP and USFWS Biological Opinion would be sufficient to reduce impacts on non-listed special-status plant species to a less-than-significant level.

Mitigation measures shall include, at a minimum, preserving and enhancing existing populations, establishing populations through seed collection or transplantation from the site that is to be affected, and/or restoring or creating habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Purchase of credits from an agency-mitigation bank that contains the affected species may also be used to offset loss of occupied habitat. Potential mitigation sites could include suitable locations within or outside of the UCP area or VST Specific Plan area. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, considering acreage as well as function and value. Success criteria for preserved and compensatory populations will include:

- The extent of occupied area and plant density (number of plants per unit area) in compensatory populations will be equal to or greater than the affected occupied habitat.
- Compensatory and preserved populations will be self-producing. Populations will be considered self-producing when:
 - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and
 - reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity.

If offsite mitigation includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the details of these measures will be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.

Significance after Mitigation

Implementation of Adopted UCP policies, Adopted Mitigation Measures 4.4-2 and 4.4-6, CDFW ITP conditions, USFWS Biological Opinion Conservation Measures, and new Mitigation Measure 3.2-1 would reduce potentially significant impacts on special-status plants to a **less-than-significant** level by requiring protocol-level surveys for all special-status plants (including those not covered under existing permits), implementation of avoidance measures and compensation for impacts on special-status plants, preservation of habitat suitable for succulent owl's clover, and collection and dispersal of shining navarretia seeds to establish new populations of the species within suitable habitat.

Impact 3.2-2: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat

The 2001/2004 UCP EIR determined that implementation of the Adopted UCP could result in significant adverse effects on several special-status wildlife species. Implementation of Adopted UCP policies would reduce impacts on these species; however, additional mitigation measures would be required to reduce impacts to a less-than-significant level. Implementation of Adopted Mitigation Measures 4.4-2, 4.4-4(a), 4.4-4(b), and 4.4-5 would reduce impacts on these species by requiring preservation of habitat and implementation of preconstruction surveys.

After certification of the 2001/2004 UCP EIR, take coverage for state and federally listed wildlife species was obtained from CDFW and USFWS, respectively, for the VST Specific Plan. CDFW ITP conditions and USFWS Biological Opinion Conservation Measures require surveys, avoidance, and compensation for impacts on several special-status wildlife species. However, because the Adopted UCP policies, adopted mitigation measures, ITP conditions, and USFWS Biological Opinion Conservation Measures do not include specific measures to avoid direct injury or mortality of several non-listed special-status wildlife species (i.e., western spadefoot, western pond turtle, American badger, crotch bumble bee, western red bat, burrowing owl), impacts on these species would not necessarily be reduced to a less-than-significant level with implementation of these measures. Thus, new mitigation is proposed that would address the potentially significant effects not identified in the 2001/2004 UCP EIR and impacts on special-status wildlife would be **less than significant with mitigation**.

Summary of 2001/2004 UCP EIR Impact

Impacts on special-status wildlife species were evaluated under several impacts in the 2001/2004 UCP EIR: Impact 4.4-2, Impact 4.4-3, Impact 4.4-4, Impact 4.4-5, Impact 4.4-7, and Impact 4.4-8. These evaluations are discussed in detail below.

Impacts on vernal pools, swales, and seasonal wetlands associated with implementation of the Adopted UCP were addressed in Impact 4.4-2 of the 2001/2004 UCP EIR (pages 4.4-38 through 4.4-42; specifically regarding impacts on special-status wildlife associated with these habitats). The 2001/2004 UCP EIR determined that impacts on vernal pools, swales, and seasonal wetlands could result in adverse effects on vernal pool fairy shrimp, California linderiella, midvalley fairy shrimp, and California tiger salamander. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.5, PA 2.1, PA 2.2, PA 2.3) would require project proponents to obtain approval from USFWS and CDFW for any specific plans developed for the UCP and would require project proponents to develop a habitat mitigation plan to achieve no net loss of wetland function and values, including habitat value for wildlife species associated with vernal pools; however, impacts would not be reduced to a less-than-significant level. As a result, Adopted Mitigation Measure 4.4-2 would be implemented, which would require preservation of 612 acres of vernal pool grassland habitat for vernal pool fairy shrimp that would also benefit California tiger salamander by maintaining hydrology and upland components for both species. Implementation of Adopted Mitigation Measure 4.4-2 would reduce impacts on wildlife species associated with vernal pools to a less-than-significant level.

Impact 4.4-3 of the 2001/2004 UCP EIR (pages 4.4-42 through 4.4-44) evaluated the potential for impacts on freshwater marsh, wooded channel, drainages, and stock pond habitats associated with implementation of the UCP, as well as resulting impacts on special-status wildlife (i.e., western pond turtle, American bittern, nesting raptors, California tiger salamander) associated with these habitats. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6, PA 2.1, PA 2.2, PA 2.3) would require project proponents to obtain approval from USFWS and CDFW for any specific plans developed for the UCP, to develop a habitat mitigation plan to achieve no net loss of wetland function and values, and to protect avoided on-site wetlands and offsite adjacent wetlands, which would reduce impacts on special-status wildlife species associated with these habitats to a less-than-significant level.

Impact 4.4-4 of the 2001/2004 UCP EIR (pages 4.4-44 through 4.4-48) evaluated potential for impacts on special-status birds and loss of annual grassland foraging habitat for Swainson's hawk, in particular, that would be associated with implementation of the UCP. Implementation of Adopted UCP policies (i.e., PA 2.1, PA 2.2, PA 2.3, A 3.1) would require project proponents to develop a habitat mitigation plan to provide offsite compensation for loss of annual grassland functions and to preserve 1 acre of offsite agricultural land for every acre of agricultural land lost within the UCP area; however, impacts would not be reduced to a less-than-significant level. As a result, Adopted MMs 4.4-4(a) and 4.4-4(b) would be implemented, which would require preservation of annual grassland habitat to offset impacts on Swainson's hawk foraging habitat in the UCP area and preconstruction surveys for nesting birds, which would reduce impacts on special-status birds to a less-than-significant level.

Impact 4.4-5 of the 2001/2004 UCP EIR (pages 4.4-48 through 4.4-50) evaluated potential impacts on special-status mammals (i.e., San Joaquin kit fox, Merced kangaroo rat) and loss of annual grassland habitat for these species. Implementation of Adopted UCP policies (i.e., PA 2.1, PA 2.2, PA 2.3) would require project proponents to provide offsite compensation for the loss of grassland functions acceptable to USFWS and CDFW, which would reduce impacts on these species to a less-than-significant level. Although the 2001/2004 UCP EIR determined that additional mitigation would not be required to reduce impacts to less than significant, Adopted Mitigation Measure 4.4-5 would be implemented, which would require preconstruction surveys for dens and burrows of transient San Joaquin kit foxes and implementation of USFWS-approved methods if kit foxes are found. Implementation of Adopted Mitigation Measure 4.4-5 would further reduce impacts on special-status mammals to a less-than-significant level.

Impact 4.4-7 of the 2001/2004 UCP EIR (pages 4.4-52 through 4.4-54) evaluated the potential for construction of offsite infrastructure associated with implementation of the UCP to result in adverse effects on special-status wildlife. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.4, PA 1.6, PA 2.1, PA 2.3) would require environmentally sensitive project siting and design, protection of offsite adjacent wetland habitats, implementation of an agency-coordinated mitigation and monitoring plan, and establishment of a funding source for monitoring and

reclamation practices, which would reduce impacts on special-status wildlife resulting from offsite infrastructure construction to a less-than-significant level.

Impact 4.4-8 of the 2001/2004 UCP EIR (pages 4.4-54 through 4.4-63) evaluated the potential for indirect impacts on special-status wildlife associated with implementation of the UCP (i.e., pollution, noise, dust, light, human encroachment, edge effects, wildlife movement, habitat fragmentation, downstream effects) and concluded that this impact would be significant. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6, PA 2.1, PA 2.2, PA 2.3, PA 3.1, PA 3.2, PA 3.3, PA 3.4, PA 3.5, IW 5.9, IW 8.2, IW 8.4, IW 8.6, IW 8.7, IW 8.9, IW 8.10, IW 9.6, IW 12.3, IW 12.4, LU 4.1, LU 4.2, LU 9.1, LU 9.2, LU 9.3, LU 9.4, LU 9.9, PP 1.5, PP 3.1, PP 4.1, PP 4.2, AQ 5.1, AQ 5.2, AQ 5.3, AQ 5.4, N 2.6, W 1.1, PS 3.5, ISW 1.2) would require environmentally sensitive project siting and design, protection of offsite adjacent wetland habitats, implementation of an agency-coordinated mitigation and monitoring plan, limiting construction noise during nighttime hours, establishment of programs to control feral pet populations, and implementation of public education programs, which would reduce indirect impacts on special-status wildlife to a less-than-significant level.

Adopted Mitigation Measure 4.4-2: The County shall ensure that at least 551 acres of upland annual grassland is preserved in conjunction with and to support at least 61.2 acres of vernal pool fairy shrimp habitat (for a total of 612 acres).

Adopted Mitigation Measure 4.4-4(a): The County shall ensure that Swainson's hawk foraging habitat is preserved offsite in sufficient quality and quantity, as determined through consultation with the CDFG, to mitigate for the loss resulting from the proposed UCP.

The preservation of annual grasslands (through Policy PA 2.3) that are suitable as foraging habitat for Swainson's hawk shall be located within 10 miles of a current or historic Swainson's hawk nest site (consistent with CDFG guidance).

Adopted Mitigation Measure 4.4-4(b): The County shall require pre-construction surveys to identify active raptor nests prior to the onset of construction activities within 1,000 feet of any ground disturbing activities (i.e., construction site). The pre-construction surveys will be conducted in accordance with USFWS and/or CDFG guidelines. If no active raptor nests are identified within 1,000 feet of the construction site, no further mitigation would be necessary.

If active nests are found within 1,000 feet of the construction site, the CDFG shall be consulted to determine appropriate mitigation measures to minimize the effect. At a minimum, construction shall be delayed within an appropriate buffer zone, as determined by consultation with CDFG, until the young have fledged.

Adopted Mitigation Measure 4.4-5: Project applicants shall conduct surveys for dens/burrows that could be occupied by vagrant San Joaquin kit fox prior to any ground-disturbing activities within the UCP area. The surveys shall be conducted within two weeks or less of any ground-disturbing activities. If dens/burrows meeting the criteria suitable for use by San Joaquin kit fox are found, the dens/burrows shall be cleared using the methodologies that are consistent with those described in the June 1999 *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance*.

UCP Update

Amendments to the UCP would modify the Adopted UCP boundary to include area not evaluated in the 2001/2004 UCP EIR¹, revise the policy plan, and update the land use and circulation diagram. With these amendments, development potential for the UCP would be reduced, including a reduction in total developed area, number of dwelling units, and square footage of commercial office use. The UCP Update would not result in a significant change and would reduce the total area of planned development. As indicated above, the Adopted UCP policies applicable to this analysis would generally remain in place, with limited editorial revisions. Policy PA 1.3 would be deleted because wetlands have been fully mitigated offsite and onsite preservation or creation of wetlands is no longer

¹ Although not evaluated in the 2001/2004 UCP EIR, note that the additional portion of the UCP Update east of Fairfield Canal has been planned as part of the university community for several years and was evaluated for development in in the 2009 LRDP EIR.

planned. As a result, the UCP Update, in and of itself, would not result in any change in impacts on special-status wildlife.

Western pond turtle (*Actinemys marmorata*), western spadefoot (*Spea hammondi*), and American badger (*Taxidea taxus*) were addressed in the 2001/2004 UCP EIR analysis; however, mitigation for these species was not included in the EIR. These three special-status wildlife species may occur within the UCP area. Table D1-2 in Appendix D of the 2001/2004 UCP EIR states that western spadefoot and American badger have moderate potential to occur in the UCP area and Appendix D3 of the 2001/2004 UCP EIR states that habitat suitable for western spadefoot (page D3-3) and American badger (page D3-18) is present in the UCP area. However, these species are not included in the EIR impact discussion. Additionally, while impacts on western pond turtle were considered in the 2001/2004 UCP EIR, mitigation measures addressing direct injury or mortality of these species resulting from implementation of the Adopted UCP were not included. Two additional wildlife species may occur within the UCP area that were not included in the 2001/2004 UCP EIR analysis: crotch bumble bee and western red bat (CNDDDB 2021). Loss of individual crotch bumble bees or a colony as a result of project activities may not cause the population to drop below self-sustaining levels, threaten to eliminate the species, or substantially reduce the range of the species, and implementation of Adopted UCP policies, especially preservation of annual grassland habitat, may result in a net benefit for crotch bumble bees by providing foraging and breeding habitat that would be preserved in perpetuity. However, the population status of this species is poorly understood, and loss of colonies could have a substantial effect on the population.

Finally, while Adopted Mitigation Measure 4.4-4(b) requires preconstruction surveys to identify raptor nests, this mitigation measure contains a survey protocol that does not meet the current CDFW survey requirements for burrowing owl, which have been established since certification of the 2001/2004 UCP EIR.

The UCP Update would not substantially increase the potential for effects to special status wildlife and habitat relative to the Adopted UCP. However, because the Adopted UCP policies and adopted mitigation measures do not include specific measures to avoid direct injury or mortality of several non-listed special-status wildlife species (i.e., western spadefoot, western pond turtle, American badger, crotch bumble bee, western red bat, burrowing owl), impacts on these species would not necessarily be reduced to a less-than-significant level with implementation of adopted measures. Thus, there would be new significant effects not identified in the 2001/2004 UCP EIR and impacts on special-status wildlife would be **significant**.

VST Specific Plan

The 2001/2004 UCP EIR analysis of the portion of the VST Specific Plan area that overlaps the Adopted UCP area assumed that this area was planned for residential development. The VST Specific Plan revises density and intensity of these uses compared to what was previously proposed. It also adjusts timing and phasing for installation of parks and public services to appropriately meet demand. Transportation facilities, including roads and bike paths, would be reconfigured in the specific plan to better serve the project and existing and planned surrounding land uses. Despite these changes, the nature of development in the VST Specific Plan area under the VST Specific Plan is similar to what was analyzed in the 2001/2004 UCP EIR. Two planned elements of the VST Specific Plan, the proposed straightening of the Fairfield Canal and improvements to a portion of Lake Road directly west of the VST Specific Plan area, were not included in the 2001/2004 UCP EIR analysis.

As described in Section 3.2.2, "Regulatory Setting," take coverage for several state and federally listed wildlife species was obtained from CDFW and USFWS, respectively. ITP conditions include preconstruction surveys and avoidance measures (e.g., exclusion fencing, relocation, protective buffers, entrapment prevention) for California tiger salamanders, raptors (including Swainson's hawk), and San Joaquin kit fox, as well as environmental training for workers, general conditions to reduce impacts on all state-listed species, and requirements for compensatory mitigation (UC Merced 2019a). Conservation measures from the USFWS Biological Opinion require preconstruction surveys and avoidance measures (e.g., drift fences, relocation, entrapment prevention) for California tiger salamander and San Joaquin kit fox, as well as environmental training for workers and general conditions to reduce impacts on all federally listed species (UC Merced 2019b). The CDFW ITP and USFWS Biological Opinion covered the entire VST Specific Plan area, including the area not analyzed in the 2001/2004 UCP EIR.

Table D1-2 in Appendix D of the 2001/2004 UCP EIR states that western spadefoot and American badger have moderate potential to occur in the Adopted UCP area; however, these species are not included in the EIR impact discussion. Further, Appendix D3 of the 2001/2004 UCP EIR states that habitat suitable for western spadefoot (page D3-3) and American badger (page D3-18) is present in the UCP area. Additionally, while impacts on western pond turtle were considered in the 2001/2004 UCP EIR, mitigation measures addressing direct injury or mortality of these species resulting from implementation of the Adopted UCP were not included. These species are not state or federally listed and are not covered under the CDFW ITP or USFWS Biological Opinion. Two additional wildlife species may occur within the UCP area that were not included in the 2001/2004 UCP EIR analysis: crotch bumble bee and western red bat (CNDDDB 2021). Finally, while Adopted Mitigation Measure 4.4-4(b) requires preconstruction surveys to identify raptor nests, this mitigation measure contains a survey protocol that does not meet the current CDFW survey requirements for burrowing owl, which have been established since certification of the 2001/2004 UCP EIR.

With implementation of Adopted UCP policies; Adopted Mitigation Measures 4.4-2, 4.4-4(a), 4.4-4(b), and 4.4-5; CDFW ITP conditions; and USFWS Biological Opinion Conservation Measures, impacts on state and federally-listed wildlife species covered under the ITP and Biological Opinion would be addressed. However, because the Adopted UCP policies, adopted mitigation measures, ITP conditions, and USFWS Biological Opinion Conservation Measures do not include specific measures to avoid direct injury or mortality of several non-listed special-status wildlife species (i.e., western spadefoot, western pond turtle, American badger, crotch bumble bee, western red bat, burrowing owl), impacts on these species would not necessarily be reduced to a less-than-significant level with implementation of these measures. Thus, there would be new significant effects not identified in the 2001/2004 UCP EIR and impacts on special-status wildlife would be **significant**.

Mitigation Measures

Mitigation Measure 3.2-2a: Conduct Preconstruction Surveys for Western Spadefoot, Implement Avoidance Measures, and Relocate Individuals

- Within 7 days before commencement of project activities that would result in ground disturbance, vegetation removal, or use of vehicles, a qualified biologist familiar with the life history of western spadefoot and experienced in performing surveys for western spadefoot will conduct a focused preconstruction survey of habitat suitable for the species within the UCP area. The qualified biologist will inspect the project site in the UCP area for adult western spadefoot toads, eggs and tadpoles within aquatic breeding habitat, as well as suitable burrow habitat.
- If western spadefoot adults, tadpoles, or eggs are not detected during the focused survey, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and further mitigation will not be required.
- If western spadefoot adults, tadpoles, or eggs are detected, a qualified biologist with an appropriate CDFW Scientific Collecting Permit that allows handling of amphibians will relocate individual adults, tadpoles, or eggs to nearby suitable habitat with prior approval of CDFW. The qualified biologist will also be present during initial ground disturbance activities and will inspect the project site in the UCP area before initiation of project activities. If additional western spadefoot are detected, the qualified biologist will relocate individuals into suitable habitat for western spadefoot (i.e., vernal pool grasslands) that will be preserved in perpetuity.

Mitigation Measure 3.2-2b: Conduct Preconstruction Surveys for Western Pond Turtle, Implement Avoidance Measures, and Relocate Individuals

- Within 48 hours before commencement of project activities that would result in ground disturbance, vegetation removal, or use of vehicles, a qualified biologist familiar with the life history of western pond turtle and experienced in performing surveys for western pond turtle will conduct a focused survey of habitat suitable for the species within the UCP area. If aquatic habitat potentially suitable for the species is present within a project site in the UCP area (e.g., streams, ponds, drainages), upland habitat within approximately 1,600 feet of this

aquatic habitat will also be surveyed. The qualified biologist will inspect the project site for western pond turtles as well as suitable burrow habitat.

- If western pond turtles are not detected during the focused survey, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and further mitigation will not be required.
- If western pond turtles are detected, a no-disturbance buffer of at least 100 feet will be established around any identified nest sites or overwintering sites. A qualified biologist with an appropriate CDFW Scientific Collecting Permit that allows handling of reptiles will be present during initial ground disturbance activities and will inspect the project site before initiation of project activities. If western pond turtles are detected, the qualified biologist will move the turtles downstream and out of harm's way.

Mitigation Measure 3.2-2c: Conduct Focused American Badger Survey and Establish Protective Buffers

- Within 30 days before commencement of project activities that would result in ground disturbance, vegetation removal, or use of vehicles, a qualified wildlife biologist with familiarity with American badger and experience using survey methods for the species will conduct focused surveys of habitat suitable for the species within the UCP area to identify any American badger dens.
- If occupied dens are not found, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and further mitigation will not be required.
- If occupied dens are found, impacts on active badger dens will be avoided by establishing exclusion zones around all active badger dens, the size of which will be determined by the qualified biologist. No project activities (e.g., vegetation removal, ground disturbance, staging) will occur within the exclusion zone until denning activities are complete or the den is abandoned, as confirmed by a qualified biologist. The qualified biologist will monitor each den once per week to track the status of the den and to determine when it is no longer occupied. When it is no longer occupied, project activities within the exclusion zone may occur.

Mitigation Measure 3.2-2d: Conduct Focused Surveys for Crotch Bumble Bee and Implement Avoidance Measures If Listed under CESA

Prior to implementation of project activities that could result in loss of crotch bumble bees (e.g., ground disturbance, vegetation removal), the following measures will be implemented.

- The project applicant will retain a qualified biologist familiar with bumble bees in California, with experience using survey methods for bumble bees, and with approval from CDFW to conduct focused surveys of suitable habitat within the project site in the UCP area. Because a survey protocol for this species has not been established, survey methods will be developed and approved in consultation with CDFW, and will generally include but not be limited to the following elements (included in survey protocols for other bumble bee species in the United States [USFWS 2018]):
 - Surveys will be conducted during the active flight season (typically March through September).
 - Surveys will be conducted by walking transects through suitable habitat, or by surveying a minimum of one person-hour per 3 acres of suitable habitat without transects.
 - Bumble bees within the project site will be identified through passive, non-lethal methods (e.g., visual surveys using binoculars, photographic documentation), as approved by CDFW.
 - If crotch bumble bees are detected during focused surveys, the survey results will be submitted to the discretionary land use authority (City of Merced or Merced County) and CDFW. The project applicant will consult with CDFW to determine whether there are additional avoidance measures available that would reduce the likelihood of injury or mortality of crotch bumble bee. The project applicant will consult with CDFW to determine whether authorization for take of crotch bumble bees would be required by obtaining an incidental take permit pursuant to California Fish and Game Code Section 2081. If required,

the project applicant will implement measures required under the permit which may include compensatory mitigation to fully mitigate impacts on crotch bumble bee.

- If no crotch bumble bees are detected during focused surveys, the survey results will be submitted to the discretionary land use authority (City of Merced or Merced County). The project applicant will consult with CDFW to determine whether the negative survey results are sufficient to conclude that crotch bumble bees (including underground overwintering and nesting colonies) are absent from the project site, and that authorization for take of crotch bumble bees would not be required. If CDFW concurs, then further mitigation would not be required.

Mitigation Measure 3.2-2e: Conduct Focused Bat Surveys and Implement Avoidance Measures

Within 30 days before commencement of project activities, a qualified biologist familiar with bats and bat ecology and experienced in conducting bat surveys will conduct surveys for bat roosts in suitable habitat (e.g., trees, crevices, cavities, exfoliating bark, bridges, unoccupied buildings) within and adjacent to the UCP area.

- Surveys will consist of a daytime pedestrian survey looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats within potential roosts.
- If no evidence of bat roosts is found, the qualified biologist will submit a report summarizing the results of the survey to the discretionary land use authority (City of Merced or Merced County), and no further study will be required.
- If evidence of bat roosts is observed, the species and number of bats using the roost will be determined. Bat detectors shall be used if deemed necessary to supplement survey efforts by the qualified biologist.
- If an active western red bat maternity roost is detected, a qualified biologist shall determine an appropriate avoidance buffer to be maintained from April 1 until young are capable of flight (typically through August). Project activities will not occur within this buffer until after the roosts are unoccupied.
- If roosts of western red bat are determined to be present and must be removed, the bats will be excluded from the roosting site before the tree, building, or other roost structure is removed. A program addressing compensation, exclusion methods, and roost removal procedures will be developed in consultation with CDFW before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The loss of each roost (if any) will be replaced in consultation with CDFW and may require construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. If determined necessary during consultation with CDFW, replacement roosts will be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site by a qualified biologist, the roost tree, building, or roost other structure may be removed.

Mitigation Measure 3.2-2f: Conduct Protocol-Level Surveys for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows

This mitigation measure would remove the requirements of Adopted Mitigation Measure 4.4-4(b) and implement the following protocol-level survey requirements.

A qualified biologist will conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of habitat suitable for the species identified during the reconnaissance-level survey (e.g., grassland, agricultural land) on and within 1,640 feet (500 meters) of the UCP area. Surveys will be conducted before the start of project activities and in accordance with Appendix D of the *CDFW Staff Report on Burrowing Owl Mitigation* (CDFW 2012; CDFW Staff Report).

- If no occupied burrows are found, the qualified biologist will submit a report documenting the survey methods and results to the discretionary land use authority (City of Merced or Merced County), and no further mitigation will be required.

- If an active burrow is found within 1,640 feet of pending construction activities that would occur during the nonbreeding season (September 1 through January 31), a minimum protection buffer of 164 feet (50 meters) shall be established and maintained around the occupied burrow throughout construction. The protection buffer may be adjusted if, in consultation with CDFW, a qualified biologist determines that an alternative buffer will not disturb burrowing owl use of the burrow because of particular site features or other buffering measures. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan will be developed, as described in Appendix E of the CDFW Staff Report. Burrowing owls will not be excluded from occupied burrows until the project burrowing owl exclusion plan is approved by CDFW. The exclusion plan will include a compensatory habitat mitigation plan (see below).
- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a protective buffer at a minimum of 164 feet unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted depending on the time of year and level of disturbance as outlined in the CDFW Staff Report. The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented so that burrowing owls are not adversely affected. Once the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW Staff Report.
- If burrowing owls are evicted from burrows and the burrows are destroyed by implementation of project activities, the project applicant will mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW Staff Report, which states that permanent impacts on nesting, occupied and satellite burrows, and burrowing owl habitat (i.e., grassland habitat with suitable burrows) will be mitigated such that habitat acreage and number of burrows are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The project applicant will retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:
 - Mitigation lands will be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species throughout its range.
 - If feasible, mitigation lands will be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of injury or mortality. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient habitat to support displaced owls that may be preserved in perpetuity.
 - If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the project site, mitigation lands can be secured offsite and will aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Mitigation may also be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW.
 - If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan will include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success will be based on the number of adult burrowing owls and pairs using the site and if the numbers are maintained over time. Measures of success, as suggested in the CDFW Staff Report, will include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.

Significance after Mitigation

Implementation of Adopted UCP policies; Adopted Mitigation Measures 4.4-2, 4.4-4(a), and 4.4-5; CDFW ITP conditions; USFWS Biological Opinion Conservation Measures; and new Mitigation Measures 3.2-2a, 3.2-2b, 3.2-2c, 3.2-2d, 3.2-2e, and 3.2-2f would reduce potentially significant impacts on special-status plants to a **less-than-significant** level by requiring preconstruction surveys for special-status wildlife, implementation of avoidance measures and compensation for impacts on special-status wildlife, and preservation of habitat suitable for special-status wildlife.

Impact 3.2-3: Result in Degradation or Loss of Riparian Habitat or Other Sensitive Natural Communities

The 2001/2004 UCP EIR determined that implementation of the UCP could result in significant adverse effects on a riparian wooded channel. Implementation of Adopted UCP policies would reduce impacts on riparian habitat by requiring appropriate permits and regulatory approvals, protection of avoided on-site wetlands and offsite adjacent wetlands, and development of habitat mitigation plans to achieve no net loss of wetland function and values. These Adopted UCP policies would also address potential impacts resulting from the UCP Update. Further, riparian habitat is not present in the VST Specific Plan area. Thus, implementation of the UCP Update and VST Specific Plan would not result in a new significant effect and the impact on riparian habitat and other sensitive natural communities would not be more severe than the impact identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

Impacts on riparian habitat were evaluated under Impact 4.4-3 of the 2001/2004 UCP EIR. This evaluation is discussed in detail below. Impacts on vernal pools were evaluated in Impacts 4.4-1 and 4.4-2 of the 2001/2004 UCP EIR. These evaluations are discussed under Impact 3.2-4 for state and federally protected wetlands.

Impact 4.4-3 of the 2001/2004 UCP EIR (pages 4.4-42 through 4.4-44) evaluated the potential for impacts on freshwater marsh, wooded channel, drainages, and stock pond habitats associated with implementation of the UCP, as well as resulting impacts on special-status wildlife associated with these habitats and concluded that this impact would be significant. Riparian habitat may be associated with several of these habitat types. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6, PA 2.1, PA 2.2, PA 2.3) would require project proponents to obtain approval from USFWS and CDFW for any specific plans developed for the UCP, to develop a habitat mitigation plan to achieve no net loss of wetland function and values, and to protect avoided on-site wetlands and offsite adjacent wetlands, which would reduce impacts on these sensitive habitats to a less-than-significant level.

UCP Update

Amendments to the UCP would modify the UCP boundary, revise the policy plan, and update the land use and circulation diagram. With these amendments, development potential for the UCP Update would be reduced, including a reduction in total developed area, number of dwelling units, and square footage of commercial office use. The UCP Update would not result in a significant change and would reduce the area of planned development. As indicated above, the Adopted UCP policies applicable to this analysis would generally remain in place, with limited editorial revisions. Policy PA 1.3 would be deleted because onsite preservation or creation of wetlands is no longer planned. Thus, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Impacts on riparian habitat and other sensitive natural communities would be **less than significant**.

VST Specific Plan

The riparian habitat considered under the 2001/2004 UCP EIR is located within the UCP South portion of the UCP area, entirely outside of the VST Specific Plan area. The VST Specific Plan area does not contain riparian habitat and implementation of the VST Specific Plan would not result in adverse effects on riparian habitat or other sensitive natural communities. There would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Impacts on riparian habitat and other sensitive natural communities would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.2-4: Result in Degradation or Loss of State or Federally Protected Wetlands

The 2001/2004 UCP EIR determined that implementation of the Adopted UCP could result in significant adverse effects on state or federally protected wetlands. Implementation of Adopted UCP policies would reduce impacts on these resources by requiring appropriate permits and regulatory approvals, protection of avoided on-site wetlands and offsite adjacent wetlands, and development of habitat mitigation plans to achieve no net loss of wetland function and values. These policies would also address potential impacts resulting from UCP Update and implementation of the VST Specific Plan. Thus, implementation of the UCP Update would not result in a new significant effect and the impact on state or federally protected wetlands would not be more severe than the impact identified in the 2001/2004 UCP EIR. However, implementation of the VST Specific Plan would include realignment and straightening of the Fairfield Canal which would result in effects on state and federally protected wetlands not analyzed in the 2001/2004 UCP EIR. Potentially significant impacts would be reduced to **less than significant** through implementation of Adopted UCP policies requiring appropriate permits and regulatory approvals, protection of avoided on-site wetlands and offsite adjacent wetlands, and development of habitat mitigation plans to achieve no net loss of wetland function and values.

Summary of 2001/2004 UCP EIR Impact

Impacts on state and federally protected wetlands were evaluated under several impacts in the 2001/2004 UCP EIR: Impact 4.4-1, Impact 4.4-2, Impact 4.4-3, and Impact 4.4-7. These evaluations are discussed in detail below.

Impact 4.4-1 of the 2001/2004 UCP EIR (pages 4.4-35 through 4.4-38) evaluated the potential for substantial adverse effects on wetlands and other waters of the United States or state associated with implementation of the Adopted UCP. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6) would require protection of avoided on-site wetlands and offsite adjacent wetlands, would require project proponents to obtain appropriate permits and regulatory approvals prior to development, and would require project proponents to develop a habitat mitigation plan to achieve no net loss of wetland function and values, which would reduce impacts on wetlands and other waters of the United States or state to a less-than-significant level.

Impact 4.4-3 of the 2001/2004 UCP EIR (pages 4.4-42 through 4.4-44) evaluated the potential for impacts on freshwater marsh, wooded channel, drainages, and stock pond habitats associated with implementation of the Adopted UCP, as well as resulting impacts on special-status wildlife associated with these habitats and concluded that this impact would be significant. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6, PA 2.1, PA 2.2, PA 2.3) would require project proponents to obtain approval from cooperating agencies (e.g., USFWS, CDFW, RWQCB) for any specific plans developed for the UCP, to develop a habitat mitigation plan to achieve no net loss of wetland function and values, and to protect avoided on-site wetlands and offsite adjacent wetlands, which would reduce impacts on wetlands and other waters of the United States or state to a less-than-significant level. Additionally, these policies would provide compensatory actions through restoring, creating, or preserving habitat at a 3:1 ratio for freshwater marsh, wooded channel (i.e., riparian), drainages, and stock ponds, such that impacts would be less than significant.

Impact 4.4-7 of the 2001/2004 UCP EIR (pages 4.4-52 through 4.4-54) evaluated the potential for construction of offsite infrastructure associated with implementation of the Adopted UCP to result in adverse effects on seasonal wetlands and concluded that this impact would be significant. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.4, PA 1.6, PA 2.1, PA 2.3) would require environmentally sensitive project siting and design, protection of offsite adjacent wetland habitats, implementation of an agency-coordinated mitigation and monitoring plan, and establishment of a funding source for monitoring and reclamation practices, which would reduce impacts on seasonal wetlands resulting from offsite infrastructure construction to a less-than-significant level.

UCP Update

As described above in Section 3.2.2, "Environmental Setting," many vernal pools and swales in the UCP area have been filled pursuant to previously obtained permits and in accordance with environmental commitments included in those permits (Live Oak Associates Inc. 2019). As described in Section 3.2.2, "Regulatory Setting," a CWA Section 404 permit and Section 401 water quality certification was issued to UC Merced and the UCLC authorizing fill of all 77.79 acres of jurisdictional waters on the UC Merced campus and UCP North sites. Amendments to the UCP would modify the UCP boundary, revise the policy plan, and update the land use and circulation diagram. The UCP Update would result in a reduction in total developed area, number of dwelling units, and square footage of commercial office use. As indicated above, the Adopted UCP policies applicable to this analysis would generally remain in place, with limited editorial revisions. Policy PA 1.3 would be deleted because onsite preservation or creation of wetlands is no longer planned. Thus, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Impacts on state and federally protected wetlands would be **less than significant**.

VST Specific Plan

As described above in Section 3.2.2, "Environmental Setting," many vernal pools and swales in the VST Specific Plan area have been filled, and the majority of the VST Specific Plan area has been deep-ripped for conversion to orchards, associated facilities, and dry-farmed fields pursuant to previously obtained permits and in accordance with environmental commitments included in those permits. As described in Section 3.2.2, "Regulatory Setting," a CWA Section 404 permit and Section 401 water quality certification was issued to UC Merced and the UCLC authorizing fill of all 77.79 acres of jurisdictional waters on the UC Merced campus and UCP North sites, including the VST Specific Plan area. While vernal pool habitat is no longer present in the VST Specific Plan area, some seasonal wetland and swale habitat is still present (Live Oak Associates Inc. 2019). Impacts on these remaining wetland habitats would be similar to impacts identified in the 2001/2004 UCP EIR.

Implementation of the VST Specific Plan would include realignment and straightening of the Fairfield Canal, construction of a bypass channel, fill of wetlands associated with the Fairfield Canal, and fill and removal of the Dunn Lateral, an irrigation ditch that feeds into the Fairfield Canal. These components of the VST Specific Plan were not considered in the 2001/2004 UCP EIR. Implementation of Adopted UCP policies would require project proponents to obtain approval from cooperating agencies (e.g., USFWS, CDFW, RWQCB) for any specific plans developed for the UCP, to develop a habitat mitigation plan to achieve no net loss of wetland function and values, and to protect avoided on-site wetlands and offsite adjacent wetlands. Fill of any wetlands not previously authorized under the CWA Section 404 permit and Section 401 water quality certification would require additional authorization from USACE and RWQCB pursuant to the Adopted UCP policies. Because impacts on state and federally protected wetlands resulting from implementation of the VST Specific Plan would be addressed through Adopted UCP policies, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Impacts on state and federally protected wetlands would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.2-5: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries

The 2001/2004 UCP EIR determined that implementation of the UCP could result in significant indirect impacts on wildlife movement. Implementation of Adopted UCP policies would reduce these impacts by requiring environmentally sensitive project siting and design, protection of offsite adjacent wildlife habitats, implementation of an agency-coordinated mitigation and monitoring plan, limiting construction noise during nighttime hours, establishment of programs to control feral pet populations, and implementation of public education programs. The 2001/2004 UCP EIR also determined that impacts on San Joaquin kit fox movement resulting from implementation of the UCP would be less than significant because the UCP area does not provide an important habitat linkage for the species. These policies would also address potential impacts resulting from UCP Update and implementation of the VST Specific Plan. Thus, implementation of the UCP Update and the VST Specific Plan would not result in a new significant effect and the impact on wildlife movement corridors and wildlife nursery sites would not be more severe than the impact identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

Impacts on wildlife movement corridors were evaluated under two impacts in the 2001/2004 UCP EIR: Impact 4.4-8 and Impact 4.4-9. These evaluations are discussed in detail below. The 2001/2004 UCP EIR did not directly address wildlife nursery sites.

Impact 4.4-8 of the 2001/2004 UCP EIR (pages 4.4-54 through 4.4-63) evaluated the potential for indirect impacts on special-status wildlife associated with implementation of the UCP, which included impacts on wildlife movement and habitat fragmentation, and concluded that this impact would be significant. Implementation of Adopted UCP policies (i.e., PA 1.1, PA 1.2, PA 1.3, PA 1.4, PA 1.5, PA 1.6, PA 2.1, PA 2.2, PA 2.3, PA 3.1, PA 3.2, PA 3.3, PA 3.4, PA 3.5, IW 5.9, IW 8.2, IW 8.4, IW 8.6, IW 8.7, IW 8.9, IW 8.10, IW 9.6, IW 12.3, IW 12.4, LU 4.1, LU 4.2, LU 9.1, LU 9.2, LU 9.3, LU 9.4, LU 9.9, PP 1.5, PP 3.1, PP 4.1, PP 4.2, AQ 5.1, AQ 5.2, AQ 5.3, AQ 5.4, N 2.6, W 1.1, PS 3.5, ISW 1.2) would require environmentally sensitive project siting and design, protection of offsite adjacent wildlife habitats, implementation of an agency-coordinated mitigation and monitoring plan, limiting construction noise during nighttime hours, establishment of programs to control feral pet populations, and implementation of public education programs, which would reduce indirect impacts on wildlife movement corridors to a less-than-significant level.

Impact 4.4-9 of the 2001/2004 UCP EIR (pages 4.4-63 through 4.4-65) evaluated the potential for impacts on movement of San Joaquin kit fox associated with implementation of the UCP and concluded that this impact would be less than significant because there is no evidence of a population of San Joaquin kit foxes or an important habitat linkage for the species in the vicinity of the UCP area.

UCP Update

Amendments to the UCP would modify the UCP boundary, revise the policy plan, and update the land use and circulation diagram. With these amendments, development potential for the UCP Update would be reduced, including a reduction in total developed area, number of dwelling units, and square footage of commercial office use. The UCP Update would not result in a significant change in the area planned for development that would result in any new significant impacts on wildlife movement corridors. Thus, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR.

The 2001/2004 UCP EIR included an analysis of potential impacts on wildlife movement corridors, as described above; however, it did not directly address impacts on wildlife nursery sites. Due to the land cover present (e.g., agricultural), the UCP area is not expected to support significant wildlife nursery sites (e.g., heron or egret rookeries, deer fawning areas). Additionally, implementation of Adopted UCP policies, including those described above, would reduce any potential impacts on wildlife nursery sites to a less-than-significant level. As indicated above, the Adopted policies applicable to this analysis would generally remain in place, with limited editorial revisions. Policy PA 1.3 would be deleted because wetlands have been fully mitigated offsite and onsite preservation or creation of wetlands is no longer planned. Thus, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Impacts on wildlife movement corridors and wildlife nursery sites would be **less than significant**.

VST Specific Plan

The analysis regarding wildlife movement corridors in the 2001/2004 UCP EIR included a portion of the VST Specific Plan area that was planned for residential development. The remaining portion of the VST Specific Plan area that does not currently overlap the Adopted UCP area, including areas east of the Fairfield Canal, contains orchards and is not significantly different than the rest of the plan area. Conditions in the VST Specific Plan area regarding wildlife movement corridors have not changed substantially. As stated above, the 2001/2004 UCP EIR did not directly address impacts on wildlife nursery sites. Due to the land cover present (e.g., agricultural), the VST Specific Plan area is not expected to support significant wildlife nursery sites (e.g., heron or egret rookeries, deer fawning areas). Additionally, implementation of Adopted UCP policies, including those described above, would reduce any potential impacts on wildlife nursery sites to a less-than-significant level. There would be no new significant effects or more severe impacts on wildlife movement corridors of wildlife nursery sites than identified in the 2001/2004 UCP EIR, and impacts would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.2-6: Cumulative Impacts to Biological Resources

The 2001/2004 UCP EIR identifies a potentially significant cumulative condition due to effects on non-listed species that could be associated with the loss of grassland habitat that is not subject to permitting requirements. The UCP Update and VST Specific Plan would result in habitat conversion that is similar to the Adopted UCP, although the VST Specific Plan area currently supports less grassland habitat than evaluated in the 2001/2004 UCP EIR. This impact would be **significant and unavoidable**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR evaluated cumulative impacts to biological resources in Impact 4.4-11 (pages 4.4-66 to 4.4-69). The discussion summarizes the habitat in the UCP area at that time. The 2001/2004 UCP EIR concludes that cumulative loss of jurisdictional waters and annual grasslands would be addressed and mitigated by Adopted UCP Policies PA 1.1 through PA 1.6 and PA 2.1 through PA 2.3. Compliance with these policies and regulatory permitting requirements was found to fully mitigate impacts to waters of the United States and the special-status species that are supported by these waters such that no residual impacts would occur (page 4.4-66). Similarly, impacts to special-status species associated with grassland habitat would be reduced to less than significant with implementation of Adopted Mitigation Measures 4.4-2(a), 4.4-4(a), and 4.4-4(b). However, the 2001/2004 UCP EIR identified the cumulative loss of non-listed species associated with planned or reasonably foreseeable development as cumulatively significant and unavoidable.

UCP Update and VST Specific Plan

As explained above, permits were obtained for impacts to onsite habitat and associated species and mitigation has been completed. Following these activities, substantial habitat modification occurred within the VST Specific Plan area. The UCP area is now largely cultivated for agricultural use. Implementation of Adopted UCP policies; Adopted Mitigation Measures 4.4-2, 4.4-4(a), and 4.4-5; CDFW ITP conditions; USFWS Biological Opinion Conservation Measures; and new Mitigation Measures 3.2-2a, 3.2-2b, 3.2-2c, 3.2-2d, 3.2-2e, and 3.2-2f would reduce project impacts to a less-than-significant level. Nonetheless, buildout of the UCP would result in the loss of grassland habitat that would contribute to the cumulative loss of this habitat in the region in the same manner described in the 2001/2004 UCP EIR. Impacts would remain **significant and unavoidable**.

Mitigation Measures

No additional mitigation is available to address this impact.

This page intentionally left blank.

3.3 TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the project on known and unknown (undiscovered or unidentified) tribal cultural resources. Assembly Bill (AB) 52, signed by Governor Edmund G. Brown, Jr., in September 2014 and effective on July 1, 2015, established a new class of resources under CEQA: "tribal cultural resources." AB 52, enacted in Public Resources Code (PRC) Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon receiving a written request from a California Native American tribe, begin tribal consultation after the lead agency determines that the application for the project is complete or before the release of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration.

Tribal cultural resources, as defined by AB 52, Statutes of 2014, in PRC Section 21074, are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a Tribe. A tribal cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. The 2001/2004 UCP EIR does not specifically evaluate effects to tribal cultural resources, although it does include a sacred lands file database search through the Native American Heritage Commission (NAHC) which did not indicate the presence of tribal cultural resources in the Adopted UCP area.

One comment letter regarding tribal cultural resources was received in response to the Notice of Preparation (see Appendix A). The NAHC requested AB 52 and Senate Bill (SB) 18 compliance information. SB 18 is not a CEQA requirement and therefore is not discussed in this section. AB 52 compliance is described below.

3.3.1 Regulatory Setting

FEDERAL

There are no federal regulations that apply to tribal cultural resources.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP) are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historical resource must be significant at the local, State, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

- Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- Criterion 2. Is associated with the lives of persons important to local, California, or national history.
- Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.
- Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP: location, design, setting, materials, workmanship, feeling, and associations.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on tribal cultural resources. PRC Section 21084.2 establishes that “[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.” PRC Section 21074 states:

- a) Tribal cultural resources are either of the following:
 - 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - A) Included or determined to be eligible for inclusion in the CRHR.
 - B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
 - 2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of 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.
- b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Pursuant to CEQA requirements, lead agencies undertaking CEQA review must, upon written request of a California Native American tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration.

Health and Safety Code, Section 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact the NAHC.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both State and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify the NAHC, which notifies (and has the authority to designate) the most likely descendants of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Public Resource Code Section 5097

PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. Section 5097.5 of the code states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

LOCAL

There are no local regulations that apply to tribal cultural resources.

3.3.2 Environmental Setting

ETHNOGRAPHY

At the time of European-contact the plan area was inhabited by the Northern Valley Yokuts, a Penutian-speaking central California group. The core of their traditional lands was the San Joaquin River, with their territory extending from north of the Calaveras River southward to the upper San Joaquin River, and from the crest of the Coast (Diablo) Range east to the Sierra Nevada foothills. Neighboring groups included the Southern Valley Yokuts to the south, Salinan to the southwest, Costonoan (Ohlone) to the west, Plains Miwok to the north, Sierran Miwok on the east, and Foothill Yokuts to the southeast. Because of their rapid decimation as a result of disease, missionization, and Euro-American settlement, Northern Valley Yokuts are not well documented by ethnographers (NIC 2021: 16).

The Northern Valley Yokuts consisted of 11 or more tribes that usually held territory on a side of the San Joaquin River or its major tributaries. With a population of around 300, most members of each tribe lived within a single settlement. The settlements frequently had the same name as the political unit. Their villages were generally established on low, natural rises along major watercourses. The eastern side of the San Joaquin River, which had permanent waterways flowing from the Sierra Nevada, was more heavily populated than the lands with semi-permanent watercourses to the west of the river. Village structures included oval, single-family dwellings made of tule, sweatshouses, and ceremonial chambers. Yokuts tribes in the vicinity of the plan area included the *Coconoon* along the Merced River and the *Chawchila* along the plains below the Merced River to the Chowchilla River (NIC 2021: 16).

The fundamental economy of the Northern Valley Yokuts was comprised of subsistence hunting, fishing, and collecting plant foods in an area where abundant natural resources varied seasonally. Like the majority of native Californian groups, acorns were a staple food. Acorns were collected from valley oaks during the fall and then stored in granaries. Other vegetal resources included grass seeds, berries, and tule roots. Fish were also a dietary staple, particularly salmon during the fall and spring runs, as well as sturgeon, Sacramento pike, river perch, and western suckers. Deer, elk, antelope, and black bears were among the large animals that were consumed. Geese, ducks, and other wildfowl were also an important staple (NIC 2021: 17).

A wide variety of tools, implements, and enclosures were used by the Northern Valley Yokuts to collect, gather, and process food resources. Fishing and hunting tools included harpoons, hooks, nets, bow and arrows, traps, and blinds, as well as tule rafts for navigating the waterways. Sharpened digging sticks and woven tools such as seed beaters, burden baskets, and carrying nets were used to collect plant resources. Stone mortars and pestles, bedrock and portable mortars, possibly wooden mortars, stone knives and scrapers, and various bone tools were used to process resources. Additional implements and ornamental items, such as mussels and abalone, shell ornaments and beads, bows and arrows, baskets, and obsidian were obtained through trade using the waterways and land trails that led west to the coast (NIC 2021: 17).

During the Spanish and Mexican periods, even though there were no non-native settlements in the San Joaquin Valley, native lifeways were affected by the coastal missions and presidios. By 1805, sizeable numbers of Northern Valley Yokuts were transported to the San Juan Bautista, Santa Clara, San José, San Antonio, and Soledad missions established during the Spanish era. During the Mexican Period many lives were lost through epidemics and military raids, and then the gold prospectors and farmers of the early American Period displaced the native populations (NIC 2021: 17).

The population for Northern Valley Yokuts prior to European exploration has been estimated at 25,000 to 31,000. By 1852, only three Northern Valley Yokuts tribes were left and sent members to sign one of a series of statewide treaties. Although they agreed to live on a reservation in their traditional territory, the treaty was never ratified. At present, approximately 2,000 Yokuts live on the Tule River Reservation (established in 1873 in Tulare County near Porterville) and on three rancherias (Picayune at Coarsegold in Madera County, Santa Rosa in Kings County, and Table Mountain near Friant in Fresno County). Santa Rosa Rancheria is in Southern Valley Yokuts traditional lands, Picayune is located within Foothill Yokuts territory, and Table Mountain is near the division between Northern and Southern Valley Yokuts traditional lands. Additional Foothill Yokuts live with Central Sierran Miwok on the Tuolumne

Rancheria in Tuolumne County, some 600 Yokuts are part of regional tribal communities that are not federally recognized, and others are scattered throughout the state (NIC 2021: 17).

RECORDS SEARCHES AND CONSULTATION

Sacred Lands File Search

A search of the NAHC Sacred Lands File for traditional cultural resources within the VST Specific Plan Area was requested. The reply from the NAHC, dated May 11, 2021, states that the search was negative for the presence of Native American sacred lands in the immediate vicinity. A search of the NAHC Sacred Lands File for traditional cultural resources within the UCP South Area was requested on December 20, 2022; the January 25, 2023 reply was negative.

A list of Native American individuals and Tribes to contact for more information was also provided with the results:

- Amah Mutsun Tribal Band, Valentin Lopez, Chairperson
- Northern Valley Yokuts Tribe, Katherine Perez, Chairperson
- Northern Valley Yokuts Tribe, Timothy Perez, most likely descendant contact
- Southern Sierra Miwuk Nation, William Leonard, Chairperson
- Tule River Indian Tribe, Joey Garfield, Tribal Archaeologist
- Tule River Indian Tribe, Neil Peyron, Chairperson
- Tule River Indian Tribe, Kerri Vera, Environmental Department

Records Search and Pedestrian Survey

A cultural resources records search of the approximately 654-acre VST Specific Plan Area was completed by the Central California Information Center (CCaIC) at California State University, Stanislaus (CCaIC File No. 11748I) on April 16, 2021. The CCaIC records search indicated there are five previously recorded cultural resources mapped as being within the VST Specific Plan Area. Two of the five resources within the plan area are precontact lithic scatters (P-24-001872 and P-24-001875); the remainder are from the historic-era: a water conveyance lateral, a concrete water tank and pump house, and the potential Merced Irrigation District Historic District. The two precontact lithic scatters have been previously evaluated and found to not meet the criteria for listing in the CRHR. Therefore, these sites are not considered tribal cultural resources per PRC Section 21074.

An intensive-level pedestrian survey within the VST Specific Plan Area was conducted on June 7 through 11, 2021. The entire plan area outside of existing built-environment resources (an irrigation basin, existing structures associated with the basin, and Fairfield Canal) was covered by the survey and carefully examined for the presence of cultural resources. Survey transects outside the built structures were spaced apart at intervals no greater than 15 meters. During the survey, all exposed ground surface within the plan area was carefully examined for cultural material (e.g., flaked stone tools, tool-making debris, stone milling tools, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Ground disturbances (e.g., rodent burrows, embankments, dirt roads, etc.) were visually inspected. No ethnographic resources or tribal cultural resources were newly identified during the survey.

Due to the programmatic nature of the evaluation conducted for the UCP South area, neither a CCaIC records search nor pedestrian survey were not conducted. Timing of projects within the UCP South area are unknown and records searches and pedestrian surveys are considered to be expired after 5 years.

Tribal Consultation

Under Public Resources Code Section 21080.3.1, a lead agency shall begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the California Native American tribe requested, in writing, to be informed by the lead agency through formal notification

of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe. No tribes that are traditionally or culturally affiliated with Merced County have requested to be informed of proposed projects; therefore, there is no trigger to begin consultation under AB 52.

3.3.3 Impacts and Mitigation Measures

METHODOLOGY

Information related to tribal cultural resources is based on findings reported in the NAHC Sacred Lands File database search, the records search results (CCaC File No. 117481), and the information provided in the *Cultural and Paleontological Resources Project-Level Inventory for the Virginia Smith Trust (VST) Specific Plan Area, Merced County, California* (NIC 2021). The analysis is also informed by the provisions and requirements of State and local laws and regulations that apply to tribal cultural resources.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact on Tribal cultural resources if it would:

- cause a substantial adverse change in the significance of a Tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe.

PLAN CHARACTERISTICS

UCP Update

The proposed UCP Update does not include policies related to tribal cultural resources.

VST Specific Plan

The VST Specific Plan includes the following policy:

- **Policy 10.5:** In order to honor and acknowledge the previous occupation of the region by the North Valley Yokut, Ohlone and Mi-Wuk tribes, and the importance of the Native American community in the San Joaquin Valley and Sierra Nevada, a commemorative installation shall be placed in one of the project parks or open space. The Developer shall work with the California Indian Education Association, UC Merced, and local tribal representatives to determine an appropriate location for and content in the installation.

ISSUES NOT DISCUSSED FURTHER

All potential tribal cultural resources impacts are evaluated below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource

No tribes that are culturally affiliated with Merced County have formally requested notification under AB 52. Therefore, there is no trigger for consultation, and no resources have been identified as tribal cultural resources as described under PRC Section 21074. Even though tribal cultural resources were not evaluated in the 2001/2004 UCP EIR there is no new significant effect, and the impact is not more severe. The project would result in a **less-than-significant** impact to tribal cultural resources.

Summary of 2001/2004 UCP EIR Impact

AB 52, signed by Governor Edmund G. Brown, Jr., in September 2014 and effective on July 1, 2015, established a new class of resources under CEQA: "tribal cultural resources." Because AB 52 was enacted after certification of the 2001/2004 UCP EIR, impacts on tribal cultural resources were not evaluated in that document.

UCP Update

Under PRC Section 21080.3.1, a lead agency shall begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe. No tribes that are traditionally or culturally affiliated with Merced County, including Amah Mutsun Tribal Band, Northern Valley Yokuts Tribe, Southern Sierra Miwuk Nation, or Tule River Indian Tribe, have requested to be informed of proposed projects; therefore, there is no trigger to begin consultation under AB 52, resulting in no resources identified as tribal cultural resources.

Additionally, the NAHC Sacred Lands File database search was negative for the presence of Native American sacred lands. Therefore, even though tribal cultural resources were not evaluated in the 2001/2004 UCP EIR, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

As with the UCP Update, no tribes that are culturally affiliated with Merced County have formally requested notification under AB 52. Therefore, there is no trigger for consultation, and no resources have been identified as tribal cultural resources as described under PRC Section 21074. Additionally, the CCalC records search did not result in the identification of any site that would be considered a tribal cultural resource, and the pedestrian survey did not encounter any ethnographic resources or tribal cultural resources. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.3-2: Cumulative Tribal Cultural Resources Impacts

The project would not contribute to cumulative impacts associated with damage or loss of tribal cultural resources. Cumulative impacts would be **less than significant**.

As described above, no tribes that are culturally affiliated with Merced County have formally requested notification under AB 52. Therefore, no resources have been identified as tribal cultural resources as described under PRC Section 21074. Additionally, the CCalC records search did not result in the identification of any site that would be considered a tribal cultural resource, and the pedestrian survey did not encounter any ethnographic resources or tribal cultural resources. Therefore, there is not a significant potential for permanent loss of resources of regional significance or that contribute to the larger cultural landscape. The impacts of the UCP Update and VST Specific Plan would not combine with cumulative impacts to tribal cultural resources in the surrounding county to create cumulatively significant impacts, and the incremental impact of the UCP Update and VST Specific Plan would not be cumulatively considerable. Cumulative impacts would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

3.4 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Since certification of the 2001/2004 UCP EIR, there has been an increased awareness of greenhouse gas (GHG) emissions and their role in global climate change that has resulted in promulgation of laws and regulations designed to reduce GHG emissions. At the time the 2001/2004 UCP EIR was prepared and certified, the State CEQA Guidelines did not identify GHG emissions and climate change as a resource area in Appendix G. Thus, the 2001/2004 UCP EIR did not provide an environmental or regulatory setting to characterize climate change impacts, nor did the 2001/2004 UCP EIR evaluate the UCP's contribution of GHG emissions to anthropogenic climate change. In 2009, the Governor's Office of Planning and Research (OPR) amended Appendix G of the State CEQA Guidelines to require project-level analysis of GHG emissions. In 2019, OPR amended Appendix G to require project-level analysis of energy use.

Because the 2001/2004 UCP EIR did not include or require an evaluation of GHG emissions or energy use, any analysis in a subsequent EIR would not require an evaluation of GHG emissions or energy use. Accordingly, this analysis provides a new impact discussion and supplements the analyses conducted in the 2001/2004 UCP EIR. This analysis utilizes thresholds of significance used by the Bay Area Air Quality Management District (BAAQMD) for land use development projects which capture both GHG and energy impacts.

This section presents a summary of the current state of climate change science and GHG emissions sources in California; a summary of applicable regulations; quantification of GHG emissions generated by the UCP Update and VST Specific Plan and discussion about their potential contribution to global climate change. For the purposes of this analysis, GHG emissions are measured as metric tons of carbon dioxide equivalent (MTCO₂e). The atmospheric impact of a GHG is based on the global warming potential (GWP) of that gas. GWP is a measure of the heat trapping ability of one unit of a gas over a certain timeframe relative to one unit of carbon dioxide (CO₂). The GWP of CO₂ is one (IPCC 2014). Consistent with the methodology used by the California Air Resources Board (CARB) in estimating statewide GHG emissions, this analysis uses GWP values from the Fourth Assessment Report Values by the Intergovernmental Panel on Climate Change (IPCC).

No comments related to GHG emissions or energy were received in response to the notice of preparation for this SEIR.

3.4.1 Regulatory Setting

The following describes the current regulatory setting applicable to the UCP Update and VST Specific Plan Project.

FEDERAL

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007), the Supreme Court of the United States ruled that CO₂ is an air pollutant as defined under the federal Clean Air Act (CAA) and that the U.S. Environmental Protection Agency (EPA) has the authority to regulate GHG emissions. In 2010, the EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the CAA.

The National Highway Traffic Safety Administration (NHTSA) also regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards.

The CAFE Standards, which were first enacted by Congress in 1975, set fleet-wide averages that must be achieved by each automaker for its car and truck fleet. The purpose of the CAFE Standards is to reduce energy consumption by increasing the fuel economy of cars and light trucks. On April 1, 2022, Transportation Secretary Pete Buttigieg unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks, requiring new vehicles sold in the US to average at least 40 miles per gallon.

STATE

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the State government for approximately two decades. GHG emission targets established by the State legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and reduction of GHG emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the US to limit the rise in global temperature to no more than 2 degrees Celsius (°C), the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also reflect efforts to limit the temperature increase even further to 1.5 °C (United Nations 2015).

CARB adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, establishing the state's the pathway to achieve carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045 using a combined top-down, bottom-up approach under various scenarios. The 2022 Scoping Plan identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals. CARB and other state agencies released the *January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan* consistent with the carbon neutrality goal of Executive Order B-55-18 (CalEPA et al. 2019).

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program (ACC), CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel-powered on-road vehicles than EPA standards. In addition, the program's zero-emission vehicle (ZEV) regulation requires battery, fuel cell, and plug-in hybrid electric vehicles (EVs) to account for up to 15 percent of California's new vehicle sales by 2025. In August 2022, CARB adopted the ACC II program, which sets sales requirements to reach the goal of 100 percent ZEV sales in the state by 2035.

Executive Order B-48-18, signed into law in January 2018, requires all State entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity (CI) of California's transportation fuels. Low-CI fuels emit less CO₂ than other fossil fuel-based fuels such as gasoline and fossil diesel. The LCFS applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations (MPOs) to develop and adopt sustainable communities strategies (SCSs) as a component of the federally-required regional transportation plans (RTPs) to show reductions in GHG emissions from passenger cars and light-duty trucks in their respective regions for 2020 and 2035 (CARB 2018). These plans link land use and housing allocation to transportation planning and related mobile-source emissions. The Merced County Association of Governments (MCAG) serves as the MPO for the County of Merced, including the City of Merced. MCAG adopted its first RTP/SCS in 2018 with a planning horizon year of 2043. In August 2022, MCAG adopted its second 2022 RTP/SCS (MCAG 2022). CARB did not initially assign a numerical target for MCAG for 2020 or 2035; however, later in March 2018, CARB adopted the Target Update for the SB 375 targets, requiring MCAG to achieve a 10 percent and a 16 percent per capita reduction by 2020 and 2035, respectively, for plans developed and adopted after September 30, 2018 (CARB 2018a). The 2022 RTP/SCS satisfies CARB's most recent SB 375 targets.

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code. The code was established by California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy-efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every 3 years, typically including more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the onsite energy generation progress started in the 2019 California Energy Code by 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. CEC estimates that the 2022 California Energy Code will save consumers \$1.5 billion and reduce GHGs by 10 million metric tons of carbon dioxide-equivalent over the next 30 years (CEC 2021).

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards, also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandatory codes) developed by CEC that provides green building standards for statewide residential and nonresidential construction. The current version is the 2022 CALGreen Code, which took effect on January 1, 2023. As compared to the 2019 CalGreen Code, the 2022 CalGreen Code strengthened sections pertaining to EV and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CalGreen Code. The CALGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes are adopted by local agencies that enforce building codes and used as guidelines by state agencies for meeting the requirements of Executive Order B-18-12.

LOCAL

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the primary agency responsible for addressing air quality concerns in Merced County. Its role is discussed further in Section 3.1, "Air Quality." SJVAPCD recommends methods for analyzing project-generated GHGs in CEQA analyses and offers multiple potential GHG reduction measures for land use development projects. SJVAPCD published its *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* in 2009, which it incorporated into its 2015 *Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)*. SJVAPCD developed thresholds of significance to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and AB 32. SJVAPCD's goals in developing GHG thresholds include ease of implementation, use of standard analysis tools, and emissions mitigation consistent with AB 32. However, since the passage of SB 32, which mandates a statewide emissions target of 40 percent below 1990 levels by 2030, SJVAPCD has not developed new thresholds in compliance with this target.

Merced County General Plan

Relevant policies and standards from the 2030 Merced County General Plan (County of Merced 2013) related to GHG emissions and energy consumption are listed below:

Land Use Element

- **Policy LU-1.7:** Promote compact development in urban communities that supports pedestrian activity and transit ridership.
- **Policy LU-5.D.4:** Pedestrian-Oriented Development. Require new commercial development be designed to encourage and facilitate pedestrian circulation within and between commercial and nearby residential areas.

- **Policy LU-5.D.5:** Mixed-Use Development. Support the development of mixed-use projects within existing Urban Communities that reduces travel distances and locates residences near compatible jobs and services.
- **Policy LU-7.1:** Infill Development Focus. Encourage infill development to occur in cities in order to maximize the use of land within existing urbanized areas, minimize the conversion of productive agricultural land, and minimize environmental impacts associated with new development.
- **Policy LU-9.1:** Solar Access. Require new residential subdivision lots and new commercial, office, industrial, and public buildings to be oriented and landscaped to enhance natural lighting and solar access in order to maximize energy efficiency.
- **Policy LU-9.2:** Sustainable Building Practices. Promote sustainable building practices, including the requirements of Title 24 of the California Administrative Code.
- **Policy LU-9.4:** Green Building Standard. Require all new County buildings be constructed to green building standards and all existing County buildings to be retrofitted with energy efficient technologies.
- **Policy LU-9.5:** Energy Conservation Standards for New Construction (RDR). Cooperate with the local building industry, utilities, and air district to promote enhanced energy conservation standards for new construction.

Air Quality Element

- **Policy AQ-1.1:** Energy Consumption Reduction. Encourage new residential, commercial, and industrial development to reduce air quality impacts from energy consumption.
- **Policy AQ-1.2:** Business Energy Reduction Strategies. Encourage all businesses to: replace high mileage fleet vehicles with more efficient and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emissions reductions and reusable materials; and increase recycling.
- **Policy AQ-1.7:** Heat Island Effect Reduction. Require increased tree canopy and reflective surface materials in order to reduce the heat island effect (i.e., increased temperatures due to heat radiation off paved surfaces and rooftops). This includes: a) Preserving agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provide carbon sequestration benefits; b) Establishing a mitigation program for development of those types of open space that provide carbon sequestration benefits; c) Requiring like-kind replacement for, or impose mitigation fees on, land development that results in the loss of carbon sequestering open space; and d) Using mitigation funds generated to protect existing open space.
- **Policy AQ-2.3:** Cumulative Impacts. Encourage the reduction of cumulative air quality impacts produced by projects that are not significant by themselves, but result in cumulatively significant impacts in combination with other development.
- **Policy AQ-2.5:** Innovative Mitigation Measures. Encourage innovative mitigation measures and project redesign to reduce air quality impacts by coordinating with the San Joaquin Valley Air Pollution Control District, project applicants, and other interested parties.
- **Policy AQ-4.1:** Decrease Vehicle Miles Traveled. Require diverse, higher-density land uses (e.g., mixed-use and infill development) to decrease vehicle miles traveled.
- **Policy AQ-4.4:** Transportation Alternatives. Require employers and developers to provide employees and residents with attractive, affordable transportation alternatives, such as transit stops, van pool pick-up and dropoff locations, and biking paths/storage.
- **Policy AQ-4.6:** Non-Motorized Transportation. Encourage non-motorized transportation corridors within and between communities.
- **Policy AQ-4.7:** Planning Integration. Require land use, transportation, and air quality planning to be integrated for the most efficient use of resources and a healthier environment.

- **Policy AQ-6.6:** Prohibition on Wood Stoves. Prohibit wood stoves and wood burning heaters in all newly constructed residences in unincorporated Merced County that have access to natural gas. Natural gas stoves have substantially lower PM10 and PM2.5 emissions as compared to wood stoves.

Circulation Element

- **Policy CIR-1.2:** Efficient Transportation Network. Encourage land use patterns that promote shorter travel distances between residences and employment centers within Merced County, allow for non-auto travel, plan for multi-modal access for communities near I-5 and other major roadways, provide traffic calming on local roadways, and promote the efficient expansion and maintenance of transportation-related infrastructure to avoid constructing new roadways that would cause the physical division of existing communities.
- **Policy CIR-1.7:** Alternative Transportation Modes. Require development projects that have the potential to reduce existing level of service to plan for and accommodate alternatives modes of transportation (i.e., bicycle, pedestrian, transit).
- **Policy CIR-1.22:** Complete Streets. Require new urban streets within Urban Communities to be designed and constructed to not only accommodate automobile, truck, and bus traffic, but to also serve all users, including pedestrians, bicyclists, and transit passengers of all ages and abilities. This includes:
 - Creating multi-modal street connections in order to establish a comprehensive, integrated, and connected transportation network;
 - Minimizing curb cuts along non-local streets;
 - Consider planting street trees adjacent to curbs and between the street and sidewalk to provide a buffer between the pedestrian and the automobile, where appropriate;
 - Constructing sidewalks on both sides of streets, where feasible;
 - Coordinating with other agencies and cities to ensure connections are made between jurisdictions; and
 - Incorporating traffic calming devices such as roundabouts, bulb-outs at intersections, and traffic tables.
- **Policy CIR-2.2:** Shared Parking Facilities. Seek to reduce the amount of land devoted to parking at new non-residential developments and encourage the use of shared parking facilities in Urban Communities.
- **Policy CIR-2.3:** Comprehensive Parking Program. Develop and adopt a comprehensive parking program that prioritizes shared parking, walking, biking, and public transportation use during the drafting of Community Plans in Urban Communities.
- **Policy CIR-2.4:** Priority Parking. Require the identification of priority parking areas for vanpools, carpools, and energy efficient and low-pollution vehicles, including consideration of recharge stations for electric vehicles in all Commercial and Business Park-designated development projects.
- **Policy CIR-3.3:** Alternative Transit Fuels. Encourage transit providers to reduce pollution from transit fleet vehicles, such as purchasing vehicles that use alternative fuels or providing fueling/charging stations.
- **Policy CIR-3.6:** Park-and-Ride Facilities. Establish park-and-ride facilities in Urban Communities with a high commuter population.
- **Policy CIR-3.7:** Commute Trip Reduction. Support efforts to reduce auto commute trips, such as mixed-use developments or private shuttle vans at large employment centers.
- **Policy CIR-4.1:** Bicycle and Pedestrian System. 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.

- **Policy CIR-4.2:** Bicycle Lanes and Pedestrian Paths. Require all new or major reconstructed streets within Urban Communities to accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the costs of including bikeways and walkways would be excessively disproportionate to the need or probable use.
- **Policy CIR-4.5:** Bicycle Storage Facilities. Require the installation of bicycle storage facilities at major transportation terminals and commercial and employment centers.
- **Policy CIR-4.10:** Bicyclist Amenities. Require non-residential developments to provide amenities for bicyclists, including bicycle racks, showers, and changing facilities.

Housing Element

- **Policy HE-1.5:** The County shall support infill residential development and other mid- to large-sized residential projects in unincorporated urban communities that have the infrastructure necessary to support such development.
- **Policy HE-1.7:** The County shall encourage the consolidation of parcels to facilitate multi-family residential development.
- **Policy HE-1.8:** The County shall encourage residential development projects to develop at the maximum allowable density.
- **Policy HE-1.10:** The County shall encourage key services and facilities (e.g., public transit, child care facilities, schools, parks, and neighborhood shopping centers) to be located within walking distance of higher density residential development.
- **Policy HE-6.1:** The County shall ensure that new construction meets Title 24 energy conservation requirements.
- **Policy HE-6.2:** The County shall encourage and support residential projects that include sustainable development principles.
- **Policy HE-6.4:** During the review of tentative maps, the County shall encourage new subdivision lots to be oriented to allow for both passive and active solar design to minimize energy losses.
- **Policy HE-6.5:** The County shall encourage the use of solar, wind, other renewable energy resources, and use of water conservation and water recycling systems in residential buildings.

Health and Safety Element

- **Policy HS-6.1:** Development Restrictions in High Risk Areas. Prohibit development in areas that may be more severely impacted by climate change, including areas at high risk of wildfire or flooding, unless proper design mitigation is included in the project.

City of Merced General Plan

The following policies from the Merced Vision 2030 General Plan (City of Merced 2012) are applicable to the UCP Update and VST Specific Plan:

Sustainable Development Element

- **Policy SD-1.1** Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Merced.
- **Policy SD-1.2** Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.
- **Policy SD-1.4** Educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.
- **Policy SD-1.6** Reduce emissions of PM10 and other particulates with local control potential.

County of Merced Climate Action Plan

The County of Merced initiated the process of preparing a climate action plan (CAP) in 2019 and elicited public input; however, the County of Merced has not adopted a formal CAP at the time of preparing this SEIR.

City of Merced Climate Action Plan

In August 2012, the City of Merced adopted its *Merced Climate Action Plan* (Merced CAP). The Merced CAP established a target of achieving 1990 levels by 2020. The Merced CAP was prepared in consideration of AB 32 (i.e., achieving 1990 levels of GHG emissions by 2020); however, the Merced CAP does not extend beyond 2020 and does not show consistency with longer-term state goals (i.e., SB 32 and AB 1279). Moreover, the project is not currently within the jurisdiction of the City of Merced, although it may be annexed as a condition of project approval. Nevertheless, the Merced CAP is not qualified for use under CEQA and is included here for informational purposes.

3.4.2 Environmental Setting

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space, a portion of which is absorbed by the earth's surface, and a smaller portion is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

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. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remain stored in the atmosphere (IPCC 2013).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is considered to be enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2020 was 370 million MTCO_{2e} (CARB 2022). This is less than the 2020 target of 431 million MTCO_{2e} (CARB 2022).

Table 3.4-1 summarizes the statewide GHG inventory for California. As shown in Table 3.4-1, transportation, industry, and electricity generation are the largest GHG emission sectors.

Table 3.4-1 Statewide GHG Emissions by Economic Sector (2020)

Sector	Emissions (MMTCO ₂ e)	Percent
Transportation	141	38%
Industrial	85	23%
Electricity generation (in state)	41	11%
Agriculture and Forestry	33	9%
Residential	30	8%
Commercial	22	6%
Electricity generation (imports)	19	5%
Total	370	100%

Notes: MMTCO₂e = metric tons of carbon dioxide equivalent

Sources: CARB 2022.

Emissions of CO₂ are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (i.e., the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution (i.e., CO₂ dissolving into the water), respectively, two of the most common processes for removing CO₂ from the atmosphere.

In 2012, a GHG inventory for the County of Merced's General Plan Update was conducted using 2005 as the emissions baseline year. The County's baseline year inventory is summarized in Table 3.4-2. As shown in Table 3.4-2, on-road transportation and agriculture livestock are the largest GHG emission sectors for the county.

Table 3.4-2 County of Merced Greenhouse Gas Emissions Inventory for 2005

Sector	Emissions (MTCO ₂ e)	Percent
Transportation	1,297,634	29
Area Sources	49,345	1
Electricity	100,978	2
Natural Gas	93,534	2
Water and Wastewater	3,421	<1
Solid Waste	30,151	1
Agriculture	--	--
Agriculture Livestock	2,287,166	39
Agriculture Equipment	151,214	3
Agriculture Fertilizers	410,699	7
Agriculture Water Pumping	64,861	1
Total	4,489,081	100

Notes: Totals may not add due to rounding.

MTCO₂e = metric tons of carbon dioxide equivalent

Source: County of Merced 2012.

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to IPCC, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 °C (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate California will experience average daily high temperatures that are warmer than the historic average by 2.5 °F from 2006 to 2039, by 4.4 °F from 2040 to 2069, and by 5.6 °F from 2070 to 2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7 °F from 2006 to 2039, by 5.8 °F from 2040 to 2069, and by 8.8 °F from 2070 to 2100 (OPR et al. 2018).

California has experienced several of the most extreme natural events in its recorded history since 2012: a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014–2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR et al. 2018). According to California Natural Resource Agency's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). According to the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration, 2016, 2017, and 2018 were the hottest recorded years in history (NOAA 2019). In contrast, the northern Sierra Nevada experienced one of its wettest years on record during the 2016–2017 water year (CNRA 2018). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires has increased. Eastern portions of Merced County were recently evacuated in response to the SCU Lightning Complex Fire, which began on August 18, 2020 and spanned multiple locations throughout Santa Clara County, Alameda County, Contra Costa County, San Joaquin County, Merced County, and Stanislaus County. The fire burned 396,624 acres and was contained on October 1, 2020.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that is normally held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR et al. 2018).

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and those habitats and species that lack the ability to retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats, where they could outcompete native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders) which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; OPR et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety.

3.4.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The 2001/2004 UCP EIR was prepared prior to the addition of GHGs to the State CEQA Guidelines; therefore, while GHGs would have been emitted from the UCP, these emissions were not estimated or evaluated for significance. The 2001/2004 UCP EIR also did not include an analysis to answer the Appendix G questions that pertain to energy; however, the 2001/2004 UCP EIR did evaluate energy infrastructure; therefore, this analysis supplements the existing energy discussion of the 2001/2004 UCP EIR and meets CEQA requirements. The analysis below determines if the UCP Update and VST Specific Plan would result in significant GHG or energy impacts.

GHG emissions associated with the UCP Update and VST Specific Plan would be generated during construction and operation. For the purpose of this evaluation, GHG emissions are reported both for the full UCP Update (consisting of the VST Specific Plan and the UCP South) to provide a program-level evaluation of buildout, and at the project-level for the VST Specific Plan.

Short-term construction-generated and long-term operational-related GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0 as recommended by SJVACPD and other air districts in California (CAPCOA 2021). Modeling was based on project-specific information (e.g., construction activity, estimated hauling trips, worker trips) where available; assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. Construction emissions for the UCP South were estimated using a 20-year construction period occurring between 2030–2049; construction of the VST Specific Plan was assumed to occur over a 14-year period commencing in 2025 and ending in 2038 using the phasing details provided by the applicant. Combined as a whole, the UCP Update would generate construction emissions from 2025 to 2049.

CalEEMod default energy values were amended to reflect compliance with the 2022 California Energy Code and the first year of full operations for the UCP Update (including the VST Specific Plan) was assumed to be 2050. The VST Specific Plan was assumed to be fully operational by 2039. However, the CalEEMod computer program does not provide yearly estimates for the years between 2035 and 2040; therefore, 2035 was assumed to be the first full year of operation to provide a most conservative estimate of emissions. Notably, the California Energy Code is updated triennially; therefore, residential and nonresidential buildings constructed throughout the lifespan of the UCP Update and VST Specific Plan would likely be more energy efficient and emit less air pollution than is assumed in this analysis as the Title 24 California Building Code continues to decarbonize (i.e., transition to carbon-free sources of power) and become more energy efficient.

The VST Specific Plan was modeled to account for project design features that the applicant has committed to as part of the proposed project. As indicated in Chapter 2, "Project Description," single-family detached dwelling units would be constructed to be 10 percent more energy efficient than current Title 24 standards and multifamily residential and non-residential structures would be at least 25 percent more energy efficient than the 2022 Title 24 standards to account for the special design features included in Section 13.1 of the Specific Plan. The residential land uses proposed for the VST Specific Plan would be held to net zero energy standards, which requires the infrastructure capacity to provide residences with the ability to meet their own electrical needs through onsite rooftop or solar canopy photovoltaic systems. These systems would provide at least 100 percent of the dwelling units' electrical energy demand or equivalent energy saving improvements to achieve the energy efficiency standards. Residential land uses within the VST Specific Plan would also be constructed without wood-burning or natural gas fireplaces or natural gas appliances, and on-site natural gas infrastructure would be limited to commercial and education land uses. GHG emissions for landscaping activity were derived from CalEEMod default values. Emissions estimates are presented in annual values and disclosed for comparison to BAAQMD's thresholds. As discussed further below, BAAQMD's thresholds have been applied because they reflect current State guidance, including Executive Order B-55-18 and AB 1279. Specific model assumptions and inputs for these calculations can be found in Appendix D.

Operation-related mobile-source GHG emissions were modeled based on the estimated level of vehicle miles traveled (VMT) by residents, employees, shoppers, and vendors making deliveries. VMT estimates were derived from data generated during the traffic impact analysis conducted for the project (see Section 3.7, "Transportation"). Mobile-source emissions were calculated using CalEEMod. Indirect emissions associated with electricity and natural gas consumption were estimated using GHG emissions factors for Pacific Gas and Electric. Emissions from solid waste, water, and wastewater were derived using estimates provided for the project. Detailed model assumptions and inputs for these calculations are presented in Appendix D.

THRESHOLDS OF SIGNIFICANCE

As described above, the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the UCP Update and VST Specific Plan impact on climate change is addressed only as a cumulative impact.

The significance criteria used to evaluate project impacts on climate change under CEQA are based on Section 15064 of the CEQA statute and relevant portions of Appendix G of the State CEQA Guidelines, which recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Implementation of a project would result in a cumulatively considerable contribution to climate change if it would:

- generate GHG 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 GHGs.

With respect to GHG emissions, State CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The State CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance-based standards" (14 CCR Section 15064.4[a]). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR Section 15064.4[c]). The State CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR Section 15064.4[b]):

- The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

State CEQA Guidelines Appendix G is a sample Initial Study checklist that includes a number of factual inquiries related to the subject of climate change, as it does on a whole series of additional environmental topics. Notably, lead agencies are not obligated to use these inquiries in fashioning thresholds of significance on these subjects, or on any subject addressed in the checklist. Rather, with few exceptions, CEQA grants agencies discretion to develop their own thresholds of significance. However, lead agencies commonly take the language from the inquiries set forth in Appendix G and to use that language in establishing thresholds. The County has done so here.

SJVAPCD published its *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* in 2009 and incorporated this guidance into the GAMAQI. The guidance provides a tiered approach to evaluating climate change impacts and includes incorporation of various Best Performance Standards. Projects that do not incorporate Best Performance Standards are directed to use a business-as-usual (BAU) methodology to show a 29 percent reduction in GHG emissions. This standard is designed to demonstrate consistency with AB 32.

This approach, however, has not satisfied the courts. The California Supreme Court Decision in the *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. App 4th 204, 224-228, rejected the use of the BAU approach when it lacked substantial evidence demonstrating how it applied to the project location and the type of project. The Court's opinion indicated that a uniform statewide 29 percent reduction from all projects cannot be assumed to sufficiently adhere to state's long-term GHG reduction goals. Therefore, lacking substantial evidence that the 29 percent BAU threshold has considered the project location and the type of project, use of SJVAPCD's current guidance would conflict with the direction provided by the California Supreme Court.

The County has instead applied guidance published by BAAQMD in 2022. BAAQMD's qualitative guidelines are intended to ensure that projects constructed and operated within their jurisdiction contribute to the state's long-term GHG reduction target of carbon neutrality by 2045, as mandated by Executive Order B-55-18. At the time BAAQMD's thresholds were developed, Executive Order B-55-18 comprised the most ambitious regulatory requirement (i.e., carbon neutrality). As discussed in Section 3.4.1, "Regulatory Setting," the state adopted AB 1279 in 2022, codifying the goal of achieving carbon neutrality by 2045. Therefore, compliance with BAAQMD's guidance would be indicative of compliance with state requirements (Executive Order B-55-18 and AB 1279) to achieve carbon neutrality by 2045.

BAAQMD's thresholds are structured to provide projects with two options to demonstrate consistency with the goal of carbon neutrality by 2045: (a) incorporation of certain project design elements and (b) incorporation of relevant GHG reduction measures from a qualified CAP. As discussed above in Section 3.4.1, "Regulatory Setting," the County of Merced does not currently have a qualified CAP. Accordingly, option (a) of BAAQMD's guidance will be applied, which includes the elimination of on-site natural gas, a reduction in VMT aligning with OPR's SB 743 VMT targets, and compliance with off-street electric vehicle charging requirements in the most recently adopted CalGreen code. While these project design elements were developed by BAAQMD for projects within its jurisdiction, they are considered appropriate thresholds that may be applied to other projects within the state. As described above, GHGs are global pollutants that have the capacity to affect the climate regardless of the location where they are emitted. The aforementioned project design features included in BAAQMD's guidance are intended to be used by local governments to provide the infrastructure to assist CARB and other agencies in implementing statewide policies and programs to support the State's long-term GHG reduction goals of carbon neutrality and an 85 percent reduction in 1990 levels of emissions by 2045 as mandated by AB 1279.

These project design features also align with Appendix D: Local Actions of the 2022 Scoping Plan, which directs municipalities to promote fully decarbonized development, reduce VMT, and provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standard of the CalGreen Code at the time of project approval. Projects that implement these measures would not conflict with the 2022 Scoping Plan.

BAAQMD's thresholds are intended to be used to satisfy both questions of Appendix G: (a) generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or (b) conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Implementation of BAAQMD's project design features would demonstrate that a project would not either directly or indirectly emit a significant amount of GHG emissions, and would also show compliance with the most recent version of CARB's Scoping Plan (i.e., 2022 Scoping Plan) which provides the framework to meeting the State's long-term goal of achieving carbon neutrality by 2045. Therefore, by using BAAQMD's threshold of significance, this analysis satisfies the two questions of Appendix G and distills the project's contribution into one impact.

Therefore, BAAQMD's guidance will be applied to the project. The project would not result in a significant climate change impact if it would meet the following criteria:

- The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under Public Resources Code Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
- Achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted SB 743 VMT target,

reflecting the recommendations provided in OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA:

- Residential projects: 15 percent below the existing VMT per capita
- Office projects: 15 percent below the existing VMT per employee
- Retail projects: no net increase in existing VMT
- Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

PLAN CHARACTERISTICS

UCP Update

The proposed UCP Update includes the following policies relevant to climate change and energy (shown with edits to the Adopted UCP policies tracked):

- **Policy LU 4.1:** ~~DELETED Adoption of the UCP shall be dependent upon the prior adoption of The Long-Range Development Plan (LRDP) and approval of Phase I for UC Merced by the Regents of the University of California.~~
- **Policy LU 5.8:** Develop the Town Center with the highest densities in the University Community to reinforce its role as the "heart" of the community and foster pedestrian and transit use, according to the following standards:
 - ~~C-MU r~~Retail and office uses (free-standing): Minimum floor area ratio (FAR) of 0.75 ~~0.74~~ and maximum of 3.0 (one to six stories).
 - ~~C-MUR m~~Mixed use Town Center (housing/retail or office): Minimum FAR of 0.75 ~~1.5~~ and maximum 3.0.
 - ~~C-MUS~~ Mixed uses zone for services, institutional uses and visitor oriented uses with a minimum FAR of 0.40 ~~0.35~~ and maximum of 1.0 for retail or office components (three to six stories).
 - Parking in the Town Center may be one space per 500 square feet. Parking requirements elsewhere in the UCP shall be per the City of Merced zoning ordinance.
 - Residential: An average range of 8 to 35 ~~32~~ units per net acre (~~minimum height of two stories~~). Individual sites may be developed at lesser densities provided that the average density for the Town Center planning area is achieved.
- **Policy LU 5.16:** Develop and design public streetscapes to enhance pedestrian activity including the integration of landscape, street furniture, signage, lighting, public art, distinctive paving materials, and other amenities. ~~Local and/or campus artists should be involved in the design of streetscapes, in lieu of the exclusive use of traditional "catalogue" elements, to impart a distinctive character and enhance ownership by the community.~~
- **Policy AQ 1.2:** Work with the City of Merced and other jurisdictions and agencies to address cross-jurisdictional and regional transportation and air quality issues. Encourage staff planners to participate in activities of neighboring jurisdictions and regional agencies. The aim would be to examine congestion in other jurisdictions caused by University Community projects, effects of projects on viability of regional transit and pedestrian-oriented projects, progress of jurisdictions to construct segments of regional bikeway plans, proposed land use or circulation changes that would alter traffic flow or increase urban sprawl in jurisdictions.
- **Policy AQ 2.1:** Integrate planning efforts by considering air quality when planning land use and transportation systems and considering air quality and mobility when reviewing any proposed change to the land use pattern.
- **Policy AQ 2.2:** Develop a system congestion management plan to reduce motor vehicle trips, as defined by the UCP's transportation policies (T 7.1 to 7.4). These include policies for (a) *the* provision of grid streets and "flexible corridors" that provide travel-mode options and that encourage future capacity and (b) street design standards for bicyclists, pedestrians, and traffic calming.

- **Policy AQ 2.3:** Establish land use pattern, densities, and pedestrian- enhanced infrastructure, in accordance with Land Use policies, to encourage the use of alternative transportation modes and reduce the length and number of motor vehicle trips. These encompass policies to manage the density and intensity of development; develop a planned “heart” of the community, parklands, pedestrian- oriented mixed use districts, neighborhood convenience commercial, neighborhood schools, and centralized large-scale commercial and office uses in village centers with appropriate transportation services; as well as compact and orderly outward expansion of contiguous development and infrastructure through “land use phasing” and urban limit lines.
- **Policy AQ 2.4:** Design streetscapes, housing, and village centers to improve access by pedestrians and bicyclists. Land Use policies provide a structure that maximizes pedestrian activity and transit use.
- **Policy AQ 2.5:** Implement a transportation infrastructure that provides opportunity for reduced trip lengths and minimized new trips while anticipating a multi-modal system in accordance with Transportation policies. This should include internal and regional public transit systems, supporting transit infrastructure and amenities (shelters, benches, bus turnouts, route signs, park and ride lots, and so on), multi-modal connections to regional transportation system (airports and passenger rail facilities), a comprehensive system of bikeways, required bicycle storage and parking at appropriate sites, and infrastructure for telecommunication facilities.
- **Policy AQ 2.6:** Require the installation of electrical outlets in residential, commercial, and industrial buildings to support the use of low emission landscape and property maintenance equipment.
- **Policy AQ 4.1:** ~~DELETED~~ Implement energy conservation policies defined in the Energy policy section of the University Community Plan.
- **Policy AQ 5.2:** Promote the use of alternative fuel construction equipment, where feasible, and the use of low emission on-site stationary equipment. (*Imp 2.7*)
- **Policy AQ 5.3:** Limit the hours of operation of heavy-duty construction equipment and the amount of construction equipment in use at any time.
- **Policy AQ 6.1:** Require the installation of low emitting, EPA-certified wood-burning appliances, natural gas fireplaces, or pellet stoves in residential developments when such heating units are incorporated in any development.
- **Policy AQ 7.1:** Identify opportunities for and encourage the procurement and use of alternative fuel vehicle fleets by large employers in the University Community and UC Merced. Collaborate with UC Merced on an alternative fuel vehicle shuttle system servicing the campus, the University Community, and the City of Merced.
- **Policy A 4.1:** (Revised and renumbered to Policy A 3.1)
- **Policy T 4.2:** Work with UC Merced to establish convenient pedestrian and bicycle access routes to and through Campus.
- **Policy T 4.3:** Install amenities to serve bicyclists and pedestrians, such as secure and convenient bicycle parking and shaded seating areas at public facilities.
- **Policy T 4.4:** ~~DELETED~~ Establish bicycle parking standards for new development.
- **Policy T 4.5:** ~~DELETED~~ Work with the transit provider to encourage transit- bicycle transfers by installing bike racks on buses.
- **Policy T 5.5:** Establish development standards, such as inclusion of handicap-accessible bus stops and shelters, to make transit attractive. Require development to fund its fair share of necessary transit facilities.
- **Policy T 5.6:** ~~DELETED~~ Establish a County/City/University transportation clearinghouse and website that provides information on local transit services and alternative travel options.
- **Policy T 7.1:** ~~DELETED~~ Encourage non-residential developments to offer telecommute and flexible work-hour opportunities, and provide employee incentives for using transit, ridesharing, bicycling, and walking.

- **Policy T 7.2: ~~DELETED~~** Locate parking at strategic intercept points to minimize driving into and through central areas of the Community and Campus. Serve remote parking with frequent transit shuttles.
- **Policy T 7.3: ~~DELETED~~** Promote ridesharing through public information and outreach.
- **Policy T 7.4: ~~DELETED~~** Encourage non-residential developments to provide amenities for bicyclists, including showers and changing facilities.
- **Policy IE 1.1: ~~DELETED~~** Require that an Energy Services Plan for the entire University Community be developed as a component of the Infrastructure Master Plan and approved either before, or in conjunction with, approval of the first sub-area Specific Plan. This Plan shall consider the phasing of the construction of the University Community to ensure that the infrastructure and capacity of the energy systems is able to meet the energy needs. Require that the design of the energy systems for each Specific Plan comply with the provisions of the Energy Services Plan.
- **Policy IE 1.2: ~~DELETED~~** Encourage the development of a diversified energy system that relies on electricity generated from nonrenewable resources and natural gas only when they are the best solution and instead uses renewable resources (e.g., solar and wind) and passive energy systems (e.g., natural light and ventilation) to the extent possible.
- **Policy IE 1.3: ~~DELETED~~** Require that sufficient electricity and natural gas distribution facilities be designed, located, and constructed to meet energy demands prior to occupancy.
- **Policy IE 1.4: ~~DELETED~~** Consider the use of portions of the UCP site and/or nearby properties for the development of alternative energy generation facilities (e.g., solar collectors or wind generators) that would reduce the dependency upon electricity generated from nonrenewable resources or natural gas supply.
- **Policy IE 1.5: ~~DELETED~~** The Energy Services Plan shall be flexible and able to take advantage of future technology advances.

VST Specific Plan

Specific policies related to climate change include the following:

- **Policy 13.1:** In order to reduce greenhouse gas emissions, provide savings for project residents, and reduce the need for offsite energy sources, the project will integrate special energy conservation and production features. All residential units shall be all-electric, with natural gas infrastructure extended only to non-residential uses. The cumulative effect of these code modifications will be the reduction of greenhouse emissions from building sources (non-mobile or indirect sources) by 50 percent, and annual energy cost savings to homeowners of \$1,000 to \$1,500. The additional features and mitigations described here are estimated to reduce total vehicle miles travelled by 25 percent, and shift an additional 25 percent of trips from fueled vehicle trips to EV trips, bikes and pedestrians. A total of 50 percent reduction on gasoline and diesel fueled vehicles miles is conservatively estimated resulting in a 35-45 percent overall reduction in GHG emissions. The energy sources for the project are estimated to be 95% carbon free, in conformance with California Air Resources Board's (CARB) 2022 Scoping Plan and "High Electrification" strategy. If necessary, the City shall adopt the necessary amendments to the City's building code to implement the inclusion of Non-Mandatory Energy Code features and Tier 1 and Tier requirements specified herein.

The overall intent of the recommendations, standards and guidelines below is to implement CALGreen Tier 1 and Tier 2 requirements in the project. These changes anticipate likely California energy code changes in 2025. When combined with the requirements for Solar PV in Section 13.2 below, it is expected that the structures will meet the California Energy Commission's Energy Design Rating criteria for Time Dependent Value ("TDV") Zero Net Energy. The energy conservation measures described below are those which have a demonstrable positive benefit to cost ratio.

- **Policy 13.1.1:** All buildings and structures shall meet the 2022 "Net Zero" energy conservation standards adopted by the State of California, and CALGreen Tier 1 and Tier 2 requirements.

- **Policy 13.1.2:** Energy conservation measures should give priority to the thoughtful design of structures to take advantage of passive cooling and heating, including cross ventilation, solar exposure, solar thermal massing strategies.
- **Policy 13.1.3:** Building and structures shall use high-performance Advance Framing (AF) and/or Structurally Insulated Panel (SIP) techniques, where technically feasible, to reduce the amount of framing lumber and the heating and cooling loss associated with frequent framing intervals. Advanced framing techniques qualify as Reduced Thermal Bridging under section 4.4.5 of the Energy Star Thermal Enclosure System Rater Checklist (ver. 3, rev. 5). Advance Framing techniques may include, but are not limited to the following:
 - a) Increased framing member spacing, typically to 24 inches on center, effectively trimming the number of required studs by about one-third. Perimeter walls may be built with 2x6 wood framing spaced 24 inches on center have deeper, wider insulation cavities than conventional 2x4 framing spaced 16 inches on center, thereby increasing the amount of insulation inside the wall to at least R-20 and improving the whole-wall R-value.
 - b) Use of insulated corners to eliminate the isolated cavity found in conventional three- or four-stud corners, making it easier to install insulation and providing for more cavity insulation space. Advanced framing wall corners can include insulated three-stud corners or two-stud corner junctions with ladder blocking, drywall clips, or an alternative means of supporting interior or exterior finish.
 - c) Advanced framing ladder junctions should be used at wall intersections with 2x blocking at 24-inch on center vertical spacing. This method requires less than 6 feet of blocking material in a typical 8-foot tall wall. In conventional walls, interior wall intersections include a stud at each side of the intersecting wall, which can require as much as 16 feet of stud lumber plus additional blocking material.
 - d) Advanced framing headers offer increased energy efficiency by replacing framing materials with space for cavity insulation inside the header. Advanced framing headers are sized for the loads they carry and are often installed in single plies rather than double. Wood structural panel box headers are another option to consider that maximize the insulatable cavity while providing the structural support via the wood structural panels that are already used on the exterior of the building.
- **Policy 13.1.4:** Quality Insulation Installation (“QII”) shall be used per California Energy Commission standards and Insulation Stage Checklists to ensure high performing insulation systems. QII ensures that insulation is installed properly in floors, walls, and roofs/ceilings to maximize the thermal benefit of insulation. Depending on the type of insulation used, QII can be simple to implement for only the additional cost of HERS verification. Batt insulation may require an increase in installation time over standard practice because batts may need to be cut to fit around penetrations and special joists.
- **Policy 13.1.5:** Compact Plumbing (“CP”) strategies shall be used to reduce water and water heating waste. These will include reducing the total run from the water heating unit to the hot water dispensing appliances, “demand” recirculating hot water systems, back-to-back and stacked plumbing fixtures, and other techniques.
- **Policy 13.1.6:** The buildings and structures in the project shall provide for indoor water use that is at least 25 percent below current citywide average, and outdoor water use that is 30 percent below the City of Merced average, to achieve a targeted average usage of 100 gallons per day per capita. WaterSense fixtures, or their equivalent, shall be used for all appliances, and all appliances shall comply with CalGreen standards for water use efficiency.
- **Policy 13.1.7:** Passive solar strategies shall be used in all buildings to the greatest degree practicable. At least 75 percent of the structures in a neighborhood should have the longer roof line axis within 15 degrees of east-west. Buildings should be designed to include roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows (passive solar design). Roofing materials shall be used which have a solar reflectance value meeting the EPA/DOE Energy Star® rating to reduce summer cooling needs.
- **Policy 13.1.8:** City infrastructure should utilize strategies and improvements to conserve energy. These include: 1) usage of roundabouts where possible to avoid the usage of electrically powered traffic signals; 2) usage of high-efficiency LED street lights; 3) usage of high-efficiency LED traffic signals. Where traffic signals are modified as

part of this project, signal heads with low-efficiency incandescent fixtures shall be modified to have high efficiency LED fixtures, where possible; 4) bus stops shall include PV systems to support the power requirements; and, 5) street lighting, park lighting and area lighting shall be designed to limit errant light.

- **Policy 13.1.9:** Design plans for units shall provide for the use of battery powered or electric landscape maintenance equipment for new development. At least one exterior convenience outlet shall be provided for each yard area that requires regular maintenance. Two outdoor outlets shall also be provided for any private outdoor activity/patio areas.
- **Policy 13.1.10:** Each dwelling unit shall be designed to provide a convenient storage area for bicycles that is easily accessible. This may include storage space in garage for bicycle and bicycle trailers, or covered racks / lockers to service the residential units, or front porch bike lockers.
- **Policy 13.1.11:** Residences shall use all-electric appliances.
- **Policy 13.1.12:** To encourage the use of electric vehicles, private residential garages shall be equipped with a dedicated 240V/40A circuit or outlet for electrical vehicle charging in conformance with the California Green Building Code and the National Electrical Code. Residences with common parking areas such as the R-3, R-4 and Neighborhood Commercial areas shall be equipped with electric vehicle charging receptacles and stations in conformance with CALGreen Tier 1 and Tier 2 standards.
- **Policy 13.2:** Solar PV systems shall be included on all structures and buildings sufficient to produce 100 percent of the projected electrical demand for the type of building unit (but not including electrical demand for EV charging stations). This may be provided through a combination of solar canopies for R-3, R-4, Neighborhood Commercial/Town Center and public park uses, rooftop solar panels, solar shingles and other methods. Guidelines for specific unit types and land uses are as follows:
 - **Policy 13.2.1:** R-1 Single Family. These uses should provide between 350 and 400 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 10,000 kWh per year, or as may be calculated in the energy analysis for the structure.
 - **Policy 13.2.2:** R-2 Cluster Single Family. These uses should provide between 325 and 375 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit (to generate at least 7,800 kWh per year, or as may be calculated in the energy analysis for the structure. Because of the orientation of these uses from a common driveway from an east-west street, care should be taken to orient the longer roof along the east-west axis where possible. There are limited opportunities for solar canopies in guest parking areas, except where these spaces are used for car sharing stations.
 - **Policy 13.2.3:** R-2 Cluster Single Family. These uses should provide between 275 and 325 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 7,500 kWh per year, or as may be calculated in the energy analysis for the structure. Because of the orientation of these uses from a common driveway from an east-west street, care should be taken to orient the longer roof along the east-west axis where possible. There are limited opportunities for solar canopies in guest parking areas, except where these spaces are used for car sharing stations. Surface material and finish shall be non-glare for airport compatibility.
 - **Policy 13.3.4:** R-3 Units. These uses should provide 275 and 325 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 7,500 kWh per year, or as may be calculated in the energy analysis for the structure. Solar canopies in guest parking spaces may provide the predominant share of the total requirement of 7,500-8,000 square feet of total solar array area, and the solar canopies are the preferred method of achieving this objective because of the required orientation of these uses, and the sensitive architectural setting. Where possible, units should provide rooftop solar water heating units. Surface material and finish shall be non-glare for airport compatibility.
 - **Policy 13.2.5:** R-4 Apartment Units. These uses should provide 175 to 225 square feet of equivalent south-facing tilted total solar panel surface area per dwelling unit to generate at least 5,000 kWh per year, or as may be calculated in the energy analysis for the structure. Solar canopies in guest parking spaces may provide all or the

predominant share of the total requirement of 17,750 square feet of total solar array area, and the solar canopies are the preferred method of achieving this objective because of the required orientation of these uses, and the sensitive architectural setting. Where possible, these units should provide solar water heating units or pre-heating units. Surface material and finish shall be non-glare for airport compatibility. These solar canopies are to be located around the perimeter of the site along the west and north boundaries so that they function as noise attenuation barriers as well.

- **Policy 13.2.7:** For commercial buildings larger than 5,000 SF, solar PV shall be installed to provide a minimum of 25 percent of the electrical requirement for the structure, if feasible based on roof area and building constraints.
- **Policy 13.3:** Water is a valuable resource. It provides irrigation water for Merced County's farms and potable water for its residents. The state has provided various mandates for conservation by water efficient landscaping, requirements for efficient plumbing fixtures, and the requirement for projects to not use groundwater in excess of the safe yield of the local groundwater aquifer. The buildings, structures and public improvements in the project are intended to comply with the draft groundwater sustainability plan for the Merced Irrigation-Urban Groundwater Sustainability Agency requirement that municipal and agricultural properties not use more groundwater than their pro rata share of the safe yield, which is projected to be 1,300 acre-feet per year. The project will result in water use that is at least 25 percent below current citywide average, with resulting water use equal to approximately 100 gallons per capita per day compared the City's overall us of 127.5 gallons per capita per day. Overall, total project water use will be 1,550 acre-feet (AF) per year equivalent of approximately 2.37 feet per acre. Considering water that is returned to the groundwater aquifer from the wastewater treatment plant, the net impact of the project on groundwater (assuming no city surface water supplies) would be less than 1,000 AF/Year and approximately 1.3 feet per acre. The project shall conform to the following:
 - **Policy 13.3.1:** WaterSense fixtures, or their equivalent, shall be used for all appliances, and all appliances shall comply with CalGreen standards for water use efficiency.
 - **Policy 13.3.2:** Project shall comply with California CalGreen Code.
 - **Policy 13.3.3:** Compact Plumbing strategies shall be used to reduce water and water heating waste. These will include reducing the total run from the water heating unit to the hot water dispensing appliances, "demand" recirculating hot water systems, back-to-back and stacked plumbing fixtures, and other techniques.
 - **Policy 13.3.4:** Turf shall not be permitted for individual yard landscaping in large uniform areas, but it may be used as an accent to an otherwise low water using landscape theme. Landscape plans shall be developed which require lower water usage, and which require lower maintenance. Landscape plans shall reflect the local climate zones and local plant material. Figures 27 through 31 show examples of acceptable usage of turf in yard landscaping. Turf may be used where it is associated with a common open space, parkways, sports field or other common area, especially where an alternative material is not available or appropriate. Where feasible, these areas will be irrigated with recycled water supplies.
 - **Policy 13.3.5:** Landscape and irrigation plans should use drip irrigation systems to the extent feasible, and general broadcast irrigation is discouraged. Individual irrigation system shall also use moisture sensors and rain sensors to eliminate unnecessary irrigation.

ISSUES NOT DISCUSSED FURTHER

All issues related to climate change are discussed in this analysis.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.4-1: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

Construction of the UCP Update and VST Specific Plan would generate a total of 167,000 MTCO_{2e} during the 2025 through 2049 construction period. Operational emissions associated with the UCP Update would result in GHG emissions associated with transportation, electricity, and natural gas combustion, water consumption, and wastewater and solid waste generation. Operation of the UCP Update would generate approximately 40,912 MTCO_{2e} per year. Of this total, operation of the VST Specific Plan would generate approximately 14,833 MTCO_{2e} per year with all project design elements included as a part of the project. Although the VST Specific Plan would include some natural gas, the project would prohibit natural gas for all residential projects, and other project commitments would be sufficient to reduce emissions from on-site natural gas including waste diversion protocols, water conservation practices, incorporation of EV chargers, and VMT-reducing measures. Because the VST Specific Plan would implement sufficient GHG reducing commitments that would offset the emissions from on-site natural gas, this impact would be **less than significant**. However, the UCP South portion of the UCP Update would not meet this standard, therefore, this impact would be **significant and unavoidable** for the UCP Update overall.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR did not evaluate the significance of GHG emissions. Therefore, this analysis serves as an additional analysis to the 2001/2004 UCP EIR.

UCP Update

Construction-related activities would generate GHG emissions from the use of heavy-duty off-road equipment, materials transport, and worker commutes. Based on modeling of the UCP Update, including the VST Specific Plan which could overlap with construction on the UCP South, construction is estimated to generate a total of 167,000 MTCO_{2e} for the duration of construction activities. Consistent with the guidance provided by BAAQMD, construction emissions have been disclosed for informational purposes; however, BAAQMD does not recommend that construction emissions be compared to a numeric threshold of significance as construction emissions represent a small portion of a project's lifetime emissions. Moreover, SJVAPCD does not have a bright-line threshold for evaluating the significance of construction emissions. SJVAPCD recommends best management practices for reducing GHG emissions; however, these are most appropriate for reducing operational emissions and are therefore unsuitable for mitigating construction emissions. Therefore, no significance determination is applied to construction-specific emissions. The significance of the UCP Update's operational emissions is discussed below.

Operation of the UCP Update would directly generate GHG emissions from vehicle movement to and from the project site, on-site natural gas consumption (e.g., HVAC systems, water heaters), and use of landscaping equipment. GHGs would be indirectly emitted from electricity consumption, solid waste disposal at landfills, and water and wastewater treatment.

Table 3.4-3 summarizes the anticipated level of emissions for the UCP Update. Refer to Appendix D for detailed input parameters and assumptions.

The UCP Update would result in approximately 40,912 MTCO_{2e} during the project's first year of operation. Because the UCP Update would not include the necessary project design features for operational purposes recommended by BAAQMD to achieve carbon neutrality by 2045, the UCP Update would result in a **significant** impact.

Table 3.4-3 Greenhouse Gas Emissions of the UCP Update and VST Specific Plan¹

Emissions Sector	MTCO _{2e}
UCP Update and VST Specific Plan	
Mobile Source	18,590
Energy Consumption	14,924
Solid Waste Generation	1,031
Area Sources	2,469
Water Consumption and Wastewater Treatment	1,031
Total Operational GHG Emissions	40,912

MTCO_{2e} = metric tons of carbon dioxide equivalent.

¹ Emissions presented in this table represent the total emissions for the UCP Update, which includes the VST Specific Plan.

Source: Modeled by Ascent Environmental in 2023.

VST Specific Plan

The VST Specific Plan would similarly result in GHG emissions from project construction; however, as noted above, the BAAQMD does not recommend a numerical threshold for assessing a project's construction-related emissions. The emissions from construction of the VST Specific Plan are captured in the estimate provided above for the entire UCP Update (refer to the discussion under the heading "UCP Update").

As explained above, BAAQMD requires projects to commit to certain project design features to demonstrate consistency with the state's goal of achieving carbon neutrality, including the elimination of on-site natural gas, commitment to the Tier 2 standards of the CALGreen Code, and VMT reduction consistent with OPR's guidance in SB 743. The project has committed itself to meeting the Tier 2 standards of the most recent version of the CALGreen Code and has demonstrated a VMT reduction consistent with OPR's guidance (see Section 3.7, "Transportation"), and has made a commitment to prohibit on-site natural gas for all proposed residential properties. However, the VST Specific Plan proposes utility (backup groundwater well power), commercial, and educational land uses that require the use of on-site natural gas to power essential activities specific to these land use types.

Therefore, to demonstrate that the VST Specific Plan can comply with the BAAQMD recommendations, the VST Specific Plan was modeled to show that the additional commitments made by the project would be sufficient to compensate for the GHG emissions generated from on-site natural gas usage on commercial and education land uses. The project would generate 2,064 MTCO_{2e} per year from natural gas usage that must be mitigated using other on- or off-site project design features.

The following project-design features would result in sufficient reductions to satisfy BAAQMD's guidance:

Building Energy

- All land use types would exceed Part 6 of the 2022 Title 24 California Building Code by 15 percent.
- All land use types would be furnished with EnergyStar related appliances.
- All residential land uses would be built to be zero net energy (ZNE) with the capacity to procure 100 percent of their energy from on-site renewable energy.
- Other measures identified in Section 13.1 of the Specific Plan.

Water Conservation

- All land use types would be equipped with low-flow faucets, toilets, and showers.
- Indoor and outdoor water use would be 25 percent below current per capita City of Merced water use.
- Other measures identified in Section 13.3 of the Specific Plan.

Considering the above project features, GHG reductions were applied as credits to the project for measures that are not required by other existing local or State law. Table 3.4-4 summarizes the onsite GHG reductions applied to the project.

Table 3.4-4 GHG Emission Reductions Achieved from VST Specific Plan Project Design Commitments

Emissions Source	Total MTCO ₂ e per Year
Natural Gas	2,064
GHG Reductions	
Electricity	-3,499
Water and Wastewater	-104
Total Onsite Reductions	-3,603
Reduction Needed¹	2,064
Exceeds Reduction?	Yes

Notes: Totals may not add due to rounding.

MTCO₂e = metric tons of carbon dioxide equivalent; GHG = greenhouse gas.

¹ The reduction number is based on the anticipated level of emissions from the use of on-site natural gas for certain land use types.

Source: Modeling conducted by Ascent Environmental in 2023.

The reductions shown in Table 3.4-4 demonstrate that the VST Specific Plan's project design commitments to water and energy efficiency would reduce emissions by a total of 3,603 MTCO₂e per year compared to the anticipated emissions that would occur without these project design features. This total would exceed the 2,064 MTCO₂e per year that would be emitted from on-site natural gas and would offset the project's natural gas emissions by an additional 1,539 MTCO₂e per year. Therefore, although the VST Specific Plan would use natural gas, the modeling illustrates that project features would offset the emissions associated with this use. Therefore, the conditions of BAAQMD's guidance would be satisfied.

The 2022 Scoping Plan and AB 1279 establish target emission levels under the presumption that achieving these targets through GHG emissions reduction would avoid or substantially lessen significant impacts on the environment. Based on the evidence provided in BAAQMD's Justification Report linking the application of best management practices in new development to consistency with the state's goal of attaining carbon neutrality by 2045 (AB 1279), the project's consistency with BAAQMD's project design features for land use development projects indicates that it would not conflict with the state's 2022 Scoping Plan to meet its long-term GHG reduction targets. This impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.4-1: Implement the Bay Area Air Quality Management District's On-Site Project Design Features to Demonstrate the Project's Fair Share in Meeting the State's Long-Term GHG Reduction Targets (UCP South)

The following mitigation measure shall be applied to the UCP South portion of the project site. Prior to the issuance of building permits, the project applicant shall include the following elements in all construction drawings.

- Eliminate all on-site natural gas infrastructure for all land uses.
- Adherence to the most recent Tier 2 requirements of Part 11 of the Title 24 California Buildings Code's (CALGreen Code's) electric vehicle (EV) charging standards.
- Demonstrate consistency with OPR's SB 743 regional VMT standards (i.e., residential projects meeting a 15 percent below the existing VMT per capita, office projects meeting a 15 percent below the existing VMT per employee, and retail projects attaining a no net increase in existing VMT).

- If the aforementioned project design features cannot be incorporated into the project's design, the applicant shall include other relevant project design characteristics such that any additional emissions generated from natural gas, insufficient EV charging, or excessive VMT can be fully offset. Examples of measures that could be applied to individual projects in UCP South include, but are not limited to, the following:
 - implementation of a solid waste diversion program,
 - exceedance of the most recent version of Part 6 of the Title 24 California Building Code (California Energy Code),
 - use of low-flow appliances,
 - use of energy star appliances, and
 - implementation of ZNE buildings.

Significance after Mitigation

UCP Update

Implementation of Mitigation Measure 3.4-1 would help ensure that the UCP South portion of the project would provide the necessary infrastructure to do its fair share in assisting the State in meeting its long-term GHG reduction goal of achieving carbon neutrality by 2045. However, the effectiveness and feasibility of this mitigation could not be assured at the time this Draft SEIR was prepared. While it is foreseeable that application of Mitigation Measure 3.4-1 would be sufficient to reduce impacts to a less-than-significant level, the specific project design features recommended above may be deemed infeasible in the future. The impacts of the UCP Update are cumulatively considerable and are considered **significant and unavoidable** due to these uncertainties.

Although the 2001/2004 UCP EIR did not evaluate GHG emission because standards for evaluation were not in place at the time the analysis was prepared, there are no features of the UCP Update with the potential to result in greater GHG emissions than would be generated from the Adopted UCP. In addition, Mitigation Measure 3.4-1 would reduce the effects of the UCP, compared to the Adopted UCP evaluated in the 2001/2004 UCP EIR.

VST Specific Plan

No mitigation is necessary. (As described above, emissions generated by the VST Specific Plan would result in a less-than-significant impact.)

Impact 3.4-2: Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation

The 2001/2004 UCP EIR did not evaluate impacts related to energy consumption. Energy would be consumed during construction of the UCP Update and VST Specific Plan from the use of heavy-duty construction equipment and commute trips to and from the project site. Energy would be consumed from electricity and natural gas serving the UCP Update and VST Specific Plan; however, the development proposed for the UCP Update and VST Specific Plan would comply with the relevant mandatory portions of the California Energy Code. Moreover, the VST Specific Plan includes various project design features that would reduce natural gas combustion and decrease reliance on non-renewable electricity. The UCP Update and VST Specific Plan would result in less energy consumption than the Adopted UCP because of the newest project design commitments of the VST Specific Plan as compared to what was proposed in the 2001/2004 UCP EIR. Therefore, this impact would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

Section 4.15 of the 2001/2004 UCP EIR quantified the amount of natural gas and electricity associated with full buildout of the UCP, but did not evaluate the significance of energy consumption and whether or not the use of energy was "wasteful, inefficient, or unnecessary" as required by Appendix G of the CEQA Guidelines. Therefore, this analysis shall serve as an additional analysis to the 2001/2004 UCP EIR. However, the 2001/2004 UCP EIR did estimate the total electrical and natural gas usage of Adopted UCP and provided policies and mitigation to promote energy

conservation and included an Energy Services Plan. Since adoption of the 2001/2004 UCP EIR, the State's building energy code and vehicle fuel standards have increased efficiency requirements. The 2001/2004 UCP EIR estimated that electrical consumption at full buildout for the Adopted UCP would be 65,900 MW per year, and that the natural gas consumption would be 27.4 million therms per year.

UCP Update

Most of the construction-related energy consumption for the development within the UCP Update would be associated with off-road equipment and the transport of equipment and materials using on-road haul trucks. An estimated 1,110,200 gallons of gasoline and 2,910,000 gallons of diesel fuel may be used during construction associated with buildout of the UCP Update (including the VST Specific Plan) (see Appendix D for a summary of construction calculations). The energy needs for construction were assumed to occur between 2025 and 2049 and would be spread throughout the UCP area. Because construction projects would occur independently of each other and would occur within a generally urbanized environment, construction activities would not be anticipated to require additional capacity or substantially increase peak or base period demands for electricity and other forms of energy. Energy would be required to transport demolition waste and excavated materials. The one-time energy expenditure required to construct development would be nonrecoverable. There is no atypical construction-related energy demand associated with the development. Nonrenewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner during construction due to compliance with regulations established to reduce pollution associated with combustion of fossil fuels such as compliance with SJVAPCD's regulations restricting idling to 5 minutes or less.

Compliance with regulations would reduce the potential for wasteful, inefficient, or unnecessary consumption of energy during operation of the UCP Update. Residential and nonresidential development would be required to adhere to the 2022 California Energy Code and any subsequent code updates that are in place at the time that specific projects are proposed, historically occurring every 3 years. It is foreseeable that the Title 24 California Building Code, including the relevant parts that improve the energy efficiency of residential and nonresidential development (i.e., Part 6, California Energy Code, and Part 11, California Green Building Standards Code), will be updated to assist the state in meeting its long-term energy and climate change goals such as SB 100 and AB 1279. Pacific Gas and Electric, the electricity and natural gas utility provider in the plan area, is required to comply with the State's Renewable Portfolio Standard under SB 100 which requires utilities to generate 52 percent of electricity from renewable sources by 2027, 60 percent by 2030, and 100 percent by 2045. Because electricity utilities in the state are required to increase the percentage of renewable energy sources in the electricity they provide, over time electricity consumed as part of the UCP Update would increasingly be provided by renewable sources. Table 3.4-5 summarizes the projected energy consumption of the UCP Update, including the VST Specific Plan.

Table 3.4-5 Operational Energy Consumption of UCP Update and VST Specific Plan

Total	Energy Consumption (Adopted UCP)	Energy Consumption (Proposed UCP Update/VST Specific Plan)	Project Per Capita	Countywide Use Per Capita
All Land Uses				
Electricity (kWh/year)	65,900,000	71,831,809	6,687	10,922
Natural Gas (kBtu/year)	2,740,000,000	190,520,471	17,736	45,820

Notes: kWh/year = kilowatt-hours per year; kBtu/year = kilo British thermal units per year.

Source: Calculations by Ascent Environmental in 2023.

As shown in Table 3.4-5, the project would result in approximately 6,687 kWh/year and 17,736 kBtu/year per capita, respectively. This is significantly less than CEC's projected per capita use in Merced County, which totals approximately 10,922 kWh/year and 45,820 kBtu/year, respectively. This demonstrates that the UCP Update is, by comparison to existing energy consumption in Merced County, an energy efficient project. Moreover, as discussed in Section 3.7, "Transportation," of this SEIR, the UCP Update would generate 4.90 VMT per capita as compared to a countywide average of 15.93 per capita. Additionally, the UCP Update would generate 12.47 VMT per employee as compared to a countywide average of 40.54 VMT per employee. This demonstrates the energy efficiency of the UCP

Update, as VMT directly corresponds with the number of gallons of diesel fuel and gasoline consumed during operation of a project.

As described above in Impact 3.4-1, the project would be required to demonstrate consistency with the GHG reduction strategies adopted by BAAQMD. Because the BAAQMD thresholds are designed to comply with statewide plans for GHG and energy efficiency, projects consistent with these thresholds are inherently consistent with the State's plans for energy efficiency. Removal of Adopted UCP Policies IE 1.1 through IE 1.5 would not reduce the energy efficiency of the UCP Update. Rather, these policies have been removed because they have been superseded by state and local regulations.

Although the 2001/2004 UCP EIR did not evaluate energy impacts, the UCP Update would be more energy efficient than the Adopted UCP due to the current project design commitments by the VST Specific Plan. As noted above under Impact 3.4-1, the VST Specific Plan (which is included as a portion of the UCP Update) has made several project design commitments to reduce energy demand and promote renewable energy use, such as commitments to designing all residential land uses to be ZNE, the use of energy star appliances, and the elimination of on-site natural gas (Policies 13.2, 13.2.1, 13.2.2, 13.2.3, 13.2.4, 13.2.5, and 13.7). These were not prior commitments made in the 2001/2004 UCP EIR that would reduce the project's overall electricity and natural gas demand. Moreover, the VST Specific Plan has invested in several transportation demand management strategies that reduce the project's VMT overall, thus reducing the number of gallons of gasoline and diesel fuel associated with operation of the UCP Update. These project commitments align with various policies contained in the County of Merced General Plan to reduce GHG emissions and conserve energy consumption (e.g., LU-5.D.4, LU-5.D.5, LU-9.1, LU-9.2, and AQ-6.6). Therefore, the UCP Update would not result in the unnecessary, inefficient, or wasteful consumption of energy. This impact would be **less than significant**.

VST Specific Plan

As noted above under Impact 3.4-1, the VST Specific Plan has made several project design commitments to reduce energy demand and promote renewable energy usages, such as commitments to designing all residential land uses to be ZNE, the use of energy star appliances, and the elimination of on-site natural gas (Policies 13.1, 13.2, 13.2.1, 13.2.2, 13.2.3, 13.2.4, 13.2.5, and 13.7). These commitments, which were not made in the 2001/2004 UCP EIR, would reduce the project's overall electricity and natural gas demand. Moreover, the VST Specific Plan has invested in several transportation demand management strategies that reduce the project's VMT overall, thus reducing gasoline and diesel fuel consumption associated with operation of the VST Specific Plan. These project commitments align with various policies contained in the County of Merced General Plan to reduce GHG emissions and conserve energy consumption (e.g., LU-5.D.4, LU-5.D.5, LU-9.1, LU-9.2, and AQ-6.6). Therefore, the VST Specific Plan would not result in the unnecessary, inefficient, or wasteful consumption of energy. Had the 2001/2004 UCP EIR evaluated energy impacts, the VST Specific Plan would be more energy efficient than the land uses proposed at that time due to the design commitments in the VST Specific Plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-3: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

The 2001/2004 UCP EIR did not evaluate impacts related to energy consumption. Energy would be consumed from electricity and natural gas serving the UCP Update and VST Specific Plan; however, the development proposed for the UCP Update and VST Specific Plan would comply with the relevant mandatory portions of the California Energy Code. Moreover, the VST Specific Plan includes various project design features that would reduce natural gas combustion and decrease reliance on non-renewable electricity consistent with the guidance in the 2022 Scoping Plan. Because the VST Specific Plan would implement measures to decarbonize buildings, promote energy efficiency, and install renewable energy infrastructure, this impact would be **less-than-significant**. However, the UCP South portion of the UCP Update would not implement these measures; therefore, this impact would be **significant and unavoidable** for the UCP Update overall.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR did not provide an analysis evaluating the Adopted UCP against a state or local plan for renewable energy or energy efficiency. Therefore, this analysis shall serve as an additional analysis to the 2001/2004 UCP EIR.

UCP Update

Merced County does not have an adopted CAP to use for program- or project-level consistency. Therefore, the 2022 Scoping Plan comprises the best plan to compare the UCP Update against. The 2022 Scoping Plan was adopted alongside Appendix D, which outlines the various local actions that can be taken by municipalities to demonstrate that projects are contributing their “fair share” in assisting the state in meeting the long-term reduction targets of AB 1279 (i.e., reducing emissions by 85 percent below 1990 levels and achieving carbon neutrality by 2045). Specifically, Appendix D of the Scoping Plan promotes the decarbonization of new development through the elimination of natural gas infrastructure for certain land use types, primarily residential.

As discussed under Impact 3.4-1, the UCP South portion of the UCP Update does not prohibit on-site natural gas infrastructure, nor does it incorporate on-site renewable energy systems. It is foreseeable that future project-level specific plans developed for the UCP South portion of the UCP Update may include these measures; however, it cannot be assured at this time that the UCP South would be constructed to align with the 2022 Scoping Plan, or a future version of Merced County’s CAP upon its completion. Therefore, the UCP Update may be inconsistent with the 2022 Scoping Plan’s direction as it pertains to the promotion of renewable energy and energy efficiency. This impact would be **significant**.

VST Specific Plan

As noted above under Impact 3.4-1, the VST Specific Plan has made several project design commitments to reduce energy demand and promote renewable energy use, such as commitments to designing all residential land uses to be ZNE, the use of energy star appliances, and the elimination of on-site natural gas (Policies 13.2, 13.2.1, 13.2.2, 13.2.3, 13.2.4, 13.2.5, and 13.7). These commitments, which were not made in the 2001/2004 UCP EIR, would reduce the project’s overall electricity and natural gas demand. These project commitments align with the direction provided in Appendix D of the 2022 Scoping Plan, which promotes building decarbonization, energy efficiency, and use of renewable energy. Therefore, the VST Specific Plan would not conflict with the 2022 Scoping Plan. This impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.4-3: Implement On-Site Project Design Features that that Address Building Carbonization and Energy Efficiency (UCP South)

Implement the project design features in Mitigation Measure 3.4-1 that address building carbonization and energy efficiency.

Significance after Mitigation

UCP Update

Implementation of Mitigation Measure 3.4-3 would help ensure that the UCP South portion of the project would provide the necessary infrastructure to do its fair share in assisting the state in meeting its long-term GHG reduction goal of achieving carbon neutrality by 2045. However, the effectiveness and feasibility of this mitigation cannot be assured at the time this Draft SEIR is being prepared. While it is foreseeable that application of Mitigation Measure 3.4-3 would be sufficient to reduce impacts to a less-than-significant level, the specific project design features recommended above may be deemed infeasible in the future. The impacts of the UCP Update are cumulatively considerable and are considered **significant and unavoidable** due to these uncertainties.

Although the 2001/2004 UCP EIR did not evaluate GHG emission because standards for evaluation were not in place at the time the analysis was prepared, there are no features of the UCP Update with the potential to result in greater GHG emissions than would be generated from the Adopted UCP. In addition, Mitigation Measure 3.4-3 would reduce the effects of the UCP, compared to the Adopted UCP evaluated in the 2001/2004 UCP EIR.

VST Specific Plan

No mitigation is necessary. (As described above, implementation of the VST Specific Plan would result in a less-than-significant impact due to conflict or obstruct of plans for renewable energy or energy efficiency.)

3.5 HYDROLOGY AND WATER QUALITY

This section identifies the regulatory context and policies related to hydrology and water quality, describes the existing hydrologic conditions at the project site, and evaluates potential hydrology and receiving water-quality impacts that could result from implementation of the UCP Update and VST Specific Plan project. The analysis is based on information obtained from federal and local agencies, recent data pertaining to the Merced Irrigation District (MID), and evaluation of site-specific technical studies. Mitigation is developed as necessary to reduce significant water quality impacts to the extent feasible.

The 2001/2004 UCP EIR included Section 4.8, "Hydrology and Water Quality," which evaluated the potential effects to hydrologic and water quality impacts resulting from project implementation. To address the public comments regarding the hydrologic impacts of the UCP that the County received following release of the draft EIR for the Adopted UCP in 2001, additional technical studies were conducted and a supplemental draft EIR providing further analysis of the potential effect of drawdown from use of proposed wells and the potential changes to local groundwater recharge due to development of the UCP was released in 2004. The supplemental analysis confirmed the conclusion that there would not be significant impacts to groundwater from project implementation. The 2001/2004 UCP concluded that impacts to groundwater supplies and the groundwater table (Impacts 4.8-3 through 4.8-6) would be less than significant with the policies included in the Adopted UCP. Similarly, effects on water quality during operation would be less than significant with implementation of the policies proposed in the Adopted UCP (Impacts 4.8-6 through 4.8-9). The 2001/2004 UCP EIR concluded that impacts to surface water quality during construction would be less than significant (Impacts 4.8-1 and 4.8-2). In response to the notice of preparation, one comment related to hydrology and water quality was received from UC Merced. The comment states that Cottonwood Creek must continue to provide adequate drainage capacity for flows from the campus, and that the campus will continue to design and construct stormwater detention facilities that sufficiently hold runoff such that it does not exceed the pre-construction amount that currently drains into Cottonwood Creek. Refer to Appendix A for comments received on the notice of preparation.

3.5.1 Regulatory Setting

The regulatory setting provided in the 2001/2004 UCP EIR remains applicable to this analysis. The regulatory information provided on pages 2-30 through 2-42¹ of the Supplement to the 2001 draft of the UCP EIR provides a description of the Clean Water Act, including the National Pollutant Discharge Elimination System (NPDES) and total maximum daily loads for impaired waterbodies; the Porter-Cologne Water Quality Control Act; and the County's General Plan, design and improvement standards, and development code. The framework also described the oversight roles of the Federal Emergency Management Agency, and the State Water Resources Control Board and the Central Valley Regional Water Quality Control Board (RWQCB). Federal and state regulations provided in the 2001/2004 UCP EIR remain applicable to this analysis; however, additional regulatory information is provided below to support the analysis of hydrology and water quality and to include regulations that were adopted subsequent to the release of the 2001/2004 UCP EIR. Additionally, because the UCP area would be annexed by the City of Merced, local policies adopted by the City of Merced are also provided below.

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD WATER QUALITY CONTROL PLAN

Merced is located within the boundaries of the Central Valley RWQCB, which is the agency responsible for establishing water quality standards and objectives to protect the beneficial uses of surface water and groundwater within the UCP area. RWQCBs are responsible for protecting surface water and groundwater from both point and

¹ All references to page numbers within Section 3.5 corresponds to the County of Merced University Community Plan Supplemental to the Draft Environmental Impact Report (July 2004).

non-point sources of pollution. The Central Valley RWQCB's 2019 Water Quality Control Plan covers all the drainage basin areas for the Sacramento and San Joaquin rivers. This plan describes beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved. Self-monitoring by municipalities and water companies is required to ensure water quality standards are being met. Data from monitoring is compiled into reports and filed with the RWQCB.

The Central Valley RWQCB issues permits for activities that could cause impacts to surface water and groundwater in the vicinity of any project site during construction and operation activities. Construction activities that result in the disturbance of more than 1 acre would be required to submit a Notice of Intent and stormwater pollution prevention plan (SWPPP) to the State Water Resources Control Board for coverage under the NPDES State General Construction Permit.

NPDES GENERAL PERMIT FOR WASTE DISCHARGE REQUIREMENTS FOR STORM WATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

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; and
- Coordinate the implementation of control measures with other agencies.

EPA WATERSENSE

WaterSense is a voluntary partnership program sponsored by the EPA and is both a label for water-efficient products and a resource for helping customers reduce their water usage. WaterSense-labeled products and services are certified to use at least 20 percent less water and save energy. WaterSense partners with manufacturers, retailers and distributors, homebuilders, irrigation professionals, and utilities.

CALIFORNIA WATER CODE

The California Water Code is enforced by the California Department of Water Resources (DWR). The mission of DWR is “to manage the water resources of California in cooperation with other agencies, to benefit the State’s people, and to protect, restore, and enhance the natural and human environments.” DWR is responsible for promoting California’s general welfare by ensuring beneficial water use and development statewide.

Groundwater Management

Groundwater Management is outlined in the California Water Code, Division 6, Part 2.75, Chapters 1-5, Sections 10750 through 10755.4. The Groundwater Management Act was first introduced in 1992 as Assembly Bill (AB) 3030, and has since been modified by Senate Bill (SB) 1938 in 2002, AB 359 in 2011, and the Sustainable Groundwater Management Act (SGMA); SB 1168, SB 1319, and AB 1739) in 2014. The intent of these acts is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a groundwater sustainability plan (GSP).

By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1). SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs) to oversee the development and implementation of GSPs, with the goal of achieving sustainable management of California’s groundwater basins. The County of Merced and water districts and cities within the Merced Subbasin formed three GSAs in accordance with SGMA: Merced Irrigation-Urban Groundwater Sustainability Agency, Merced Subbasin Groundwater Sustainability Agency, and Turner Island Water District Groundwater Sustainability Agency. The three GSAs coordinated efforts to develop a GSP for the Subbasin.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen) provides mandatory water efficiency and conservation measures for residential and non-residential infrastructure including regulations for water used indoors, outdoors, and in wastewater conveyance.

LOCAL

Merced Groundwater Subbasin Groundwater Management Plan

The Merced Groundwater Subbasin GSP, which was prepared by the water management and land management agencies in the Merced Subbasin, was adopted in November 2019. The GSP was updated in several key places to respond to comments and corrective actions provided by DWR in January 2022 and a revised plan was adopted in July 2022. The purpose of the GSP is to bring the Merced Groundwater Basin, a critically overdrafted basin that is heavily reliant on groundwater, into sustainable groundwater management by 2040. Although the Merced Groundwater Subbasin GSP identifies projects that would increase the water available to users in the basin, these projects are not expected to reduce the groundwater overdraft sufficiently to achieve the basin’s sustainability goals. Given these circumstances, the Merced GSAs plan to allocate the sustainable yield of native groundwater in the basin to each GSA and establish groundwater extraction limits.

Merced Irrigation-Urban Groundwater Sustainability Agency

Merced Irrigation-Urban GSA has been working diligently through a stakeholder-guided process to lay the foundation for effective groundwater management within the Agency’s boundary area to address SGMA-defined “undesirable results.” Merced Irrigation-Urban GSA has been developing the rules, regulations, and policies to implement a program to prevent declining groundwater levels, subsidence, and other sustainability indicators identified in the Merced GSP. Program implementation will include allocating, measuring, monitoring, and enforcing groundwater extraction on non-residential parcels.

City of Merced Urban Water Management Plan

The City of Merced adopted the 2020 Urban Water Management Plan on August 16, 2021. The Urban Water Management Plan describes the City's water system, characterizes water use, describes the water supply sources for the City, and analyzes the reliability of the City's water service for normal, dry, and 5-year drought conditions for the 20-year planning horizon (City of Merced 2021). UMPs are required to be consistent with adopted GSPs.

City of Merced Ordinance No. 15.50.120

The City adopted Ordinance No. 15.50.120 (Stormwater Ordinance) to carry out the enforcement measures found in the NPDES General Permit for Waste Discharge Requirements (WDR) for Storm Water Discharges from Municipal Separate Storm Sewer Systems (MS4) adopted by the SWRCB (Order No. 2013-0001-DWQ). The ordinance includes regulations for the management of construction projects, the layout and design of new projects, compliance with best management practices (BMPs), and the inspection and monitoring of existing facilities that may cause or contribute pollution or illicit discharges to storm drainage systems within the city.

Merced County General Plan

The Health and Safety Element and Water Element of the 2030 Merced County General Plan (Merced County 2013) address water resource issues, such as water supply, water quality, flood risk and protection, and watershed management. The following policies related to domestic water are applicable to the UCP Update and VST Specific Plan project:

- **Policy HS-2.1: Floodplain Management Priorities (RDR/MPSP).** Prepare and adopt a floodplain management program in flood hazard areas that gives priority to regulation of land uses over development of structural controls as a method of reducing flood damage.
- **Policy HS-2.6: Flood Risk Consideration (RDR).** Prohibit new development in existing undeveloped areas (i.e., area devoted to agriculture or open space that is not designated for development) protected by a State flood control project without appropriately considering significant known flooding risks and taking reasonable and feasible action to mitigate the potential property damage to the new development resulting from a flood.
- **Policy HS-2.8: Floodwater Diversion Consideration (RDR).** Require new flood control projects or developments within areas subject to 100- and 200-year frequency floods are done in a manner that will not cause floodwaters to be diverted onto adjacent property or increase flood hazards to property located elsewhere.
- **Policy HS-2.10: Essential Facility Location (RDR).** Prohibit the construction of essential facilities in the 100- and 200-year floodplain, unless it can be demonstrated that the facility can be safely operated and accessed during flood events.
- **Policy HS-2.11: National Flood Insurance Program (SO).** Continue to participate in the National Flood Insurance Program (NFIP).
- **Policy HS-2.13: Open Space Use (RDR).** Encourage open space uses in flood hazard areas.
- **Policy HS-2.15: Flood Control Design (RDR).** Encourage flood control designs that respect the natural topography and vegetation of waterways while retaining dynamic flow and functional integrity.
- **Policy W-2.1: Water Resource Protection (RDR).** Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these water resources.
- **Policy W-2.2: Development Regulations to Protect Water Quality (RDR).** Prepare updated development regulations, such as best management practices, that prevent adverse effects on water resources from construction and development activities.
- **Policy W-2.3: Natural Drainage Channels (RDR/MPSP).** Encourage the use of natural channels for drainage and flood control to benefit water quality and other natural resource values.
- **Policy W-2.4: Agricultural and Urban Practices to Minimize Water Contamination (JP).** Encourage agriculture and urban practices to comply with the requirements of the Regional Water Quality Control Board for irrigated lands

and confined animal facilities, which mandate agricultural practices that minimize erosion and the generation of contaminated runoff to ground or surface waters by providing assistance and incentives.

- **Policy W-2.7: NPDES Enforcement (RDR).** Monitor and enforce provisions of the U.S. Environmental Protection Agency National Pollution Discharge Elimination System (NPDES) program to control non-point source water pollution.
- **Policy W-2.8: Water Contamination Protection (RDR/MPSP).** Coordinate with the State Water Resources Control Board, Regional Water Quality Control Board, and other responsible agencies to ensure that sources of water contamination (including boron, salt, selenium and other trace element concentrations) do not enter agricultural or domestic water supplies, and will be reduced where water quality is already affected.

City of Merced General Plan

The Public Services and Facilities Element; the Open Space, Conservation, and Recreation Element; and the Safety Element of the Merced Vision 2030 General Plan (City of Merced 2012) address issues related to hydrology and water quality. The following policies are applicable to the UCP Update and VST Specific Plan project:

- **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.
- **Policy OS-1.2:** Preserve and enhance creeks in their natural state throughout the planning area.
- **Policy OS-1.5:** Preserve and enhance water quality.
- **Policy OS-5.1:** Promote water conservation throughout the planning area.
- **Policy S-3.1:** Avoid or minimize the risks of flooding to new development.
- **Policy S-3.2:** Implement appropriate land use planning practices to improve flood risk management and reduce the consequence of flooding.
- **Policy S-3.4:** Locate and design essential facilities to minimize flood risk.
- **Policy S-3.5:** Coordinate with other local, regional, State, and federal agencies to improve flood risk management.

3.5.2 Environmental Setting

The environmental setting provided on pages 2-2 through 2-30 of the 2001/2004 UCP EIR remains applicable to this analysis. Regional hydrology, topography, drainage, rainfall, surface water, and flooding information remains consistent with the information provided, as summarized below. Descriptions of groundwater supply, demand, and quality have been augmented below to present the most recent data available.

HYDROLOGY AND DRAINAGE

Surface Hydrology

The San Joaquin Valley is a structural trough, up to 200 miles long and 70 miles wide, that is divided lengthwise into two major subbasins that drain in different locations. The San Joaquin Valley is filled with marine and continental sediments up to 32,000 feet deep that were deposited during inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively (DWR 2004). The San Joaquin subbasin drains the northern portion of the valley via the San Joaquin River and the Tulare subbasin drains the southern portion where there is no outlet. Only during rare high flood flows in the Tulare subbasin can water reach an outlet to the San Joaquin River. Merced County, including the proposed project, are located within the northern San Joaquin subbasin. The area experiences hot summers and mild winters with only 10 to 12 inches of rain per year (Merced County 2012).

The proposed UCP boundary is located 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. The watershed also includes 217 lakes and encompasses approximately 8,926 acres (USACE and UC Merced 2008). This watershed is defined by the US Environmental Protection Agency (EPA) UWA Program as a priority Category I watershed, indicating that the watershed needs restoration (USACE and UC Merced 2008). As shown in Figure 3.5-1, the proposed UCP boundary is divided equally between two subwatersheds; the Fahrens Creek Subwatershed covers the northern half, and the Black Rascal Creek Subwatershed predominately covers the southern half, including a corner of the northeastern-most portion of the UCP area.

Stormwater Drainage

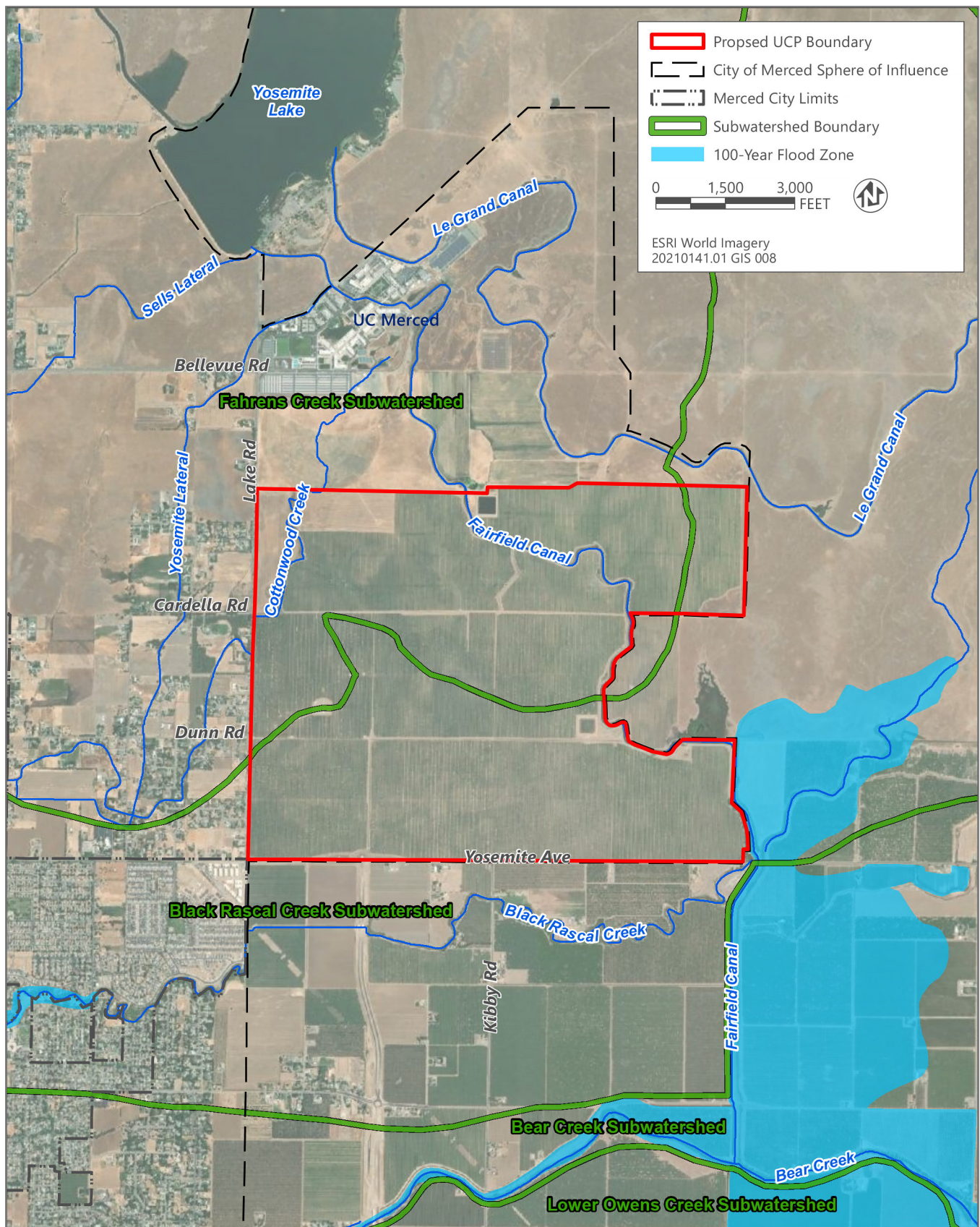
Much of the drainage and stream network has been modified, controlled, or diverted in an effort to contain floodwaters and provide for agricultural irrigation. Additionally, the County enforces stormwater and floodplain management practices, and maintains these storm drainage systems in an effort to prevent flooding (Merced County 2013). The primary natural drainage features in the vicinity of the UCP area include the Merced River and Canal Creek to the north and northwest; Fahrens Creek to the west; and Rascal Creek, Bear Creek, Miles Creek, and Owens Creek to the south and east. In addition, numerous canals are located near the project site, including the Main Canal, Le Grand Canal and Fairfield Canal, which divert water from the Merced River and Lake Yosemite throughout Merced County via numerous, smaller canals and laterals. Creeks and rivers, which generally originate in the mountains and the foothills to the east, seasonally flow from east to west.

The primary drainage features in the UCP area are Cottonwood Creek and Fairfield Canal. Cottonwood Creek is a natural drainage that traverse the UCP area from northeast to southwest and provides natural surface water drainage for the VST Specific Plan area. Cottonwood Creek intersects Lake Road near Cardella Road and runs parallel to Lake Road south of Cardella Road for approximately 900 feet south, and then crosses Lake Road and eventually drains into Fahrens Creek west of the UCP area.

Groundwater Hydrology

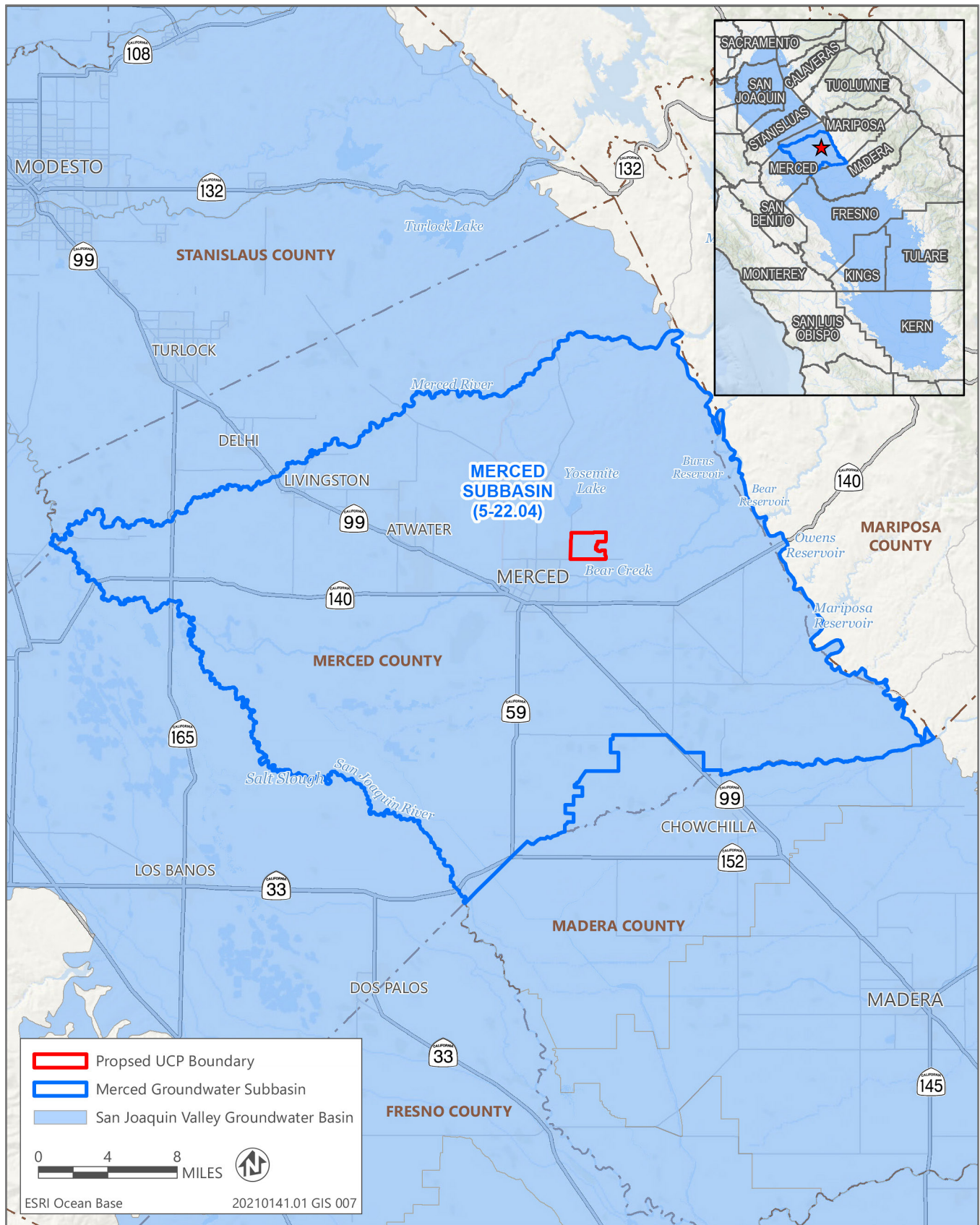
Merced County is comprised of four groundwater subbasins within the larger San Joaquin Valley Groundwater Basin, as illustrated in Figure 3.5-2. The project site is located within the Merced Groundwater Subbasin, the largest of the four subbasins (Merced County 2012). The Merced groundwater subbasin includes lands south of the Merced River between the San Joaquin River on the west and the Sierra Nevada foothills on the east. The subbasin boundary on the southern border follows westerly along the Madera-Merced County Line, alongside the Chowchilla River (DWR Bulletin 118 2021). The boundary continues west along the northern boundary of the Chowchilla Water District and El Nido Irrigation District. The northern boundary of the subbasin is the Merced River. Groundwater in the county flows generally towards the Central Valley trough, west from the Sierra Nevada and east from the Diablo Range towards the San Joaquin River (Merced County 2012).

The Merced Groundwater Subbasin contains an unconfined water body above a clay layer that underlies the western half of the subbasin at depths of 50 to 200 feet with a confined water body that lies below the clay layer and extends down to depths greater than 1,000 feet. The UCP area is east of, and outside of, this Corcoran clay layer. The Merced Groundwater Subbasin is a critically overdrafted basin which is heavily reliant on groundwater. The historical conditions water budget shows an annual average rate of overdraft (“Change in Storage”) of 192,000 acre-feet (AF) per year over water years 2006 through 2015 (Merced SGMA 2022). The “Change in Storage” represents the average annual decline in storage resulting from the Subbasin outflows, principally groundwater pumping. In order to achieve a net-zero change in groundwater storage over a long-term average condition, current agricultural and urban groundwater demand in the Merced Subbasin would need to be reduced by approximately 10 percent, absent implementation of any new supply-side or recharge projects. The goal of the GSP is to increase recharge and reduce groundwater pumping by allocating a portion of the estimated Subbasin sustainable yield to each GSA (Merced Irrigation-Urban Groundwater Sustainability Agency, the Merced Subbasin Groundwater Sustainability Agency (MSGSA), and Turner Island Water District Groundwater Sustainability Agency #1) and coordinating the implementation of programs and projects to increase both direct and in-lieu groundwater recharge, which will, in turn, increase the groundwater and / or surface water available to each GSA (Merced SGMA 2022).



Sources: Data downloaded from FEMA in 2021 and USGS in 2019; adapted by Ascent in 2022.

Figure 3.5-1 Hydrology



Sources: Data downloaded from DWR in 2019.

Figure 3.5-2 Groundwater Basins

The Merced Subbasin has approximately 45 million acre-feet (MAF) of fresh (non-saline) groundwater storage, and analysis of groundwater storage has shown a cumulative change in storage of less than 3 MAF over the 20-year period of 1995-2015. This cumulative change in storage, which includes both representative dry and wet years, reflects a rate of overdraft of approximately 0.3 percent per year. Therefore, reduction of groundwater storage is not a substantial concern in the Merced Subbasin (Merced SGMA 2022b:3-13).

Groundwater overdraft is a reoccurring issue within the Merced Subbasin, resulting from excessive pumping and consistent drought conditions. The Merced Groundwater Subbasin is now one of 21 basins identified by DWR as critically overdrafted and one of 46 basins considered high priority (Merced SGMA 2022a).

The Merced Groundwater Basin is currently the City's only water source. The City water system has 20 groundwater wells with a total well capacity of 54,400 gallons per minute. In 2020, the City supplied 20,026 AF of potable water and 4,050 AF of recycled water. Potable water demands are projected to increase to 31,825 AF by 2040 due to increases in the City and UC Merced population. The City's water supply is projected to sufficiently meet expected demands through 2040 through the installation of additional groundwater wells and construction of a 10 million gallon per day (mgd) surface water treatment plant (SWTP). The SWTP is projected to use surface water supplied by MID and begin operation by 2030. The addition of surface water to the City's water portfolio, continued implementation of water conservation measures, and participation in regional activities to address the sustainable management of the groundwater basin, are critical components for the long-term reliability of the City's water system (City of Merced 2021).

Flood Conditions

Some areas of Merced County experience localized flooding caused by reduced channel capacity, low topography, and partial levee failures. However, there are no areas within the project site that are designated as FEMA flood areas, and the probability of major flooding is very low (Merced County 2012). In general, flooding occurs along waterways, with infrequent localized flooding also occurring due to constrictions of storm drain systems or surface water ponding. The San Joaquin River and its tributaries that flow through Merced, Stanislaus, and Fresno counties form part of the drainage system for over 9,000 square miles of the Sierra Nevada and foothill region. High flows of moderate duration in these rivers and streams can result in flooding and can occur from intense rainstorms. Storms that produce flooding in the county generally occur during winter months from October through April. The annual average precipitation in the county is 11 to 13 inches, increasing eastward (DWR 2004).

The Federal Emergency Management Agency (FEMA) maintains maps of flood hazard zones for most developed areas and provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps (FIRM). FEMA identifies designated zones to indicate flood hazard potential. To minimize the risks to people and property, development typically is restricted or prohibited within the 100-year floodplain. The 100-year floodplain is the area with a 1-percent chance of being inundated in any given year. Although they are called "100-year floods," these events can occur in consecutive years or multiple times in the same year. There is no mapped 100-year flood zone or 500-year flood zone within the UCP area, as illustrated in Figure 3.5-1. Additionally, the UCP area is not included in any dam breach inundation zone maps.

All of the runoff water on the east side of Fairfield Canal is diverted to the diversion channel, which drains into Bear Creek. Bear Creek is located to the south of the UCP area and receives runoff flows from Fahrens and Black Rascal Creek. Bear Creek, Black Rascal Creek, and Fahrens Creek, all flow through the city of Merced, and are tributaries to the San Joaquin River. These creeks are part of the Merced County Streams Group. Lack of channel capacity and problems of erosion and sedimentation, which further reduce channel capacity, are responsible for flooding along all of the creeks in the Merced County Streams Group (Merced County 2013).

Lake Yosemite, which is located approximately 1 mile north of the UCP area, has a 53-foot-high earthen dam located along the lake's southwest side. The lake is owned by MID and is regulated by the DWR Division of Safety of Dams. Failure of the earthen dam would occur if the lake were overtopped by water. According to the MID, the crest of Lake Yosemite Dam is approximately 4 feet higher than the edge of the rim of the lake (USACE and UC Merced 2008). The area to the west and southwest of the lake would experience a gradual flooding if the earthen dam were to fail

(USACE and UC Merced 2008). The project area is located south and southeast of the lake and would therefore be unaffected by possible flooding.

Furthermore, the Fairfield Canal traverses the northeastern portion of the project site while Le Grand Canal is located outside the northern edge of the project site boundary. These canals are constructed with earthen embankments and are subject to erosion. The canals are owned and operated by MID. According to MID, localized flooding could occur if the embankments failed or if the tops were over filled due to excess volume of water. In addition, the levees could also fail due to burrowing animals within the levees and erosion caused by seepage, resulting in the need for frequent repairs (USACE and UC Merced 2008).

Seiche/Tsunami

A tsunami is a long, tall sea wave caused by an earthquake, submarine landslide, or other disturbance. The project site is sufficiently far from the coast that it would not be at risk of inundation by tsunami. A seiche is a standing wave in an enclosed body of water or reservoir caused by a landslide, atmospheric pressure, or earthquake. The UCP area is located outside of the inundation area for Yosemite Lake and is not considered to be at risk of inundation in the event of a seiche.

WATER QUALITY

Surface Water Quality

Surface water quality is affected by surrounding land use, erosion, and stormwater runoff. Land use activities in the area that contribute to impacts on water quality include agricultural irrigation and animal confinement operations, forest management, municipal and industrial uses, storm water, mineral exploration and extraction, hazardous and non-hazardous waste disposal, and dredging (Merced County 2012). Land use changes within the region have created increased stormwater runoff, loss of riparian vegetation, and increased streambank erosion. Discharge from irrigation systems and wastewater treatment facilities change the amount of water and the quality of the water in streams. The project site has been used primarily for grazing, pasture, and agriculture. Typical constituents in runoff from these types of land uses include nitrogen, phosphorus, and coliform bacteria.

The federal Clean Water Act (CWA) Section 303(d) requires states to adopt water quality standards for all surface waters in the United States. Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards, requiring states to identify streams whose water quality is "impaired" (affected by the presence of pollutants or contaminants) and to establish the TMDL or the maximum quantity of a particular constituent that a water body can assimilate without experiencing adverse effect. Where multiple uses exist, the water quality standard must protect the most sensitive use. The State Water Resources Control Board and the applicable RWQCB are responsible for implementing and ensuring compliance with the provisions of the federal CWA and the California Porter-Cologne Water Quality Control Act.

The Section 303(d) list divides the San Joaquin River into four sections: Bear Creek to Mud Slough, Mendota Pool to Bear Creek, Mud Slough to Merced River, and the Merced River to South Delta Boundary. The San Joaquin River from Bear Creek to Mud Slough is listed for boron, chloropyrifos, diazinon, DDT, Group A pesticides, electromagnetic conductivity, mercury, and unknown toxicity. The San Joaquin River from Mendota Pool to Bear Creek is listed for all the above except mercury. The San Joaquin River from Mud Slough to Merced River is listed for boron, dichlorodiphenyltrichloroethane (DDT), Group A pesticides, EC, mercury, selenium, and unknown toxicity. The San Joaquin River from Merced River to the Tuolumne River is listed for DDT, Group A pesticides, mercury, and unknown toxicity (USACE and UC Merced 2008). Surface water quality within the proposed UCP area is unknown. Bear Creek, south of the project site, is listed for indicator bacteria and toxicity (SWRCB 2022). Black Rascal Creek, also south of the UCP area, is listed for toxicity, dissolved oxygen, and indicator bacterial (SWRCB 2022).

Groundwater Quality

Groundwater quality can be affected by many things, but the chief controls on the characteristics of groundwater quality are the source and chemical composition of recharge water, properties of the host sediment, and history of

discharge or leakage of pollutants. The Merced subbasin groundwater is generally characterized by calcium-magnesium bicarbonate at the basin interior, sodium bicarbonate to the west, and calcium-sodium bicarbonate waters to the southwest corner of the basin (DWR 2004). Total dissolved solids (TDS) values range from 100 to 3,600 milligram per liter (mg/L), with a typical range of 200 to 400 mg/L. The Department of Health Services (DHS), who monitors Title 22 water quality standards, reports TDS values in 46 wells in the Merced subbasin ranging from 150 to 424 mg/L, with an average value of 231 mg/L. For 10 wells, electrical conductivity values range from 260 to 410 microsiemens per centimeter ($\mu\text{mhos/cm}$), with an average value of 291 $\mu\text{mhos/cm}$ (DWR 2004). Additionally, there are also localized impairments within the Merced Subbasin, which include areas that are high in hardness, iron, nitrate, and chloride (DWR 2004).

3.5.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

As discussed in Section 1.3, "Scope of the Environmental Analysis," the impacts associated with the UCP Update and VST Specific Plan are made in comparison to the County's 2001/2004 UCP EIR. Evaluation of potential hydrologic and water quality impacts is based on a review of existing documents and studies that address water resources in the vicinity of the project, including the *Virginia Smith Trust Development: Senate Bill 610 Water Supply Assessment* (MKN 2021). Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

THRESHOLDS OF SIGNIFICANCE

An impact on hydrology or water quality is considered significant if implementation of the UCP Update and VST Specific Plan would do any of the following:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water 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, in a manner that would
 - result in substantial erosion or siltation on- or off-site,
 - result in flooding on-site or off-site,
 - create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff,
 - 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.

PLAN CHARACTERISTICS

UCP Update

The proposed UCP Update includes the following policies relevant to hydrology and water quality (shown with edits to the Adopted UCP policies tracked):

- **Policy IW 1.1:** Ensure the provision of water infrastructure (wells and storage) to provide water supply to meet community needs.
- **Policy IW 1.2:** Require that an adequate water supply be demonstrated before approving new development.
- **Policy IW 1.4:** Ensure the provision of water systems that match appropriate water quality to water use requirements.
- **Policy IW 1.9:** Ensure the provision of adequate stormwater conveyance and storage infrastructure to accommodate planned development.
- **Policy IW 1.13:** Ensure the provision of stormwater conveyance and storage infrastructure to accommodate planned development.
- **Policy IW 4.2:** Require multiple use stormwater detention basins, including uses such as stormwater detention, water quality enhancement, recreation, wetland habitat, and species conservation.
- **Policy IW 4.3:** Require the creation and recharge basins for stormwater recharge to aquifer system, when feasible.
- **Policy IW 4.6: ~~DELETED~~** Require the inclusion of water reuse infrastructure within building systems and landscape irrigation systems, except where inclusion of such infrastructure is irrelevant or infeasible.
- **Policy IW 4.7:** Ensure that where recreational uses are included in multiple use detention basins they are designed to avoid inundation of playfields by more than one foot of water during the 10-year storm event, consistent with Merced County standards (as illustrated in Figures 20 and 21).
- **Policy IW 4.8: ~~DELETED~~** Ensure that the design of multiple use detention basins protects public safety by minimizing hazards.
- **Policy IW 5.1: ~~Implement an active~~** Establish building system standards to achieve potable water usage that is 25 percent lower than the five year average for City of Merced residents. ~~conservation program in the University Community to reduce future water demand to the extent allowed by law by establishing building requirements for new construction, providing educational information through local media sources, and establishing effective rate changes to encourage conservation.~~
- **Policy IW 5.2:** Require the use of best available technologies (BAT) for water conservation to achieve the 25 percent reduction target, including, but not limited to water-conserving toilets, showerheads, faucets, and water-conserving irrigation systems.
- **Policy IW 5.4: ~~DELETED~~** ~~Encourage the use of recycled water by industrial, commercial, recreational, and agricultural users through the use of incentives (i.e., differential pricing, uninterrupted supply).~~
- **Policy IW 5.5: ~~DELETED~~** ~~Require the construction of distribution system for recycled water use that makes recycled water assessable to each developed lot in the University Community.~~
- **Policy IW 5.6: ~~DELETED~~** ~~Ensure the provision of recycled water at the appropriate quality required for a specific reuse opportunity.~~
- **Policy IW 5.7: ~~DELETED~~** ~~Ensure the construction of stormwater capture, storage and conveyance systems that allow for the productive use of runoff and that decrease demand for groundwater resources.~~
- **Policy IW 5.8: ~~DELETED~~** ~~Ensure the provision of captured stormwater runoff for irrigation of public facilities and/or recharge to aquifer on-site to offset use of potable water.~~
- **Policy IW 5.9:** Require that grading plans are designed to reduce runoff by capturing rain waters on site and that avoid "crowning" techniques that force rain waters into community drainage facilities.
- **Policy IW 8.1:** Require that groundwater extraction does not result in localized groundwater drawdown that will substantially reduce the production rate of existing nearby wells to a level that would not support existing land uses beyond the reasonable life-cycle expectancy and long-term productivity of those wells in the absence of this project.

- **Policy IW 8.2:** ~~DELETED~~ Prohibit direct discharge of treated wastewater to surface waters.
- **Policy IW 8.3:** ~~DELETED~~ Ensure that wastewater collection and treatment system(s) are designed and constructed to protect groundwater and surface water from contamination by wastewater.
- **Policy IW 8.4:** ~~DELETED~~ Ensure that wastewater treatment levels meet standards for intended reuse or discharge point.
- **Policy IW 8.5:** ~~DELETED~~ Prohibit cross-connection of sanitary sewer and storm drain system.
- **Policy IW 8.6:** Ensure that stormwater detention and groundwater recharge facilities are designed to avoid adverse impacts to groundwater.
- **Policy IW 8.7:** Ensure that stormwater conveyance and storage facilities are designed and constructed to ensure no net deterioration in stormwater quality.
- **Policy IW 8.8:** Ensure that water-related infrastructure is designed to support Merced Irrigation District local and/or regional groundwater recharge program(s).
- **Policy IW 8.9:** Require the application of Best Management Practices (BMPs) for stormwater quality.
- **Policy IW 8.10:** ~~DELETED~~ Encourage sensitivity to water pollution through educational and outreach programs aimed at the residential landowner.
- **Policy IW 9.2:** Encourage the location of stormwater detention basins near existing or re-created stream corridors.
- **Policy IW 9.3:** Encourage the design of stormwater conveyance facilities that retain or re-construct portions of natural drainages to maintain stream velocities at or near pre-developed conditions.
- **Policy IW 9.4:** Encourage the preservation of natural floodplains in the design of water-related infrastructure in order to reduce infrastructure construction costs and potential flood hazards to structures.
- **Policy IW 9.5:** Encourage the design of stormwater storage facilities that maximize opportunities for intermittent shallow water impoundment during the wet season.
- **Policy IW 9.7:** ~~DELETED~~ Prohibit development, grading or structural improvements within the 100-year floodplain, except as consistent with Merced County standards. Recreational activities may be permitted within the floodplain.
- **Policy IW 10.1:** Ensure that long-term plans for the design and construction of water-related infrastructure include flexibility that allows for changes in technology, funding, and/or management.
- **Policy IW 10.2:** Ensure that water systems are designed to anticipate changes in the demand for water of different quality parameters.
- **Policy IW 11.1:** Require that the University Community water supply infrastructure system is consistent with regional water supply plans, particularly the Merced Water ~~Supply~~ Master Plan.
- **Policy IW 11.2:** Require that groundwater wells are sited consistent with City of Merced operational strategy.
- **Policy IW 11.3:** Require that the University Community water supply strategy conforms to existing protocol for groundwater withdrawal and storage established by Merced Irrigation District and the City of Merced, and reflected in the Merced Water Supply Plan.
- **Policy IW 11.4:** Require that the groundwater well distribution conforms to the City of Merced well grid system.
- **Policy IW 11.10:** Ensure that the design of proposed stormwater conveyance and storage facilities is compatible with existing capacity restrictions of MID facilities.
- **Policy IW 11.11:** Ensure that stormwater systems that discharge to MID facilities are designed consistent with MID requirements and construction standards.

- **Policy IW 12.3:** Require that facilities that detain stormwater runoff are designed and constructed so that no adverse flooding impacts are created downstream.
- **Policy IW 12.4:** Ensure that new development provides stormwater detention sufficient to limit outflow to a level consistent with downstream limitations.
- **Policy IW 12.6:** ~~DELETED~~ Require that groundwater extraction does not result in localized groundwater drawdown that will substantially reduce the production rates of existing nearby wells to a level that would not support existing land uses beyond the reasonable life-cycle expectancy and long-term productivity of those wells in the absence of the project.
- **Policy IW 12.7:** Ensure that water-related infrastructure is designed to support local and/or regional groundwater recharge program(s).
- **Policy IW 13.3:** Require the implementation of monitoring programs to ensure systems consistently comply with applicable potable water regulations.
- **Policy IW 13.6:** Require compliance with the National Pollution Discharge Elimination System Phase 2 program and monitoring of stormwater.
- **Policy IW 13.7:** ~~DELETED~~ Evaluate groundwater recharge capabilities every five years and ensure adequate long-term protection of groundwater resources.
- **Policy S 2.1:** Ensure that the structural integrity of the on-site irrigation canals is adequate to support projected water flows within the canals. If necessary, concrete liners can be installed in the canals, or the banks of the canal can be fortified or raised. A qualified engineer should perform structural stability investigations, and make recommendations regarding reinforcement options. This should be completed in concert with the stormwater drainage system design.
- **Policy S 2.2:** Development at the University Community should not occur within an agreed-upon distance (County and Merced Irrigation District to decide) from the toe of the canal's levee in order to protect the structural integrity of the canal system. MID currently maintains a 150-foot-wide easement along the Le Grand Canal, a 100-foot-wide easement along the Fairfield Canal, and a 60-foot-wide easement along the Fairfield Lateral "A" and the Dunn Lateral.

VST Specific Plan

The VST Specific Plan includes policies specific to hydrology and water quality. Drainage requirements related to the Project are intended to meet the City and Regional Water Control Board's Low Impact Development Post Construction Requirements. The performance of designed detention basins and permeable surfaces integrated throughout the project ensure on-site retention of the project's share of stormwater runoff while ensuring the safety of adjacent property.

ISSUES NOT DISCUSSED FURTHER

The UCP area is located outside of the inundation area for Yosemite Lake and is not considered to be at risk of inundation in the event of a dam failure. The UCP area is not in an area subject to flooding from levee failure or sea level rise and is not mapped as a 100-year or 500-year flood zone. Therefore, the project is not subject to dam or levee failure or sea level rise and these issues are not evaluated further in this section. The UCP area is not located any large bodies of water and is not likely to be impacted by seiches and tsunamis. No steep, erodible slopes are located in or near the project area and consequently mudflows and landslides do not present as hazards for the project. Therefore, impacts related to seiche, tsunami, or mudflow are not evaluated in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Substantially Degrade Surface Water or Groundwater Quality

The 2001/2004 UCP EIR determined that the proposed residential and commercial development projects would be required to comply with State and local regulations that would minimize the potential for construction and operational water quality impacts. Construction and operation of the proposed development area and subsequent development projects under the UCP Update and VST Specific Plan project would be required to comply with the same requirements and regulations. Thus, implementation of the amendments and proposed subsequent development would not result in a new significant effect and the impact is not more severe than the impact identified in the 2001/2004 UCP EIR. Compliance with existing State and local regulations would reduce potential construction and operational water quality impacts for the project and proposed development to **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR evaluated the potential for construction in the Adopted UCP area to create increased siltation and sedimentation that could degrade receiving water quality in Impact 4.8-1. The analysis determined that the impact would be less than significant because the project would be required by California law to comply with construction management procedures stipulated in the Central Valley RWQCB's General Construction Activity Stormwater Permit (page 2-52). All construction projects affecting more than 1 acre of area would be required by law to apply for coverage under the State NPDES General Construction Permit, as amended. (Note that new Order, WQ 2022-0057-DWQ, becomes effective September 1, 2023.) The permit requires the implementation of a SWPPP which describes the required BMPs to minimize the potential for surface or ground water quality to be degraded by construction activities. Similarly, all requirements with respect to the preparation and implementation of the EPA's Spill Prevention Control and Countermeasure Program would also apply to construction activities within the University Community. The potential for dewatering during construction and groundwater pump test to result in the discharge of sediments or pollutants to receiving waters, potentially affecting water quality, was evaluated in Impact 4.8-2. This impact would also be less than significant due to compliance with the Central Valley RWQCB General Order for Dewatering and other Low-Threat Discharges to Surface Waters Order 5-00-175 (as amended) (page 2-54).

Potential for development of the Adopted UCP to increase sediment and urban contaminants that could adversely affect receiving water quality during operation was evaluated in Impact 4.8-6. Although compliance with the NPDES Phase 2 MS4 Permit was not required at the time the 2001/2004 UCP EIR was prepared, the analysis determined that the impact would be less than significant due to Adopted UCP policies IW 8.7, IW 8.9, and IW 13.6, which would require no net degradation of stormwater quality through incorporation of BMPs into the stormwater system and implementing a stormwater quality monitoring program (page 2-67). The following BMPs or their equivalent are expected to be included in all future development within the UCP.

- Application for a street sweeping program to remove potential contaminants from the street and roadway surfaces before they reach the drainages.
- Use of stormwater detention basins to collect and temporarily detain stormwater so that sediment can settle out prior to being discharged into the water ways.
- Appropriate signage to all storm drain inlets indication that they outlet to the natural drainage ways.
- Installation of oil and grease and grit separators in drop inlets to capture potential contaminants that enter storm drain systems.
- Minimization of sources of concentrated flow be maximizing use of natural drainages to decelerate flows, collect pollutants and suspended sediment.
- Establishment of vegetation in stormwater drainages to achieve optimal balance of conveyance and water quality protection characteristics.
- Placement of velocity dissipaters, rip rap, and or other appropriate measures to slow runoff, promote deposition of waterborne particles, and reduce the erosive potential of storm flows.
- Prompt application of soil protection and slop stabilization practices to all disturbed areas.

Compliance with Adopted UCP policies and NPDES requirements would reduce the potential impact on surface water quality to a less than significant level.

The potential for use of treated wastewater for irrigation to affect surface and groundwater quality was evaluated in Impact 4.8-8 of the 2001/2004 UCP EIR. The EIR evaluated the effects of a decentralized system for treatment and disposal of wastewater generated by residential users. In the unlikely event that recycled wastewater is used for irrigation, compliance with State regulations, Merced County Department of Health Standards, and Adopted UCP policies would prevent adverse effects to surface or groundwater quality, or public health and safety. In addition, the soil in the project area contains a layer of impervious hardpan that would prevent infiltration of irrigation water into the underlying groundwater aquifer. This impact would be less than significant (page 2-71).

UCP Update

Overall, the UCP area would be reduced to 1,841 acres, from the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,600 square feet. Because the proposed construction disturbance would be less extensive than previously proposed, and compliance with the Construction General Permit and implementation of a SWPPP would still be required, the anticipated affects to surface and groundwater quality from the amended UCP area as a result of proposed construction activities and operation is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR.

The potential for dewatering during construction and groundwater pump test to result in the discharge of sediments or pollutants to receiving waters, potentially affecting water quality, would also be similar to that disclosed in the 2001/2004 UCP EIR. Although the Central Valley RWQCB General Order for Dewatering and other Low-Threat Discharges to Surface Waters Order 5-00-175 has been superseded and subsequently rescinded, the current regulations offer similar protections. Subsequent developers within the UCP area would be required to apply for coverage under the Limited Threat General Order (General Waste Discharge Requirements/NPDES Permit For Limited Threat Discharges To Surface Waters (Order R5-2016-0076/NPDES Permit No. CAG995002).

Similar to the Adopted UCP, the UCP Update would include Policies IW 4.2, IW 8.6, IW 8.7, IW 8.9, and 1 IW 3.6 to reduce impacts related to water quality as well as Policies IW 4.3, IW 5.1, IW 5.2, IW 8.1, IW 8.8, IW 11.3, IW 12.7 to reduce impacts to groundwater supply. These policies are intended to ensure a safe, reliable, and adequate drinking water supply that protects groundwater supply by maximizing water conservation. Amendments to the UCP would include removal of Policies IW 4.6, IW 5.4, and IW 5.5. Policies IW 4.6, IW 5.4, and IW 5.5 are related to the use of recycled water, which is no longer contemplated in the UCP Update. Because the project area would be annexed by the City of Merced (and thereby detached from the Merced Sub-Basin GSA and annexed into the MID-Urban GSA) potable water would be provided by the City of Merced and onsite treatment and reuse would not occur. This would reduce the potential for localized effects on water quality. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

The Adopted UCP and City drainage regulations require compliance with the State Water Quality Control Boards' MS4 requirements for the design and distribution of drainage basin and storm water treatment areas. In accordance with these regulations, areas including open space, parks, landscaped areas, linear parks, would be used to capture, treat, and release stormwater to Cottonwood Creek and the Fairfield Canal at the discharge rates prescribed by State and local regulations. The VST Specific Plan would adopt progressive stormwater treatment and management improvements through the implementation of bio-retention swales, runoff treatment and filtration, permeable paving and pavement systems, water retention gardens and other integrated treatment detention/retention systems in the design for future development. By facilitating continued infiltration in this manner, the VST Specific Plan would not degrade surface or groundwater quality.

The VST Specific Plan would result in similar types of construction and operation in the same general geographic area as was evaluated in the 2001/2004 UCP EIR, and there are no new circumstances that would result in new or substantially more severe impacts. As assumed in the 2001/2004 UCP EIR, compliance with State regulations would address this

potential impact. Project-specific design features would further reduce potential for degradation of water quality. In addition, the VST Specific Plan does not include onsite wastewater treatment, nor the use of treated recycled water. Therefore, the impact of the VST Specific Plan on water quality would be similar to the impact disclosed in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.5-2: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin

The UCP Update and VST Specific Plan project would be constructed in the same location as the Adopted UCP and would result in a similar potential to decrease groundwater supplies or interfere with groundwater recharge as disclosed in the 2001/2004 UCP EIR. However, the Merced groundwater basin is now identified by DWR as critically overdrafted. Total estimated water usage for the VST Specific Plan area at full buildout is 1,535 AF annually. Project implementation is not expected to substantially prohibit groundwater recharge, and anticipated groundwater demand would be reduced as a result of the proposed change in current conditions for the VST Specific Plan area. Therefore, impacts to groundwater recharge for the UCP Update and VST Specific Plan project would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

Groundwater is planned as the source of potable water for the UCP and adjacent campus. Because of the size of the proposed project, there was a general concern that the groundwater used to supply the UCP project could cause a lowering of groundwater levels in the project vicinity and, thereby, affect residents in the project area who also rely on groundwater for their potable water supply. In 2004, this concern prompted studies to determine the effects associated with the increased pumping. The County conducted site-specific studies, including on-site well testing, geohydrologic studies, and groundwater modeling, to determine the effect of groundwater pumping at three wells that were proposed to serve the UC Merced campus and the Adopted UCP on adjacent domestic wells that serve the nearby residents. (The complete analysis is available in Appendix F of the UCP Supplement to the Draft Environmental Impact Report, July 2004.)

The study evaluated the effect of the UC Merced campus and the Adopted UCP on local groundwater resources based on the change in groundwater levels that would result from three factors: (1) increases in pumping from the aquifer; (2) changes in groundwater recharge due to changes in land use; and (3) reduction in pumping due to a reduction in agricultural irrigation. The 2004 study assumed that all of the required water for the UC Merced campus would be pumped from one well located near the intersection of Bellevue Road and Lake Road. With respect to the Adopted UCP, the study used an estimated annual demand of 3,583 acre-feet and assumed that this water would be pumped using two wells, one near the intersection of Cardella Road and Lake Road and the second well near the intersection of Yosemite Avenue and Lake Road. Similar to City groundwater wells, all three wells were assumed to draw water from the deep aquifer and not from the shallow aquifer, which is used by the adjacent residences to draw water. All three wells were modeled to pump groundwater at these rates for a period of 100 years. The analysis showed that groundwater interference could affect the ability of some of the local wells to supply water at the existing rates. However, the potential long-term drawdown of the shallow and deep aquifers in the vicinity of the UCP would not have an environmental effect other than lowering groundwater levels by 25 to 35 feet in the area of the rural residences west of Lake Road (Merced County 2004). The study found that after 100 years the drawdown in the immediate vicinity of the campus well would be about 50 feet. The study determined that approximately 70 percent of the drawdown would occur after 10 years and about 90 percent of the drawdown would occur after the first 30 years of pumping.

The 2001/2004 UCP EIR evaluated the potential for implementation of the project to increase the volume of groundwater extracted from the regional aquifer and lower the groundwater table in Impact 4.8-3. The analysis

estimated the total groundwater demand from the entire UCP area at 3,583 acre-feet per year² and noted that the 1995 Merced Water Supply Plan (which has been superseded by a 2001 update) had allocated approximately 24,200 AF per year to development of UC Merced campus and its associated businesses and community. Because the plan would be consistent with groundwater management and planning efforts, the 2001/2004 UCP EIR concluded the impact to be less than significant.

The effect of new impervious surfaces associated with development on groundwater recharge potential was evaluated in Impact 4.8-4. The 2001/2004 UCP EIR indicates that there is a low potential for groundwater recharge in the UCP area due to soil type and a near-surface hardpan layer that prevents the infiltration of water. The groundwater study accounted for the reduction in recharge with the change in land use (from agricultural and open space to urban impervious surfaces, and also the reduction in recharge from the discontinuation of irrigation and present agricultural uses). Using the reduction in recharge, the assumed locations of the three wells, the pumping rates described above, the regional hydrogeologic model, and pump test data, the study modeled the effect of the land use change on groundwater levels. Because of the relatively low recharge capabilities of the site under existing conditions and Adopted UCP Policy IW 4.3, which would require the creation of groundwater recharge basins, if feasible, in the event localized recharge areas are identified, this impact was found to be less than significant.

Impact 4.8-5 in the 2001/2004 UCP EIR evaluated whether pumping of groundwater from the new wells necessary to meet the projected demand for the Adopted UCP could lower water levels and quality in adjacent wells. As explained in the analysis (page 2-63), Adopted UCP Policies IW 11.2, IW 11.3, and IW 11.4 would require compliance with the City of Merced, MID, and the Merced Water Supply Plan's strategies and standards. Adopted UCP Policies IW 8.1 and IW 12.6 would ensure that groundwater extraction does not result in drawdown that would adversely affect existing or planned neighboring uses. The 2001/2004 UCP EIR concluded the impact to be less than significant.

UCP Update

To evaluate whether the previous analysis would be valid for the UCP Update, the relevant attributes of the UCP Update were examined. The UCP Update involves the development of essentially the same area as was evaluated in the 2004 analysis and the land uses are essentially the same as those as previously evaluated. The primary change is a reduction of about 259 acres in the overall footprint of the UCP. Therefore, the analysis of reduction in recharge included in the 2004 study is still valid and is, in fact, considered conservative.

The CH2M Hill study noted that the effect on nearby wells could be avoided by locating the new wells within the UCP such that they are distant from existing wells (note that the 2004 analysis assumed all three wells to be located adjacent to Lake Road). Furthermore, this impact on adjacent wells would be minimized because wells within the UCP would be developed in compliance with UCP Policies IW 11.2, IW 11.3, and IW 11.4, which would ensure that the groundwater wells are developed consistent with the City of Merced, MID, and the Merced's Water Supply Update Plan standards. The Merced Code and Adopted UCP Policies IW 8.1, IW 11.2, IW 11.3, and IW 11.4 would ensure that new wells constructed as part of the UCP Update would not substantially interfere with the ability of the existing adjacent wells to supply water at existing rates and in sufficient quantity.³

The UCP Update, in and of itself, would not result in any changes in water demands that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,600 square feet. Although the Merced Groundwater Subbasin is currently one of 21 basins identified by DWR as critically overdrafted and one of 46 basins considered high priority (Merced SGMA 2022a), because the proposed land uses would be less intensive and there

² Calculated based on 20 gpd per day per employee, 70 gpd per resident, and 10 gpd per student. Net water use assumes an annual water demand of 2,430 acre-feet per year for indoor use and 2,349 acre-feet per year for outdoor watering; less 754 acre-feet per year of existing groundwater use (USACE and UC Merced 2008: Table 4.8-6).

³ Adopted UCP Policy 12.6, which would "[r]equire that groundwater extraction does not result in localized groundwater drawdown that will substantially reduce the production rates of existing nearby wells to a level that would not support existing land uses beyond the reasonable life-cycle expectancy and long-term productivity of those wells in the absence of the project" would be deleted in the UCP Update. This would not affect the significance conclusion because this is the same commitment as Adopted UCP Policy 8.1, which would not be altered.

would be fewer residents than previously proposed, the anticipated water demand from the amended UCP area is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR.

Based on known soil characteristics in the UCP area, which generally have a low to moderate recharge potential, the 2001/2004 UCP EIR determined that development of the UCP would not have a substantial impact to the infiltration of surface water to subsurface groundwater aquifers. In 2004, the County estimated that the development of the Adopted UCP would result in a net reduction in potential recharge of only 269 acre-feet per year. Furthermore, development within the UCP would be required to comply with Adopted UCP Policy IW 4.3, which requires the development of groundwater recharge basins in areas that are identified to have high recharge potential where feasible. The UCP Update would result in approximately the same amount of land designated for parks, open space, and canals (approximately 280 acres, see Table 2-1 in Chapter 2, "Project Description"). These impervious areas would allow precipitation to infiltrate into the groundwater table. The potential for the UCP Update to interfere with groundwater recharge would be consistent with the affects disclosed in the 2001/2004 UCP EIR.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.1, IW 1.2, IW 4.3, IW 5.1, IW 5.2, IW 8.1, IW 8.8, IW 9.2, IW 11.1 through IW 11.4, and IW 12.7 to reduce impacts related to groundwater supplies. Amendments to the UCP would include removal of Policy 1 IW 2.6. This policy, which requires that groundwater extraction does not result in localized groundwater drawdown that will substantially reduce the production rates of existing nearby wells to a level that would not support existing land uses, is no longer applicable because the VST Specific Plan area would be annexed into the City and water would be provided by the City from a combination of an onsite well and other City wells. As noted in Chapter 2, "Project Description," the on-site well would be needed to meet the City fire flow and peak demands and to provide redundancy for the UC Merced well. Similarly, amendments to the UCP would include removal of Policy IW 8.10 because the project area would be annexed by the City of Merced and the construction of onsite wastewater treatment infrastructure is no longer being considered. In addition, Policies IW 5.1 and IW 5.2 would be revised to specifically require potable water use that is 25 percent lower than the 5-year average for the city reported by DWR. Because groundwater is the primary source of potable for the city, these policy changes are anticipated to reduce impacts related to groundwater supply compared to the 2001/2004 UCP EIR analysis. Therefore, the amended policy framework would continue to adequately mitigate impacts related to increased demands for water services that would affect both groundwater supply and recharge potential. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain **less than significant**.

VST Specific Plan

The VST Specific Plan is designed to provide 3,860 residences, at varying densities, and supporting commercial uses. The VST Specific Plan proposes the development of 177 acres east of the Fairfield Canal that was not evaluated in the 2001/2004 UCP EIR and proposes more intense uses⁴. As described in Chapter 2, "Project Description," development in the VST Specific Plan area would be designed so that the projected annual residential water consumption for the project is 25 percent less than the City's current average daily residential per-person water consumption (estimated at 127.5 gallons per day per person), thereby reducing the amount of groundwater needed to serve the VST Specific Plan area compared to the Adopted UCP. The projected water usage for the VST Specific Plan at buildout would be 1.37 million gallons a day for all uses including residential, commercial, parks, open space and institutional uses (1,535 AF per year). To accomplish this water demand reduction, the VST Specific Plan includes water conservation requirements in Sections 13.3, and 13.3.1 through 13.3.6. These requirements would meet or exceed the current water conservation and management regulations imposed by City and State agencies. The VST Specific Plan would set forth specific design requirements, including the use of plumbing fixtures that would comply with EPA WaterSense and CALGreen flow standards to reduce indoor water usage.

As described above, the 2001/2004 UCP EIR described the area as providing low groundwater recharge value due to the hardpan in the area. Much of this area would be developed with implementation of the VST Specific Plan, which would also be impervious and limit groundwater recharge. However, the VST Specific Plan maintains natural and man-made drainage features known to recharge the underlying groundwater table. In addition, storm water basins

⁴ Note that the area east of the Fairfield Canal was evaluated in the 2009 LRDP EIR (USACE and UC Merced 2008), which also determined that the impact would be less than significant with adherence to regulatory requirements and policy commitments in the Adopted UCP.

would be developed adjacent to the Fairfield Canal to promote groundwater recharge. The Water Supply Assessment (MKN 2021) determined that there are adequate water supplies in the city to serve the VST Specific Plan area. Consistency with the UCP policies described under the "UCP Update" section above would reduce impacts associated with groundwater supply and recharge potential. The VST Specific Plan would not result in new significant impacts or impacts that are substantially more severe than the impacts identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.5-3: Substantially Alter the Existing Drainage Pattern of Project Area

The UCP area is not within a mapped 100-year or 500-year flood zone. Development under the UCP Update and VST Specific Plan project would slightly increase the amount of impervious pavement in project areas. A drainage report performed for the plan demonstrates that the hydrology for the project site complies with state and local regulations, including pre-development runoff and flooding, post-development runoff and flooding, and compliance with various City, State and Federal drainage regulations (rrm design group 2020). The UCP Update and VST Specific Plan project would be subject to all the same requirements and regulations referenced in the 2001/2004 UCP EIR. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR due to the proposed UCP Update. This impact would remain **less than significant**.

Although the UCP area is not prone to flooding, the proposed VST Specific Plan could result in a greater impact than identified in the 2001/2004 UCP EIR due to a proposed modification of the Fairfield Canal and Dunn Lateral. Modifications to MID infrastructure would be approved by MID through an established permit process. Mitigation Measure 3.5-3 would require documentation that the final design of the modified Fairfield Canal cross section would not substantially change the hydraulic flow rates or velocities within the canal such that there would be a substantial increase in the potential for erosion within, or downstream of, the VST Specific Plan area. This impact would be **less than significant with mitigation**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR evaluated the potential for development of the Adopted UCP to alter local drainage patterns in a manner that could increase the rate and volume of stormwater runoff, resulting in localized flooding, in Impact 4.8-7. Modeling of the post-development condition (that would include buildout of the stormwater conveyance system that incorporated numerous detention basins, conveyance pipelines, and pump stations to regulate flow of stormwater) showed that total flows in Fairfield Canal would increase while flows in Cottonwood Creek would decrease with the implementation of the Adopted UCP. Peak flows in Fairfield Canal would not increase because Adopted UCP policies and MID regulations require that water is metered into the canal when capacity is available. This would be beneficial for offsite properties subject to flooding during peak flows on Cottonwood Creek under existing conditions. The stormwater system would be designed to convey and store water up to the 100-year, 24-hour storm (page 2-69). The 2001/2004 UCP EIR determined that the impact would be less than significant.

UCP Update

Through compliance with established discharge requirements, the 2001/2004 UCP EIR concluded that addition of stormwater flows to Fairfield Canal would not exceed the capacity of the canal and, therefore, would not result in an increased or changed risk of levee failure due to overtopping (Impact 4.8-9, page 2-71). Further, as indicated above, although compliance with the NPDES Phase 2 MS4 permit was not required at the time the 2001/2004 UCP EIR was prepared, the analysis determined that the impact would be less than significant due to Adopted UCP Policies IW 5.9, IW 9.3 through IW 9.5, IW 12.3, and IW 12.4, which would require no net degradation of stormwater quality through incorporation of BMPs into the stormwater system and implementing a stormwater quality monitoring program. The 2001/2004 UCP EIR determined that the development would not 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.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.9, IW 1.10, IW 1.13, IW 4.7, IW 11.10, IW 11.11, IW 12.3, IW 12.4, S 2.1, and S 2.2 to reduce impacts related to the alteration of existing drainage patterns. The amended policies would continue to adequately minimize impacts related to alteration of drainage patterns. Project implementation is not expected to substantially alter the existing drainage patterns. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

The VST Specific Plan includes a redesigned version of the Adopted UCP stormwater system. The Adopted UCP, and City drainage regulations require compliance with the State Water Quality Control Board's MS4 requirements for the design and distribution drainage basin and storm water treatment areas. A drainage report performed for the plan demonstrates that the hydrology for the project site complies with state and local regulations, including pre-development runoff and flooding, post-development runoff and flooding, and compliance with various City, State and Federal drainage regulations (rrm design group 2020). In accordance with these regulations, the open space areas, parks, landscaped areas, and the linear parks, would be used to capture, treat, and release stormwater to the Fairfield Canal and Cottonwood Creek at the discharge rates prescribed by State and local regulations. Because of these design features, no large detention or retention basins are necessary in the VST Specific Plan area to meet local, regional, and State stormwater requirements. The impact of implementing the VST Specific Plan would be similar to the Adopted UCP because the VST Specific Plan would be designed to capture, treat, and release stormwater at the discharge rates prescribed by State and local regulations.

Implementation of the VST Specific Plan would result in grading the VST Specific Plan area, earth moving, and installation of impervious surfaces. The VST Specific Plan area is relatively flat (varying in elevation from 195 to 239 feet above mean sea level from east to west, with an approximate 0.5 percent rise across the 2-mile-deep site) and has been graded for agricultural use. The VST Specific Plan would preserve the Cottonwood Creek drainage through the VST Specific Plan area. The Fairfield Canal would be straightened and the Dunn Lateral would be removed. The Fairfield Canal is operated by MID and supplies irrigation water stored in Lake Yosemite to agricultural users. The Dunn Lateral historically transported water south of Lake Road but is no longer in use. The historic irrigation ditch extends south from the Fairfield Canal approximately 1,600 feet before ending at an underground pipe adjacent to the southern property boundary. Analysis in the 2001/2004 UCP EIR indicates that the Fairfield Canal collects a maximum of 22 cfs and 8 acre-feet of runoff, while the Dunn Lateral provide no drainage function (page 2-16). Therefore, removal of the Dunn Lateral is not anticipated to substantially alter the existing drainage pattern of the project area.

The VST Specific Plan proposes to construct a bypass channel at the location of a large oxbow in the canal, following which the oxbow would be filled and the bypass channel would function as the canal. The oxbow is approximately 0.3 mile in length, and the new canal segment would be approximately 900 feet. The Fairfield Canal channel modifications would reduce the length of canal through the VST Specific Plan area and reduce flow impediments in a manner that was not evaluated in the 2001/2004 UCP EIR. Stormwater also may be discharged directly to the canal, as permitted by MID. This has the potential for altering the hydraulic flowrates and velocities, which may create erosion and other downstream impacts. This impact would be potentially **significant**.

Mitigation Measures

Mitigation Measure 3.5-3: Implement Altered Channel Cross Section Subject to MID Approval (VST Specific Plan Only)

Prior to initiation of infrastructure improvements for Phase 2 of the VST Specific Plan, the project applicant or subsequent developer shall submit evidence to the discretionary land use authority (City of Merced or Merced County) that:

- the proposed modification of the Fairfield Canal is designed such that no change would occur in the hydraulic flow rates and velocities of the canal, and
- necessary permits have been obtained from MID.

Specific features that can be incorporated into the design to effectively control flowrate and velocity include (but are not limited to) adjusting the channel cross section, use of construction material that has higher roughness coefficient (i.e., river rock, rip rap, gabions), incorporating roughness baffles, and energy dissipaters at the downstream end of the canal.

Significance after Mitigation

UCP Update

No mitigation is necessary. (As described above, the UCP Update would result in a less-than-significant impact to the existing drainage pattern of the area.)

VST Specific Plan

With implementation of Mitigation Measure 3.5-3, the project applicant or subsequent developers would be required to demonstrate that the channel has been designed so that no change would occur in the hydraulic flow rates and velocities. This would limit the potential for such that substantial erosion or flooding due to changes. While the preliminary new alignment is a more direct route, the velocities and flowrates can be effectively mitigated through design of the channel cross section and construction material that has higher roughness coefficient. Implementation of Adopted UCP policies and new Mitigation Measure 3.5-1 would reduce potentially significant impacts on proposed modifications to the Fairfield Canal to a **less-than-significant** level.

Impact 3.5-4: Water Quality Control Plan Compliance

The project would comply with all federal, state, and local regulations and requirements for construction and implementation of the UCP Update and VST Specific Plan project as well as the Merced Groundwater Subbasin GSP and the Water Quality Control Plan for the Central Valley Region of the Sacramento River Basin and the San Joaquin River Basin. The UCP Update and VST Specific Plan project would not conflict with or obstruct implementation of a water quality control plan or GSP and, therefore, impacts would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

As discussed above, the 2001/2004 UCP EIR evaluated the potential for implementation of the project to increase the volume of groundwater extracted from the regional aquifer and lower the groundwater table in Impact 4.8-3. The analysis estimated the total demand from the entire Adopted UCP area at 3,583 acre-feet per year and noted that the 1995 Merced Water Supply Plan had allocated approximately 24,200 AF per year to development of the UC Merced campus and its associated businesses and community. Therefore, the 2001/2004 UCP EIR concluded that the plan would be consistent with groundwater management and planning efforts.

As noted above, the project would be required to implement a SWPPP during construction, and thereby minimize the potential to degrade groundwater and surface water quality. Additionally, dewatering activities would not result in any substantial effects on groundwater or surface water quality because the process would be regulated by requirements stipulated by the Central Valley RWQCB, which is the responsible enforcement agency as established in the water quality control plan. The 2001/2004 UCP EIR concluded that the effect of the development on a water quality control plan or GSP would be less than significant because water demand and groundwater pumping was accounted for in the applicable planning documents.

UCP Update

The Merced Groundwater Subbasin GSP (Merced SGMA 2022b) indicates that groundwater levels in the basin are declining, principally due to groundwater pumping. In order to achieve a net-zero change in groundwater storage over a long-term average condition, current agricultural and urban groundwater demand in the Merced Subbasin would need to be reduced by approximately 10 percent, absent implementation of any new supply-side or recharge projects. The SGMA has set a goal of a 20 percent reduction in urban per-capita water use to achieve this goal. As described above, the UCP Update would include plans requiring water use to be 25 percent less than the existing average per capita use. Furthermore, water supplies assumed in the GSA include expansion of the City and increases in the population attributed to UC Merced. The City's water supply is projected to sufficiently meet expected demands through 2040 through the installation of additional groundwater wells and construction new SWTP. Because the UCP Update would result in fewer residents than current planning documents predict and would exceed the per capita reduction in demand identified in the GSP, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be less than significant.

Additionally, the Water Quality Control Plan for the Central Valley Region of the Sacramento River Basin and the San Joaquin River Basin (Central Valley RWQCB 2019) is the current water quality control plan for the area. Compliance with this plan would be achieved by fulfilling the County's ordinances and requirements. In addition, construction sites disturbing 1 or more acres are required to comply with the State's General Stormwater Permit for Construction Activities. The General Permit requires preparation and implementation of a site-specific SWPPP that must always be kept onsite for review by the State inspector. Applicable projects applying for a grading permit must show proof that an NOI has been filed with SWRCB and must submit a copy of the SWPPP. Depending on scheduling, construction could potentially occur during multiple rainy seasons (October 1 through April 30). Because of the increase in exposed surfaces and the earth-moving activities, the potential for erosion and sedimentation is higher during the rainy season. Subsequent development projects within the UCP area would include an effective combination of erosion, sediment, and other pollution control BMPs in compliance with the County ordinances and the State's Construction General Permit. Examples of erosion controls include: stabilized construction entrances, tackified mulch, 3-step hydroseeding, spray-on soil stabilizers, and anchored blankets. Controls help to filter sediment out of runoff before it reaches the storm drains and local waterways. Examples include rock bags to protect storm drain inlets, staked or weighted straw wattles/fiber rolls, and silt fences.

Development has the potential to increase the pollutant load of stormwater discharges. Vehicles deposit heavy metals, oils, and other substances onto roadways, parking lots, and driveways; residents wash their cars in streets and driveways and the water picks up soaps, waxes, and the dirt, oils, and heavy metals from the cars; and people maintaining landscaping areas use pesticides and fertilizers. Water carries these and other pollutants into storm drains, where the water flows without treatment directly into the streams that provide drinking water, recreation, and wildlife habitat. This runoff could increase pollutant loads to such an extent that the waterway becomes impaired. Water temperatures can be increased, which affects the health of many organisms that live in the creeks. Even the nutrients in fertilizers can cause water quality problems, because they promote blooms of algae. Increases in discharge amounts or velocity have the potential to greatly accelerate downstream erosion and impair stream habitat in natural drainage systems.

There is potential for development of the UCP area to cause or contribute to a long-term increase in discharges of urban contaminants into the stormwater drainage system compared to existing conditions. In accordance with Central Valley RWQCB compliance guidelines, project applicants would be required to incorporate BMPs and low-impact development stormwater management principles (i.e., systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration, or use of stormwater in order to protect water quality and associated aquatic habitat). Postconstruction BMPs address water quality, channel protection, overbank flood protection, and extreme flood protection. Disturbed areas would be revegetated or stabilized with approved native seed mixes and/or mulch. In accordance with federal, State, and County stormwater management regulations, new construction must maintain pre-project hydrology and incorporate proper pollutant source controls, minimize pollutant exposure outdoors, and treat stormwater runoff through proper BMPs when source control or exposure protection are insufficient for reducing runoff pollutant loads. BMPs have been demonstrated to effectively protect surface waters and meet the requirements of the CWA and Porter-Cologne Water Quality Act. As summarized above and described in the 2001/2004 UCP EIR because subsequent development projects would be required to comply with State and local regulations that would minimize the potential for construction and operational water quality impacts, the UCP Update would be consistent with the water quality control plan.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.1, IW 1.2, IW 4.3, IW 4.6, IW 5.1, IW 5.2, IW 5.4, IW 5.5, IW 8.1, IW 11.1 through IW 11.4, IW 12.6, and IW 12.7 to reduce impacts related to groundwater supplies. Amendments to the UCP would include removal of Policies IW 4.6, IW 5.4, IW 5.5, and IW 12.6 because the UCP area would be annexed by the City of Merced and would no longer be subject to County regulations, and the conveyance and construction of onsite recycled water supply and infrastructure is no longer being considered. Therefore, the amended policies would continue to adequately mitigate impacts related to compliance with water quality control plans. This impact would remain **less than significant**.

VST Specific Plan

The VST Specific Plan is located within the City's sphere of influence and is designated for urban development in the planning documents used to inform projections of future water use in the groundwater management plan and the

regional water quality control plan. Development within the VST Specific Plan area would be consistent with the goals and policies included in the Merced Groundwater Subbasin groundwater management plan and the Water Quality Control Plan for the Central Valley Region of the Sacramento River Basin and the San Joaquin River Basin. The VST Specific Plan includes a proposed per capita water use reduction of 25 percent compared to the City of Merced's existing per capita residential urban water reported for the 2015 and 2019 Water Years. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.5-5: Cumulative Impacts to Water Quality

The 2001/2004 UCP EIR identifies the potential for regional impacts to water quality, which are addressed through an adopted mitigation measure. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR, and the UCP Update and VST Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts to water quality would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

Cumulative development in the vicinity of the UCP area, particularly development of the UC Merced LRDP, could increase the potential for an adverse cumulative condition related to hydrology and water quality. As described in the 2001/2004 UCP EIR, cumulative effects of the UCP Update and VST Specific Plan associated with surface runoff from construction (Impact 4.8-10), groundwater extraction (Impact 4.8-11), discharge of wastewater (Impact 4.8-13), and rate of runoff (Impact 4.8-14) would be addressed through compliance with established regulations. Cumulative water quality impacts would remain less than cumulatively considerable.

The 2001/2004 UCP EIR determined that the Adopted UCP, in combination with other development in Merced County, could result in increased generation of sediments and urban contaminants that could adversely affect receiving water quality (Impact 4.8-12). The analysis finds that implementation of BMPs would adequately mitigate the potential for cumulative impacts, but notes that Merced County had not yet prepared a SWPPP. The 2001/2004 UCP EIR includes Mitigation Measure 4.8-12 requiring preparation of a countywide SWPPP and implementation of BMPs. With implementation of this mitigation, this cumulative impact was found to be less than cumulatively considerable.

Adopted Mitigation Measure 4.8-12: The County shall develop Best Management Practices and prepare a Stormwater Pollution Prevention Plan and a stormwater monitoring program consistent with National Pollution Discharge System Phase 2 Permit Criteria.

UCP Update and VST Specific Plan

As described in Impact 3.5-4, the Water Quality Control Plan for the Central Valley Region of the Sacramento River Basin and the San Joaquin River Basin (Central Valley RWQCB 2019) is the current water quality control plan for the area. Cumulative projects within the basin would be required to achieve compliance with this plan, which addresses the potential for projects throughout the region to result in cumulatively considerable effects to water quality. In addition, all construction sites disturbing 1 or more acres are required to comply with the State's General Stormwater Permit for Construction Activities. With these state and local oversight mechanisms in place, there is no longer a need for the County to develop BMPs and prepare a SWPPP and a stormwater monitoring program to address potential for adverse cumulative conditions. Cumulative projects in the City of Atwater, City of Merced, and Merced County would comply with the City's SWMP, which limits the discharge of pollutants to the storm sewer system. The SWMP fulfills the requirements related to storm water discharges from Small MS4 operators in accordance with Section 402(p) of the Federal CWA and the State the General Permit.

The UCP Update would be consistent with the water quality control plan. Subsequent development projects would be required to comply with State and local regulations that would minimize the potential for construction and operational water quality impacts. The cumulative effects of related projects are not significant, and the project would

not have a considerable contribution such that a new cumulatively significant impact would occur. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Cumulative impacts to hydrology and water quality would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

In light of changes to the cumulative condition and current regulations, Adopted Mitigation Measure 4.8-12 is no longer applicable or required to address the cumulative impacts of the UCP Update. The mitigation requirement would be removed as follows:

~~**Adopted Mitigation Measure 4.8-12** The County shall develop Best Management Practices and prepare a Stormwater Pollution Prevention Plan and a stormwater monitoring program consistent with National Pollution Discharge System Phase 2 Permit Criteria.~~

Impact 3.5-6: Cumulative Impacts to Hydrology and Flooding

The 2001/2004 UCP EIR identifies the potential for regional impacts to hydrology, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR. The UCP Update and VST Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts to hydrology would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR identified a cumulatively significant adverse condition related to offsite flooding that the Adopted UCP could exacerbate (Impacts 4.8-15 and 4.8-16). The 2001/2004 UCP EIR includes Adopted Mitigation Measures 4.8-15 and 4.8-16 requiring the County, MID, and City to collectively identify strategies for managing stormwater runoff related to future development, resulting in update to the Merced County Critical Flooding and Development Plan.

Adopted Mitigation Measure 4.8-15: The County shall work with the Merced County Flood Control District, MID, and the City of Merced to update the Merced County Critical Area Flooding and Drainage Plan to identify a strategy for managing storm drainage runoff associated with future development within the Merced area. The plan update shall include at a minimum: existing hydrologic and hydraulic conditions, identification of base flood elevations that meet FEMA 44 CFR part 60 requirements, if such data have not been developed, and a process to evaluate the one-foot cumulative increase criteria; estimates of future peak flows and volumes based on anticipated land uses; performance standards for new development that address both peak flows and volumes while downstream conditions are not worsened; strategies to coordinate the development of local storm drainage and flood protection improvements with Merced County Streams Group projects; and mechanisms to update or revise the plan as needed as new information becomes available.

Adopted Mitigation Measure 4.8-16: MID and the County shall coordinate to ensure that additional stormwater drainage systems do not add flows into the Fairfield Canal that would exceed the canal's capacity restrictions, potentially creating levee failure or overtopping conditions downstream of the UCP area.

UCP Update and VST Specific Plan

Adopted Mitigation Measures 4.8-15 and 4.8-16 were developed to address the cumulative condition at the time that the 2001/2004 UCP EIR was prepared and address cooperative regional planning related to flooding and drainage. As described above, FEMA maintains maps of flood hazard zones for most developed areas and provides information on flood hazard and frequency. The UCP area is not within an area of mapped flooding potential. In addition, since certification of the 2001/2004 UCP EIR, the County and City have adopted special, more restrictive design regulations through their respective drainage design ordinances (County Ordinance 1923) that comply with the State Water Resources Control Board's "Water Quality Order No. 2013-0001-Dwq National Pollutant Discharge Elimination System

(NPDES) General Permit No. CAS000004 Waste Discharge Requirements (WDRs) For Storm Water Discharges From Small Municipal Separate Storm Sewer Systems (MS4s) (General Permit).” Compliance with these permit requirements would achieve flooding and drainage control that is consistent with the requirements of Adopted Mitigation Measure 4.8-15. Discharge of storm water to MID canal facilities is at the discretion of MID per MID regulation. Compliance with existing regulation would result in compliance with Adopted Mitigation Measure 4.8-16.

The VST Specific Plan includes a redesigned version of the Adopted UCP stormwater system and proposes to fill and remove the Dunn Lateral. The Fairfield Canal channel modifications would reduce the length of canal through the VST Specific Plan area and reduce flow impediments. This has the potential for altering the hydraulic flowrates and velocities, which may create erosion and other downstream impacts. As described above, Mitigation Measure 3.5-3 would ensure that the realignment does not substantially change the nature of the flows in Fairfield Canal. Through compliance with this mitigation, the VST Specific Plan would not substantially contribute to any cumulative surface water flow and flooding effects. With implementation of new Mitigation Measure 3.5-3, cumulative drainage and flooding impacts would remain less than cumulatively considerable. The cumulative effects of related projects are not significant, and the project would not have a considerable contribution such that a new cumulatively significant impact would occur. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Cumulative impacts to hydrology and water quality would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

In light of changes to the cumulative condition and current regulations, Adopted Mitigation Measures 4.8-15 and 4.8-16 are no longer applicable or required to address the cumulative impacts of the UCP Update. The mitigation requirement would be removed as follows:

~~**Adopted Mitigation Measure 4.8-15:** The County shall work with the Merced County Flood Control District, MID, and the City of Merced to update the Merced County Critical Area Flooding and Drainage Plan to identify a strategy for managing storm drainage runoff associated with future development within the Merced area. The plan update shall include at a minimum: existing hydrologic and hydraulic conditions, identification of base flood elevations that meet FEMA 44 CFR part 60 requirements, if such data have not been developed, and a process to evaluate the one-foot cumulative increase criteria; estimates of future peak flows and volumes based on anticipated land uses; performance standards for new development that address both peak flows and volumes while downstream conditions are not worsened; strategies to coordinate the development of local storm drainage and flood protection improvements with Merced County Streams Group projects; and mechanisms to update or revise the plan as needed as new information becomes available.~~

~~**Adopted Mitigation Measure 4.8-16:** MID and the County shall coordinate to ensure that additional stormwater drainage systems do not add flows into the Fairfield Canal that would exceed the canal's capacity restrictions, potentially creating levee failure or overtopping conditions downstream of the UCP area.~~

3.6 NOISE AND VIBRATION

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the UCP Update and VST Specific Plan. Mitigation measures are recommended as necessary to reduce significant noise impacts. Additional data is provided in Appendix F, "Noise Measurement Data and Noise Modeling Calculations."

The 2001/2004 UCP EIR included Section 4.10, "Noise," which evaluated the potential effects to noise impacts resulting from project implementation. The analysis concluded that impacts to sensitive receptors and development of noise sensitive uses would be less than significant with implementation of Adopted UCP policies (Impacts 4.10-1 and 4.10-2). Additionally, impacts generated by increased vehicular traffic and increased temporary or periodic construction activities were found to be significant with implementation of Adopted UCP policies and mitigation (Impacts 4.10-3 and 4.10-4). Similarly, impacts related to construction-generated groundborne vibration or groundborne noise levels were found to be significant with mitigation (Impact 4.10-5).

No comments related to noise were received in response to the notice of preparation for this SEIR.

3.6.1 Regulatory Setting

The regulatory setting in Section 4.10, "Noise," of the 2001/2004 UCP EIR provides a description of regulations related to noise abatement and control, ground-borne vibration impacts, and noise standards (pages 4.10-9 through 4.10-15). Federal and state regulations provided in the 2001/2004 UCP EIR remain applicable to this analysis; however, additional regulatory information is provided below to support the analysis of noise and vibration and to include regulations that were adopted subsequent to the release of the 2001/2004 UCP EIR. Additionally, because the UCP area would be annexed by the City of Merced, local policies adopted by the City of Merced are also provided below.

FEDERAL

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.6-1.

Table 3.6-1 Groundborne Vibration Impact Criteria for General Assessment

Land Use Category	GVB Impact Levels (VdB re 1 micro-inch/second)		
	Frequent Events ¹	Occasional Events ²	Infrequent Events ³
<i>Category 1:</i> Buildings where vibration would interfere with interior operations.	65 ⁴	65 ⁴	65 ⁴
<i>Category 2:</i> Residences and buildings where people normally sleep.	72	75	80
<i>Category 3:</i> Institutional land uses with primarily daytime uses.	75	78	83

Notes: GBV = Ground-Borne Vibration, VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

- 1 "Frequent Events" is defined as more than 70 vibration events of the same source per day.
- 2 "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
- 3 "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.
- 4 This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018.

STATE

California General Plan Guidelines

The State of California General Plan Guidelines 2017, published by the California Governor's Office of Planning and Research (2017), provides guidance for the compatibility of projects within areas of specific noise exposure. Acceptable and unacceptable community noise exposure limits for various land use categories have been determined to help guide new land use decisions in California communities. In many local jurisdictions, these guidelines are used to derive local noise standards and guidance. Citing EPA materials and the State Sound Transmissions Control Standards, the State's general plan guidelines recommend interior and exterior community noise equivalent level (CNEL) of 45 and 60 decibels (dB) for residential units, respectively (OPR 2017:378).

California Department of Transportation

In 2013, the California Department of Transportation (Caltrans) published the Transportation and Construction Vibration Manual (Caltrans 2013a). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.6-2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 3.6-2 Caltrans Recommendations Regarding Levels of Vibration Exposure

PPV (in/sec)	Effect on Buildings
0.4-0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006-0.019	Vibration unlikely to cause damage of any type

Notes: PPV= peak particle velocity; in/sec = inches per second

Source: Caltrans 2013a.

LOCAL

Merced County General Plan

The Noise section within the Health and Safety Element of the 2030 Merced County General Plan (County of Merced 2013) establishes standards and policies that are relevant to the analysis of the noise effects of the project. The following noise level standards have been developed in order to quantify noise impacts in the county.

Table HS-1 (presented as Table 3.6-3, below) shows the noise level standards for noise-sensitive areas affected by traffic, railroad, or airport noise sources in the county. Table HS-2 (presented as Table 3.6-4, below) shows the interior and exterior noise level standards for noise-sensitive areas affected by existing non-transportation noise sources in the county.

Table 3.6-3 Merced County Noise Standards for New Uses Affected by Traffic, Railroad, and Airport Noise

New Land Use	Sensitive ¹ Outdoor Area - L _{dn}	Sensitive Interior ² 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 L_{dn}.
- 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 3.6-4 Merced County Non-Transportation Noise Standards Median (L₅₀) / Maximum (L_{max})¹

Receiving Land Use	Outdoor Area ²		Interior ³		Notes
	Daytime	Nighttime	Day or Night		
All Residential	55 / 75	50 / 70	35 / 55		
Transient Lodging	55 / 75	---	35 / 55		4
Hospitals & Nursing Homes	55 / 75	---	35 / 55		5, 6
Theaters & Auditoriums	---	---	30 / 50		6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60		6
Office Buildings	60 / 75	---	45 / 65		6
Commercial Buildings	55 / 75	---	45 / 65		6
Playgrounds, Parks, etc.	65 / 75	---	---		6
Industry	60 / 80	---	50 / 70		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 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.
- 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 (L_{50}) noise level data is not available for a particular noise source, average (L_{eq}) 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.

In addition to these standards, the following policies are relevant to the analysis of the noise effects of the project:

- **Policy HS-7.1: Noise Standards for New Land Uses (RDR):** Require new development projects to meet the standards shown in Tables HS-1 (presented as Table 3.6-3, above) and HS- 2 (presented as Table 3.6-4, above), at the property line of the proposed use, through either project design or other noise mitigation techniques.
- **Policy HS-7.2: Acoustical and Groundborne Vibration Analysis Requirements (RDR):** Require development project applicants to prepare an acoustical analysis as part of the environmental review process when noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels shown in Tables HS-1 (presented as Table 3.6-3, above) and HS-2 (presented as Table 3.6-4, above). Require an analysis of groundborne vibration for proposed residential and other sensitive projects (including but not limited to hospitals and schools) located within 1,000 feet of a rail line with at least 30 operations per day or an existing industrial groundborne vibration source. The acoustical and groundborne vibration analyses shall:
 - Be the responsibility of the applicant;
 - Be prepared by qualified persons experienced in the fields of environmental noise and groundborne vibration assessment and architectural acoustics;
 - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions;
 - Estimate projected future (20 year) noise levels relative to the standards shown in Tables HS-1 (presented as Table 3.6-3, above) and HS-2 (presented as Table 3.6-4, above) at the property line of the proposed use, and, as applicable, estimate project future groundborne vibration levels using a maximum vibration standard of 70 [vibration decibels] VdB;
 - Recommend appropriate mitigation to achieve compliance with the adopted policies and standards in this element, including setbacks from groundborne vibration sources causing adverse levels of vibration; and
 - Estimate interior and exterior noise, and groundborne vibration exposure after the prescribed mitigation measures have been implemented at the property line.
- **Policy HS-7.3: Existing Rural Sources (RDR):** Discourage new noise sensitive land uses in rural areas with authorized existing noise generating land uses.
- **Policy HS-7.4: New Noise or Groundborne Vibration Generating Uses (RDR):** Require new commercial and industrial uses to minimize encroachment on incompatible noise or groundborne vibration sensitive land uses. Also consider the potential for encroachment by residential and other noise or groundborne vibration sensitive land uses on adjacent lands that could significantly impact the viability of the commercial or industrial areas.
- **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-7.7: Noise or Vibration Impacted Residential Area Monitoring (RDR):** Consider any existing residential area “noise or vibration impacted” if the exposure to exterior noise exceeds the standards shown in Table HS-2 (presented as Table 3.6-4, above) or if groundborne vibration levels exceed 70 VdB. Identify and evaluate potential noise or groundborne vibration impacted areas and identify possible means to correct the identified noise/land use incompatibilities.
- **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-7.9: Transportation Project Construction/Improvements (RDR):** Require transportation project proponents to prepare all acoustical analysis for all roadway and railway construction projects in accordance with Policy HS-7.2; additionally, rail projects shall require the preparation of a groundborne vibration analysis in accordance with Policy HS-7.2. Consider noise mitigation measures to reduce traffic and/or rail noise levels to comply with Table HS-1 (presented as Table 3.6-3, above) standards if pre-project noise levels already exceed the noise standards of Table HS-1 and the increase is significant. The County defines a significant increase as follows:
 - Pre-Project Noise Environment ([day-night average noise level] L_{dn}) Significant Increase
 - Less than 60 dB 5+ dB
 - 60 - 65 dB 3+ dB
 - Greater than 65 dB 1.5+ dB
- **Policy HS-7.10: Aircraft Noise (RDR):** Prohibit new noise-sensitive development within the projected future 60 dB L_{dn} noise contours of any public or private airports.
- **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 Table HS-2 (presented as Table 3.6-4, above) 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 Table HS-2 (presented as Table 3.6-4, above) 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 Table HS-2 (presented as Table 3.6-4, above) at the property line of the generating use in anticipation of the future residential development.
- **Policy HS-7.13: Noise Exemptions (RDR):** Support the exemption of the following noise sources from the standards in this element:
 - Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours.
 - Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours.
 - Activities associated with County-permitted temporary events and festivals.
- **Policy HS-7.15: New Project Groundborne Vibration Mitigation Requirements (RDR):** For residential projects within 1,000 feet of a rail line with at least 30 operations per day, or an existing industrial or commercial groundborne vibration source, require new residential projects to include appropriate groundborne vibration mitigation measures to reduce groundborne vibration levels to less than 70 VdB within structures. However, if a groundborne vibration-generating use is proposed adjacent to lands zoned for residential uses, then the groundborne vibration-generating use shall be responsible for mitigating its groundborne vibration generation to a state of compliance with the 70 VdB standard at the property line of the generating use in anticipation of the future residential development.

Merced County Code

Chapter 10.60, "Noise Control," of the Merced County Code (County of Merced 2022) includes following standards related to noise that may be applicable to the project:

10.60.030 Sound level limitations.

- No person shall cause, suffer, allow, or permit the operation of any sound source on private property in such a manner as to create a sound level that results in any of the following, when measured at or within the real property line of the receiving property:
 - Exceeds the background sound level by at least ten (10) [A-weighted decibels] dBA during daytime hours (seven a.m. to ten p.m.) and by at least five dBA during nighttime hours (ten p.m. to seven a.m.). The background sound level for purposes of this section shall be determined as set forth in Section 10.60.060; or
 - Exceeds sixty-five (65) dBA L_{dn} on residential real property or seventy (70) dBA L_{dn} on nonresidential real property; or
 - Exceeds seventy-five (75) dBA L_{max} on residential real property or eighty (80) dBA L_{max} on nonresidential real property.
- The following are exempt from the sound level limits of Section 10.60.030(A):
 - Noise from emergency signaling devices;
 - Noise from an exterior burglar alarm of any building provided such burglar alarm shall terminate its operation within five minutes of its activation;
 - Noise from domestic power tools, lawn mowers, and agricultural equipment when operated between seven a.m. and eight p.m. on weekdays and between eight a.m. and eight p.m. on weekends and legal holidays, provided they generate less than eighty-five (85) dBA at or within any real property line of a residential property;
 - Sound from church bells and chimes when a part of a religious observance or service;
 - Noise from construction activity, provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between seven a.m. and six p.m., and all construction equipment shall be properly muffled and maintained.

10.60.040 Specific prohibited acts.

- No person shall cause, suffer, allow, or permit to be made verbally or mechanically any noise disturbance.
- No person shall cause, suffer, allow, or permit to the following acts:
 - Using or operating any loudspeaker, public address system, or similar device between ten p.m. and eight a.m. the following day, such that the sound therefrom creates a noise disturbance across a residential real property line.
 - Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, liquids, garbage cans, refuse, or similar objects, or the pneumatic or pumped loading or unloading of bulk materials in liquid, gaseous, powder, or pellet form, or the compacting of refuse by persons engaged in the business of scavenging or garbage collection, whether private or municipal, between nine p.m. and seven a.m. the following day on a weekday and between nine p.m. and nine a.m. the following day on a weekend day or legal holiday except by permit, when the sound therefrom creates a noise disturbance across a residential real property line.
 - Operating or permitting the operation of any tools or equipment used in construction, drilling, earthmoving, excavating, or demolition work between six p.m. and seven a.m. the following day on a weekday or at any time on a weekend day or legal holiday, except for emergency work, or when the sound level does not exceed any applicable relative or absolute limit specified in Section 10.60.030.

18.34.060 Noise Barrier

- **Acoustical Analysis Required.** The General Plan Health and Safety Element requires development project applicants to prepare an acoustical analysis as part of the environmental review process, when noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels shown in Table HS-1 and/or Table HS-2 of the Health and Safety Element of the General Plan. Additionally, an analysis of groundborne vibration is required for proposed residential and other sensitive land uses (e.g., hospitals and schools) located within 1,000 feet of a rail line (with at least 30 operations per day), or an existing industrial groundborne vibration source.
- **Reduce Noise Impacts.** Projects located near noise impacted areas are required to incorporate measures into the project, such as building orientation, setbacks, and natural barriers (e.g., earthen berms and vegetation) that reduce the noise impacts to an acceptable level. When required by an acoustical analysis or an analysis of groundborne vibration, a noise barrier shall meet the following minimal structural requirements described in the acoustical analysis and may include:
 - **Walls and Fences.** Walls and fences shall not exceed the allowable fence height of seven feet. A wall or fence shall also include landscaping to prevent graffiti and enhance aesthetics.
 - **Trees and Shade Trees.**
 - Trees shall be provided at 30-foot intervals if adjacent to a wall or fence; or
 - Shade trees shall be provided at 30-foot intervals if the wall or fence is adjacent to a sidewalk or bike path.
 - **Screening.** A wall or fence shall be screened 50 percent, at maturity, with bushes or vines, and trees, when visible from the public rights-of-way. The landscaping may be used in combination with anti-graffiti paint until the landscaping has grown in to cover the wall.
 - **Required Fencing Materials.** Fence materials shall include one of the following types of materials:
 - Masonry or stucco on both sides of a wooden frame;
 - Masonry walls; or
 - Board and batten wood fences.
 - **Landscaped Berm.** A berm may be used in combination with a wall and fence. The total berm/wall and fence height shall not exceed the allowable fence height of seven feet. The berm shall be landscaped to prevent erosion and add visual interest.

18.40.080 Vibration, Heat, Electrical Disturbance, and Glare

No use shall create any disturbing ground vibration, heat, glare, and electrical disturbances based on typical human reaction beyond the boundaries of the subject parcel. No use shall cause electromagnetic interference with normal radio or television reception or with the function of other electronic equipment beyond the property line of the parcel on which they are located.

City of Merced General Plan

The Noise Element of the Merced Vision 2030 General Plan (City of Merced 2012) establishes standards and policies that are relevant to the analysis of the noise effects of the project. The following policies, implementing actions, and noise level standards have been developed in order to quantify noise impacts in the city and are relevant to the analysis of the noise effects of the project:

- **Policy N-1.1:** Minimize the impacts of aircraft 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 Table N-3 (presented as Table 3.6-6, below), unless the project design includes effective

mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in Table N-3 (presented as Table 3.6-6, below).

- **Implementing Action 1.2.d:** Noise created by new transportation noise sources shall be mitigated to the extent feasible so as not to exceed the levels specified in Table N-3 (presented as Table 3.6-6, below) at outdoor activity areas or interior spaces of existing noise-sensitive land uses.
- **Implementing Action 1.2.e:** It is anticipated that roadway improvement projects will be needed to accommodate build-out of the General Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained Table N-3 (presented as Table 3.6-6, below). Therefore, as an alternative, the following criteria may be used for roadway improvement projects:
 - Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels due to roadway improvement projects should be mitigated to the extent feasible; and,
 - Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects should be mitigated to the extent feasible; and,
 - Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in noise levels due to roadway improvement projects should be mitigated to the extent feasible.
- **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 L_{dn}/CNEL for interior noise level for residential projects.
 - A maximum of 65 dB L_{dn}/CNEL for exterior noise level for residential projects proximate to major roadway and railroad corridors. For other arterial, collector and local streets a maximum of 60 dB L_{dn}/CNEL exterior noise with a maximum of 65 dB L_{dn}/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 L_{dn}/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 L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with Table N-3 (presented as Table 3.6-6, below).
 - **Implementing Action 1.4.c:** Use the "normally acceptable" noise levels as established in the "Noise and Land Use Compatibility Guidelines" for the review of non-residential land uses.
- **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 Table N-1 (presented as Table 3.6-5, below) as measured immediately within the property line or within a designated outdoor activity area (at the discretion of the Director of Development Services) of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table N-1 (presented as Table 3.6-5, below).

- **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 Table N-1 (presented as Table 3.6-5, below) 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 (L_{max}) 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 Table N-1 (presented as Table 3.6-5, below), 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 Table N-2.
- **Implementing Action 1.5.f:** As feasible, require noise barriers and/or increased setbacks between heavy circulation corridors and noise-sensitive land uses.

Table 3.6-5 City of Merced Exterior Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Source

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq} , dB	55	45

- 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.
- Fixed noise sources which are typically of concern include, but are not limited to the following:
- The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities including pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.
- **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 Tables N-1 (presented as Table 3.6-5, above) and N-3 (presented as Table 3.6-6, below), 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.
 - **Implementing Action 1.6.b:** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table N-3 (presented as Table 3.6-6, below) or the performance standards of Table N-1 (presented as Table 3.6-5, above), an acoustical analysis may be required as part of the environmental review process so that noise mitigation may be included in the project design.

Table 3.6-6 City of Merced Maximum Allowable Noise Exposure Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹ L _{dn} /CNEL, dB			Interior Spaces	
	Roadways	Railroads	Aircraft	L _{dn} /CNEL, dB	L _{dn} dB ²
Residential	60/65 ³	65 ⁵	60 ³	45	---
Transient Lodging	65 ^{4,5}	65 ^{4,5}	65 ^{4,5}	45	---
Hospitals & Nursing Homes	60 ³	65 ⁵	60 ³	45	---
Theaters, Auditoriums, Music Halls	---	---	---	---	35
Churches, Meeting Halls	60 ³	65 ⁵	60 ³	---	40
Office Buildings	---	---	---	---	45
Schools, Libraries, Museums	---	---	---	---	45
Playgrounds, Neighborhood Parks	70	70	75	---	---

Notes:

- 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.
- As determined for a typical worst-case hour during periods of use.
- Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/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 L_{dn}/CNEL.
- 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.
- Where it is not possible to reduce noise in outdoor activity areas to 65 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 70 dB L_{dn}/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.

3.6.2 Environmental Setting

The environmental setting in Section 4.10, "Noise," of the 2001/2004 UCP EIR provides a description of noise and vibration descriptors and the existing noise environment affecting the UCP area at that time (pages 4.10-1 through 4.10-8). The acoustic fundamentals provided in the 2001/2004 UCP EIR remain applicable to this analysis; however, updated noise measurements are provided below to support the analysis of noise and to include new baseline noise sources and ambient levels since the release of the 2001/2004 UCP EIR.

ACOUSTIC FUNDAMENTALS

Prior to describing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dB.

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. All sound levels discussed in this section are expressed in A-weighted decibels. Table 3.6-7 describes typical A-weighted noise levels for various noise sources.

Table 3.6-7 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013b: Table 2-5.

Human Response to Changes in Noise Levels

The doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013b:2-18). In noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013b:2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2018:110; Caltrans 2013b:6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel

notation as VdB, which serves to compress the range of numbers required to describe vibration (FTA 2018:110, 199; Caltrans 2013a:7). This is based on a reference value of 1 micro inch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018:120; Caltrans 2013a:27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018:113).

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Table 3.6-8 summarizes the general human response to different ground vibration-velocity levels.

Table 3.6-8 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2018:120.

Common Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013b:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq} , is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by Caltrans and FTA (Caltrans 2013b:2-47; FTA 2018:210).

Percentile-Exceeded Sound Level (L_x): L_x represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time) (Caltrans 2013b:2-16).

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013b:2-48; FTA 2018:207–208).

Day-Night Level (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB “penalty” applied to sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m. (Caltrans 2013b:2-48; FTA 2018:214).

Community Noise Equivalent Level (CNEL): CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m. (Caltrans 2013b:2-48).

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013b:2-41; FTA 2018:42). Barriers higher than the line of sight provide increased noise reduction (FTA 2018:16). Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation (FTA 2018:15, 104, 106).

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

The UCP area is largely undeveloped and no major fixed noise sources exist. Noise sources include traffic on local roadways and noise from agricultural operations. Noise-sensitive receptors in the vicinity of the UCP area include residences located along the west side of Lake Road to the west of the UCP area, and East Yosemite Avenue to the south of the UCP area.

Existing Noise Sources and Ambient Levels

Ambient Noise Levels

The discussion of ambient noise levels presented in this section is based primarily on the *Virginia Smith Trust Property – Review of Existing Noise Conditions* memo prepared by Ambient Air Quality & Noise Consulting (see Appendix G).

To document existing ambient noise levels in the project area, Ambient Air Quality & Noise Consulting conducted ambient noise measurements in 2019. Short-term ambient noise measurements were conducted on May 21, 2019 using a Larson Davis Laboratories, Type I, Model 820 integrating sound-level meter. The meter was calibrated before use and certified to be in compliance with ANSI specifications (Ambient Air Quality & Noise Consulting 2019). Measured ambient noise levels are summarized in Table 3.6-9. As indicated in Table 3.6-9, measured daytime ambient noise levels in the UCP area ranged from approximately 57 to 70 dB L_{eq} . Ambient noise levels within the UCP area are predominantly influenced by vehicle traffic on area roadways. No major freeways, railroads, or airports that affect ambient noise levels are currently located in the vicinity of the UCP area.

Table 3.6-9 Summary of Existing Ambient Noise Measurements

Location	Date / Time	A-Weighted Sound Level (dB)	
		L_{eq}	L_{max}
Yosemite Avenue, 310 feet East of Lake Road. Approximately 30 feet from the road centerline.	May 21, 2019 / 10:30-10:40 a.m.	69.8	81.4
Lake Road at Cardella Road. Approximately 24 feet from the road centerline.	May 21, 2019 / 10:50-11:00 a.m.	69.9	78.3
Lake Road at Park Entrance, North of Bellevue Road. Approximately 20 feet from the road centerline.	May 21, 2019 / 11:07 -11:20 a.m.	56.7	68.3
Yosemite Avenue, 2,100 feet East of Kibby Road. Approximately 30 feet from the road centerline.	May 21, 2019 / 11:30 -11:40 a.m.	69.3	85.7

Notes: Ambient noise measurements were conducted on May 21, 2019 using a Larson Davis Laboratories, Type I, Model 820 integrating sound level meter.

Source: Ambient Air Quality & Noise Consulting 2019.

Existing Roadway Noise Levels

The traffic noise modeling presented in this section is based primarily on the VST Transportation Impact Study (TIS) (VRPA Technologies 2022) completed by VRPA Technologies, Inc. (see Appendix E).

The predominant noise source in the UCP area is vehicle traffic on the surrounding roadway network, including along Bellevue Road and Lake Road. Existing traffic noise levels on roadway segments in the UCP area were modeled using calculation methods consistent with FHWA Traffic Noise Model, Version 2.5 (FHWA 2004) and using average daily traffic volumes provided in the VST TIS conducted by VRPA Technologies, Inc. and summarized in Section 3.7, "Transportation." Table 3.6-10 summarizes the modeled existing traffic noise levels along each roadway segment in the study area analyzed within the VST TIS conducted by VRPA Technologies, Inc. For additional details on traffic-noise modeling inputs and parameters, refer to Appendix F.

Table 3.6-10 Summary of Modeled Existing Traffic Noise Levels

Roadway Segment/Segment Description	L _{dn} at 100 feet from Roadway Centerline	Distance (feet) from Roadway Centerline to L _{dn} Contour		
		70	65	60
Bellevue Road (Between Snelling Highway and G Street)	63.7	23	73	232
Bellevue Road (Between G Street and Lake Road)	65.2	33	104	330
Lake Road (Between Campus Parkway and Meyers Gate Road)	64.5	28	89	282
Lake Road (Between Meyers Gate Road and Cardella Road)	64.5	28	89	282
Lake Road (Between Cardella Road and Yosemite Avenue)	64.4	28	88	277

Notes: L_{dn} = Day-Night Level

All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow, and does not account for shielding of any type or finite roadway adjustments. All noise levels are reported as A-weighted noise levels. For additional details, refer to Appendix F for detailed traffic data, and traffic-noise modeling input data and output results.

Source: Data modeled by Ascent Environmental in 2022.

As shown in Table 3.6-10, existing traffic noise levels range from 63 to 65 dB L_{dn} along the modeled roadway segments.

3.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This impact analysis is based primarily on review of the analysis presented in the 2001/2004 UCP EIR; a review of the data provided in the *Virginia Smith Trust Property – Review of Existing Noise Conditions* (2019) prepared by Ambient Air Quality & Noise Consulting which is provided in Appendix G; and traffic volume data provided in the VST Specific Plan TIS completed by VRPA Technologies, Inc. (see Appendix E).

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2018) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics.

Operational Noise and Vibration

With respect to non-transportation noise sources (e.g., stationary) associated with project implementation, the assessment of long-term (operational-related) impacts was based on existing conditions data, reference noise emission levels, and measured noise levels for activities and equipment associated with project operation (e.g., heating, ventilation and air conditioning [HVAC] units, delivery docks), and standard attenuation rates and modeling techniques.

To assess potential long-term (operation-related) noise impacts due to project-generated increases in traffic, noise levels were estimated using calculations consistent with the Federal Highway Administration's Traffic Noise Model Version 2.5 (FHWA 2004) and project-specific traffic data (Appendix E). The analysis is based on the reference noise emission levels for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Truck usage and vehicle speeds on area roadways were estimated from field observations and the project-specific traffic report. Note that the modeling conducted does not account for any natural or human-made shielding (e.g., the presence of walls or buildings) or reflection off building surfaces.

THRESHOLDS OF SIGNIFICANCE

CEQA Guidelines Appendix G is a sample Initial Study checklist that includes number of factual inquiries related to the subject of noise, as it does on a whole series of additional environmental topics. It is common practice for lead agencies to take the language from the inquiries set forth in Appendix G of the State CEQA Guidelines and to use that language in fashioning thresholds. As shown below, the City's noise standards are applied; however, in the absence of City standards the County's noise standards are applied. Therefore, a noise impact is considered significant if implementation of the project would result in any of the following:

- Result in short-term construction-related activity occurring outside of exempt daytime hours (i.e., 7:00 a.m. and 6:00 p.m., Monday through Friday) as identified in the County's Municipal Code Sections 10.60.030 and 10.60.040, and would exceed the City's ambient noise standards of 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00p.m. and 45 dB L_{eq} or 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m. (Table 3.6-5, City of Merced General Plan Implementation Action 1.5.c);
- Expose nearby sensitive receptors to operational non-transportation noise sources exceeding the City's stationary noise standards of 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00p.m. and 45 dB L_{eq} or 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m. (Table 3.6-5, City of Merced General Plan Implementation Action 1.5.c)
- Generate a substantial permanent increase in traffic noise levels at noise-sensitive land uses in excess of the following standards:
 - Exceed applicable maximum allowable noise exposure standards from transportation sources (Table 3.6-6); or
 - Where transportation noise standards (Table 3.6-6) are currently exceeded, result in substantial increases in traffic noise as detailed in City of Merced General Plan Implementation Action 1.2.e, and as follows:
 - Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, result in substantial increases in noise of at least 5 dB;
 - Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, result in substantial increases in noise of at least 3 dB;
 - Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, result in substantial increases in noise of at least 1.5 dB;
- Result in construction-generated vibration levels exceeding Caltrans' recommended standards with respect to the prevention of structural building damage (0.2 and 0.08 in/sec PPV for normal and historical buildings, respectively) or Merced County's maximum-acceptable-vibration standard with respect to human response (70 VdB for residential areas) at nearby existing vibration-sensitive land uses, as detailed in General Plan Policy HS-7.7); and/or
- Result in 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 2 miles of a public airport of public use airport, such that the project would expose people residing or working in the project area to excessive noise levels.

PLAN CHARACTERISTICS

UCP Update

The UCP Update includes the following policies (shown with edits to the Adopted UCP policies tracked):

- **Policy LU 5.16** Develop and design public streetscapes to enhance pedestrian activity including the integration of landscape, street furniture, signage, lighting, public art, distinctive paving materials, and other amenities. ~~Local and/or campus artists should be involved in the design of streetscapes, in lieu of the exclusive use of traditional "catalogue" elements, to impart a distinctive character and enhance ownership by the community.~~

- **Policy LU 5.19** Design internal local streets to emphasize pedestrian activity and slow traffic using such techniques as narrow streets, appropriate width, angled parking, traffic circles, landscaped "bulb outs," alleys, and comparable techniques. Sidewalks shall be a standard of a minimum of 10 45 feet wide and shall be developed in accordance with the Development Plan in the UCP North/VST specific plan. shall be established as the minimum width of sidewalks, which may be modified to reflect specific planned uses and urban form within the Town Center, provided that the intention for functional pedestrian sidewalks is achieved.
- **Policy T 4.1** Create a complete, interconnected bicycle and pedestrian circulation system that serves both commuter and recreational travel, and provides access to major destinations.
- **Policy T 4.2** Work with UC Merced to establish convenient pedestrian and bicycle access routes to and through Campus.
- **Policy T 4.3** Install amenities to serve bicyclists and pedestrians, such as secure and convenient bicycle parking and shaded seating areas at public facilities.
- **Policy N 1.1** Design and construct new noise-generating land uses in a manner that does not cause excessive exterior or interior noise for noise-sensitive land uses on any location of nearby residential properties. The exterior noise standard for noise-sensitive land uses is of 65 60 dBA L_{dn} and the interior noise standard for residential structures and other noise-sensitive land uses is 45 dB L_{dn}; provided, however, that residential uses within and immediate adjacent to the Town Center shall be considered commercial mixed uses for the purposes of determining noise compatibility. shall not be exceeded by stationary noise-generating land uses at any existing or planned residential land use. Noise reduction features shall be included in the design of any land use that has noise sources affecting residential land uses. These noise reduction features shall include structure design and layout, site planning, and other measures; block walls and barriers (including berms) shall only be used where such measures are deemed infeasible or ineffective.
- **Policy N 1.2** Minimize transportation noise by the development of a grid street pattern with "flexible corridors" that disperses local traffic and minimizes the need for major corridors carrying high volumes of traffic at high speeds and by integrating traffic calming measures into neighborhood street design.
- **Policy N 2.1** Use the Land Use Compatibility Guidelines of the County or City of Merced Noise General Plan Element Chapter (Figure IV-2) to determine characterize the acceptability of a noise environment for proposed residential uses and specify the level of analysis and design features necessary to provide appropriate noise insulation.
- **Policy N 2.2 DELETED** Require that residential uses located in noise environments above 65 dBA L_{dn} mitigate the interior noise level to a 45 dBA L_{dn} through adequate noise mitigation techniques (insulation, double pane window, and so on).
- **Policy N 2.3** Reduce noise exposure 65 dBA L_{dn} for large outdoor recreational spaces that are a part of housing developments as feasible through insulation, landscape, berms, and other techniques.
- **Policy N 2.4:** Provide noise protection for residences in mixed use projects that integrate housing with retail, office, or other non-residential use, including the use of construction techniques that prevent adverse noise transmission between differing uses or tenants located in the same structure or site.
- **Policy N 2.5:** Identify a County agency or department for the coordination of noise control efforts.
- **Policy N 2.6:** Manage noise from construction activities by:
 - Limiting the hours of construction activities that generate noise, when adjacent to housing and other "sensitive" uses. Typically, construction is limited to the hours of 7:00 a.m. to 10:00 p.m., weekdays and Saturday, and prohibited on Sundays and holidays.
 - Requiring that all construction vehicles or equipment, fixed or stationary, be equipped with properly operating and maintained mufflers
 - Requiring that construction vehicle staging areas be located as far as practical from existing residential uses

- Requiring that construction vehicle trips be routed as far as practical from existing residential uses
- **Policy N 2.7 DELETED** Evaluate the noise impacts of the adjacent airstrip on the University Community's land uses during the formulation of each Specific Plan and mitigate potential impacts through the siting and design of buildings, use of insulation, and/or working with the airstrip owner to control hours of operation and/or modify flight patterns, as feasible.
- **Policy N 3.1 DELETED** Locate and design new noise-sensitive land uses to minimize impacts by recreational activities at Lake Yosemite.
- **Policy N 3.2:** Require that educational, recreational, and commercial, ~~and industrial~~ I land uses (including educational campuses, parks, stadiums, and public event facilities) be designed in such a manner that:
 - Vehicle access points are located away from noise sensitive uses
 - Loading and shipping facilities and noise generating equipment are concealed or located away from noise sensitive uses
 - Parking areas and structures are located away from noise sensitive uses
 - Structural building materials are incorporated to mitigate sound transmission
 - Use of outside speakers and amplifiers is minimized
 - Interior spaces are configured to minimize sound amplification and transmission.
- **Policy N 3.3:** Require that facilities used for active recreation in the University Community that are likely to draw cheering crowds, elicit loud play, or have amplified game announcements be located in parks or at locations away from noise-sensitive uses.
- **Policy N 3.4:** Locate uses in the vicinity of the UC Merced campus that are consistent with the noise levels generated by campus recreational, central plant, or other noise-generating uses.

VST Specific Plan

The VST Specific Plan includes the following policies:

- **Policy 3.4:** Parking shall be designed and sited to minimize and buffer noise from adjacent commercial land uses.
- **Policy 3.6:** Parking around the perimeter of the R-4 units shall be carports for added noise mitigation and visual screening.
- **Policy 3.7:** All common parking lots shall have solar canopies to produce shade and noise attenuation.
- **Policy 8.1.8:** To reduce the potential for noise, dust and pesticide drift, the project shall include dense hedgerows of trees and landscaping in between any offsite noise source, or any permanent agriculture uses.

ISSUES NOT DISCUSSED FURTHER

The UCP Update and VST Specific Plan are not located within an airport land use plan, or within 2 miles of a public airport or public use airport. The 2001/2004 UCP EIR discusses a private airstrip located southeast of the VST plan area. This private airstrip was used seasonally for agricultural operations (e.g., fertilizing, seeding), which could contribute to intermittent increases in ambient noise levels. The 2001/2004 UCP EIR concluded that the impact would be less than significant with implementation of Adopted UCP Policy N 2.7, which would ensure that new residential development under the Adopted UCP would not be exposed to excessive noise levels generated by aircraft noise (page 4.10-20). This private airstrip is no longer in use; and thus, the project is not located within 2 miles of a private airstrip. Merced Regional Airport is the closest airport and is located approximately 5.5 miles southwest of the UCP area. Therefore, the project would not result in noise impacts related to the exposure of people residing or working in the project area to excessive aircraft-related noise levels. Thus, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: Short-Term Construction-Generated Noise Levels

The 2001/2004 UCP EIR disclosed that construction within the UCP area has the potential to expose noise-sensitive land uses to excessive noise levels and noticeable noise level increases relative to existing conditions. The UCP Update and VST Specific Plan would generally result in similar types of construction activities (e.g., grading, site preparation, building construction) using similar types of equipment to those discussed in the 2001/2004 UCP EIR, and thus, would generate similar levels of noise which could result in the exposure of off-site noise-sensitive receptors to excessive noise levels. Adopted Mitigation Measure 4.10-4 from the 2001/2004 UCP EIR applies to the UCP and VST Specific Plan areas and would minimize levels of construction-generated noise at off-site receptors. Construction-generated noise under the proposed UCP Update and VST Specific Plan would remain **significant and unavoidable** with implementation of Adopted Mitigation Measure 4.10-4 from the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP, as proposed for revision through Mitigation Measure 3.6-1.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR concluded that mitigation would be needed to reduce the noise exposure of nearby sensitive receptors because project construction would temporarily expose sensitive receptors to increased noise levels, despite compliance with Adopted UCP Policy N 2.6 (which would manage noise from construction activities by limiting the hours of construction activities that generate noise, requiring properly operating and maintained mufflers, requiring that construction vehicle staging areas be located as far as practical from existing residential uses, and requiring that construction vehicle trips be routed as far as practical from existing residential uses). Even with implementation of Adopted Mitigation Measure 4.10-4, the 2001/2004 UCP EIR concluded that the impact would be significant and unavoidable.

Adopted Mitigation Measure 4.10-4: Construction contractors shall comply with the following or an equivalent noise control program:

- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with exhaust mufflers and air-inlet silencers where appropriate, in good operating condition that meet or exceed original factory specification.
- Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
- All mobile or fixed noise producing equipment used on the project, that is regulated for noise output by local, state or federal agency, shall comply with such regulation while engaged in project-related activities.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable.
- Material stockpiles and mobile equipment staging, parking and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only. No project-related public address loudspeaker, two-way radio, or music system shall be audible at any adjacent noise-sensitive receptor except for emergency use.
- The erection of temporary noise barriers will be considered where project activity is unavoidably close to noise-sensitive receptors.

UCP Update

As discussed in Chapter 2, "Project Description," the proposed update to the Adopted UCP would modify the UCP boundary to exclude land within the planning boundary of UC Merced; revise the policy plan to reflect current conditions, regulations, and best practices; and update the land use and circulation diagram to reflect the land uses

proposed within the VST Specific Plan and alignment of Campus Parkway. However, the types of land uses developed would be consistent with the Adopted UCP and the development potential would be reduced with the proposed modifications. As described in Chapter 2, "Project Description," the Adopted UCP covers a developed area of 2,133 acres, 11,616 dwelling units and 2,022,900 sq ft of commercial/office uses while the UCP Update is anticipated to encompass 1,841 acres, include approximately 9,700 dwelling units and 1,247,000 sq ft of commercial office use. Additionally, the types of noise-generating construction activities and the proximity of those activities to off-site noise-sensitive receptors, including existing residential land uses, would remain the same as that which was analyzed under the 2001/2004 UCP EIR.

Although construction noise levels vary based on the type of construction, equipment used, duration, and distance to sensitive receptors, among other factors, the UCP Update would generally involve similar construction activities to those discussed in the 2001/2004 UCP EIR and thus would generate similar levels of noise. Therefore, the UCP Update would result in the exposure of existing off-site residential land uses to construction-generated noise levels that are not substantially different in magnitude or type from those described in the 2001/2004 UCP EIR.

As described above, Adopted Mitigation Measure 4.10-4 of the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP would manage and reduce the noise from construction activities by limiting the hours of construction activities that generate noise, requiring properly operating and maintained mufflers, requiring that construction vehicle staging areas be located as far as practical from existing residential uses, and requiring that construction vehicle trips be routed as far as practical from existing residential uses. However, since adoption of the 2001/2004 UCP EIR the County of Merced has adopted County Municipal Code Sections 10.60.030 and 10.60.040, which include new hours for when new construction would be exempt from noise standards (i.e., daytime hours between 7:00 a.m. and 6:00 p.m.) and time periods for which the operation or permitting the operation of any tools or equipment used in construction, drilling, earthmoving, excavating, or demolition work is prohibited (i.e., between 6:00 p.m. and 7:00 a.m. the following day on a weekday or at any time on a weekend day or legal holiday, except for emergency work, or when the sound level does not exceed any applicable relative or absolute limit specified in Section 10.60.030). Therefore, the hours during which Adopted Mitigation Measure 4.10-4 and Policy N 2.6 of the Adopted UCP would limit construction to (i.e., 7:00 a.m. to 10:00 p.m. weekdays and Saturday, and prohibited on Sundays and holiday) are inconsistent with those detailed within the County of Merced Municipal Code. Thus, if construction were to occur during the time period between 6:00 p.m. and 10:00 p.m., as allowed under the Adopted Mitigation Measure 4.10-4 and Policy N 2.6 of the Adopted UCP, it would not be exempt under the construction noise exemption within the County of Merced Municipal Code which ends at 6:00 p.m. Further, additional feasible construction noise reducing measures are available to mitigate the construction noise impact that was determined to be significant and unavoidable in the 2001/2004 UCP EIR.

As detailed in the 2001/2004 UCP EIR, construction-generated noise levels within 600 feet of a construction sites associated with the use of typical equipment (e.g., bulldozers, loaders, trucks, etc.) and impact equipment (e.g., impact pile drivers, drilling rigs) could generate approximately 70 dB L_{eq} and 80 dB L_{eq} , respectively. The types of land uses developed under the UCP Update would generally be consistent with those proposed in Adopted UCP, and thus, the same types of construction equipment would be utilized. Therefore, the UCP Update would result in the exposure of existing off-site residential land uses to construction-generated noise levels that are not substantially different in magnitude or type from those described in the 2001/2004 UCP EIR. There are existing residences as close as approximately 140 feet from the UCP boundary along Lake Road and East Yosemite Avenue. Thus, consistent with the construction noise analysis presented in the 2001/2004 UCP EIR, any existing or future noise-sensitive receptors in the vicinity of construction activities would likely experience a substantial temporary increase in ambient noise levels.

Therefore, even with implementation of Adopted Mitigation Measure 4.10-4 of the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP, there could be an inconsistency between the Adopted UCP construction time requirements and the construction noise exemption times detailed within the County of Merced Municipal Code. This inconsistency was disclosed in the 2001/2004 UCP EIR and implementation of the UCP Update would not result in a more severe construction noise-related impact than that which was addressed in the 2001/2004 UCP EIR. The impact of construction-generated noise under the proposed UCP Update would remain **significant**.

VST Specific Plan

Sensitive receptors nearest to the VST Specific Plan area are single-family residences located west of Lake Road, the closest being approximately 100 feet from the VST Specific Plan boundary on Trovare Court. Specific sensitive receptors and their proximity to potential construction activities would influence the severity of impacts related to construction noise. The expansion of the project area east of the Fairfield Canal would not affect any new sensitive receptors, as compared to the project area analyzed within the 2001/2004 UCP EIR. Therefore, the VST Specific Plan would result in the exposure of existing off-site residential land uses to construction-generated noise levels that are not substantially different in magnitude or type from those described in the 2001/2004 UCP EIR.

As described above for the UCP Update, the construction time requirements detailed in Adopted Mitigation Measure 4.10-4 of the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP are inconsistent with the construction noise exemption times detailed within the County of Merced Development Code. Further, additional feasible construction noise reducing measures are available to mitigate the construction noise impact that was determined to be significant and unavoidable in the 2001/2004 UCP EIR.

As detailed above, construction-generated noise levels within 600 feet of a construction site associated with the use of typical equipment (e.g., bulldozers, loaders, trucks, etc.) and impact equipment (e.g., impact pile drivers, drilling rigs) could generate approximately 70 dB L_{eq} and 80 dB L_{eq} , respectively. Approximately five residences are located within 600 feet from the western VST Specific Plan boundary. There is one existing residence approximately 100 feet west of the VST Specific Plan boundary along Lake Road. The types of land uses developed under the VST Specific Plan would generally be consistent with those proposed in Adopted UCP, and thus the same types of construction equipment would be utilized. Therefore, the VST Specific Plan would result in the exposure of existing off-site residential land uses to construction-generated noise levels that are not substantially different in magnitude or type from those described in the 2001/2004 UCP EIR. Therefore, consistent with the construction noise analysis presented in the 2001/2004 UCP EIR, any existing or future noise-sensitive receptors in the vicinity of construction activities would likely experience a substantial temporary increase in ambient noise levels.

Even with implementation of Adopted Mitigation Measure 4.10-4 of the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP, the VST Specific Plan may result in an inconsistency with the construction noise exemption times detailed within the County of Merced County Code. Implementation of the VST Specific Plan would not result in a substantially more severe construction noise-related impact than was addressed in the 2001/2004 UCP EIR. The impact would remain **significant**.

Mitigation Measures

Mitigation Measure 3.6-1: Revise Policy N 2.6 for Managing Noise from Construction Activities of the Adopted UCP

Revise Policy N 2.6 of the Adopted UCP as follows:

Policy N 2.6

Manage noise from construction activities by:

- Limiting the hours of construction activities that generate noise, when adjacent to housing and other "sensitive" uses. ~~Typically, Construction is limited to the hours of 7:00 a.m. to 6:00 p.m. 10:00 p.m., weekdays and Saturday, and prohibited on Saturdays, Sundays, and legal holidays, except for emergency work.~~
- ~~Requiring that all construction vehicles or equipment, fixed or stationary, be equipped with properly operating and maintained mufflers.~~
- All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- Requiring that construction vehicle staging areas be located as far as practical from existing residential uses
- Requiring that construction vehicle trips be routed as far as practical from existing residential uses

- Construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. Self-adjusting backup alarms shall automatically adjust to 5 dB over the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels.
- Locate any trailers and materials used during construction capable of breaking the line of sight between the noise-sensitive receptors and construction-noise generating equipment such that they would serve as noise barriers in order to protect noise-sensitive receptors from noise generated by off-site construction activity.
- For construction occurring within 600 feet of an existing noise sensitive receptor, install temporary noise curtains as close as possible to the noise-generating activity such that the curtains obstruct the direct line of sight between the noise-generating construction activity and the nearby sensitive receptors. Temporary noise curtains shall consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer shall consist of rugged, impervious, material with a surface weight of at least one pound per square foot.
- Noise-reducing enclosures and techniques shall be used around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors).
- Operate heavy-duty construction equipment at the lowest operating power possible.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable.

Significance after Mitigation

Adopted Mitigation Measure 4.10-4 of the 2001/2004 UCP EIR would continue to apply to the UCP Update and VST Specific Plan. Implementation of Mitigation Measures 3.6-1 would revise Adopted UCP Policy N 2.6 in a manner that further reduces impacts when compared to the adopted policy. Mitigation Measures 3.6-1 would provide substantial reductions in construction noise exposure at noise-sensitive receptors by ensuring proper equipment use; locating noise-generating equipment away from sensitive land uses; and requiring the use of enclosures, shields, and noise curtains (noise curtains typically can reduce noise by up to 10 dBA [EPA 1971]). Although construction-generated noise levels would not be substantially different in magnitude or type from those described in the 2001/2004 UCP EIR and noise reduction would be achieved with implementation of these measures, reductions of the magnitude needed to ensure that substantial temporary increases in ambient noise levels does not occur at any nearby sensitive receptor is not expected to be achieved under all circumstances with implementation of Mitigation Measure 3.6-1. Therefore, this impact would remain **significant and unavoidable**.

Impact 3.6-2: Long-Term, Operational Noise (Stationary and Area Sources)

Although the 2001/2004 UCP EIR did not evaluate the potential long-term effects of operational noise on existing offsite sensitive receptors, through the cumulative impact discussion the 2001/2004 UCP EIR demonstrates that the non-traffic operational noise impacts would be less than significant. The UCP Update and VST Specific Plan would generally result in similar non-traffic noise sources (e.g., e.g., HVAC units, delivery docks) to those analyzed in the 2001/2004 UCP EIR and thus would generate similar levels of noise. Additionally, the implementation of UCP Update Policies N 1.1, N 2.1, N 2.4, N 2.5, N 3.2, N 3.3, and N 3.4 would reduce operational non-traffic noise levels at nearby noise sensitive receptors. However, the City of Merced has adopted exterior noise level standards for non-transportation noise sources (i.e., stationary and area noise sources) which were not analyzed in the 2001/2004 UCP EIR. Depending on the type of HVAC equipment and level of activity at delivery docks, the project could result in an exceedance of the applicable City of Merced stationary noise source standards. Because this impact was not analyzed previously, there could be new significant effects not identified in the 2001/2004 UCP EIR. This impact would be potentially significant. Implementation of Mitigation Measure 3.6-2 would ensure that any loading docks and delivery areas be oriented, located, and designed in such a way that noise exposure at nearby sensitive receptors would comply with City of Merced stationary noise source criteria (i.e., exterior noise levels of 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB L_{eq} and 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m.). This impact would be **less than significant with mitigation**.

Summary of 2001/2004 UCP EIR Impact

Long-term, operational noise from non-traffic noise sources was not evaluated in the 2001/2004 UCP EIR as a separate impact. However, the 2001/2004 UCP EIR analyzed non-traffic noise exposure of sensitive receptors located outside the Adopted UCP area as a cumulative impact. The cumulative analysis concluded that increases in non-traffic noise levels at land uses near the Adopted UCP area would have a **less-than-significant impact** with implementation of Adopted UCP Policies N 1.1, N 2.1, N 2.2, N 2.3, N 2.4, N 2.5, N 2.6, N 3.1, N 3.2, and N 3.3.

UCP Update

The types of land uses developed under the UCP Update would remain the same as under the Adopted UCP and the development potential would be reduced with the proposed modifications. As described in Chapter 2, "Project Description," the Adopted UCP covers a developed area of 2,133 acres, 11,616 dwelling units and 2,022,900 sq ft of commercial/office uses while the UCP Update is anticipated to encompass 1,841 acres, include approximately 9,700 dwelling units and 1,247,000 sq ft of commercial office use. Additionally, the types of on-site operational noise sources (e.g., HVAC units, delivery docks) and their proximity to off-site noise-sensitive receptors, including existing residential land uses, would remain similar to that which was analyzed under the 2001/2004 UCP EIR.

UCP Policies N 2.2, N 2.3, and N 3.1 have been removed as part of the UCP Update. Adopted UCP Policies N 2.2 and N 2.3 were removed due to redundancy with UCP Policy 1.1, and the exterior noise exposure standard for residential uses in UCP Policy 1.1 was updated from the previous limit of 65 dBA L_{dn} to 60 dBA L_{dn} , to be consistent with the requirement within the City of Merced General Plan. Adopted UCP Policy 3.1 was removed because it is no longer applicable. The revised policies in the proposed UCP Update would, therefore, result in noise reductions that are equally effective as the original policies.

However, the City of Merced's adopted exterior noise level standards for non-transportation noise sources (i.e., stationary and area noise sources) were not considered in the 2001/2004 UCP EIR. The City of Merced adopted non-transportation noise source standards are 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB L_{eq} or 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m. Although the types of on-site stationary operational noise sources, and their proximity to off-site noise-sensitive receptors, would remain similar to that which was analyzed under the 2001/2004 UCP EIR, the UCP Policies in the UCP Update do not currently address the City of Merced L_{eq} or L_{max} non-transportation noise source standards. Depending on the type of HVAC equipment and level of activity at delivery docks, the project could result in an exceedance of the applicable City of Merced stationary noise source standards. Because this impact was not analyzed previously, there could be new significant effects not identified in the 2001/2004 UCP EIR. This impact would be **potentially significant**.

VST Specific Plan

The types of land uses developed under the VST Specific Plan would be consistent with those proposed under the Adopted UCP. Additionally, the types of on-site operational noise sources (e.g., HVAC units, delivery docks) and their proximity to off-site noise-sensitive receptors, including existing residential land uses, would remain the same as that which was analyzed under the 2001/2004 UCP EIR. Thus, the VST Specific Plan would result in similar operational noise as the non-university elements of the Adopted UCP. However, as discussed above, since adoption of the 2001/2004 UCP EIR, the City of Merced has adopted exterior noise level standards for non-transportation noise sources (i.e., stationary and area noise sources) which were not analyzed in the 2001/2004 UCP EIR. Depending on the type of HVAC equipment and level of activity at delivery docks, the VST Specific Plan could result in an exceedance of the applicable City of Merced stationary noise source standards. Because this impact was not analyzed previously, there could be new significant effects not identified in the 2001/2004 UCP EIR. This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.6-2: Amend the UCP to Include Provisions for Operational Stationary Source Noise Generating Activities

The County of Merced shall revise the following policies in the UCP Update as follows:

- Policy N 1.1** Buildings and noise generating appliances and activities shall be set back, designed and constructed so that new noise-generating land uses in a manner that does not cause excessive exterior or interior noise for noise-sensitive land uses on any location of nearby residential properties. The exterior noise standard for noise-sensitive land uses is 60 dBA L_{dn} and the interior noise standard for residential structures and other noise-sensitive land uses is 45 dB L_{dn} ; provided, however, that residential uses within and immediate adjacent to the ~~Town~~ Village Center shall be considered commercial mixed uses for the purposes of determining noise compatibility. Additionally, exterior stationary source noise standards for noise-sensitive land uses are 60dB Leq between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB Leq and 50 Lmax between the hours of 10:00 p.m. and 7:00 a.m. Noise reduction features shall be included in the design of any land use that has noise sources affecting residential land uses. These noise reduction features shall include structure design and layout, site planning, and other measures; block walls and barriers (including berms) shall only be used where such measures are deemed infeasible or ineffective.
- Policy N 1.19** Loading docks shall be located and designed such that noise generated by activity at the loading dock would not exceed the City's stationary noise source criteria (i.e., exterior noise levels of 55 dB Leq between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB Leq and 50 Lmax between the hours of 10:00 p.m. and 7:00 a.m.) at any existing noise sensitive receptor. As part of the design-build process for uses that include loading docks, a specialized noise study will be completed to evaluate the specific design and ensure compliance with City of Merced noise standards. Reduction of loading dock noise can be achieved by locating loading docks as far away as possible from noise sensitive land uses, constructing noise barriers between loading docks and noise-sensitive land uses, or using buildings and topographic features to provide acoustic shielding for noise-sensitive land uses. Final design, location, and orientation shall be dictated by findings in the noise study.

Significance after Mitigation

Implementation of Mitigation Measure 3.6-2 would ensure that any loading docks and delivery areas be oriented, located, and designed in such a way that noise exposure at nearby sensitive receptors would comply with City of Merced stationary noise source criteria (i.e., exterior noise levels of 55 dB L_{eq} between the hours of 7:00 a.m. and 10:00 p.m. and 45 dB L_{eq} and 50 L_{max} between the hours of 10:00 p.m. and 7:00 a.m.); thus, reducing this impact to a **less-than-significant** level.

Impact 3.6-3: Long-Term, Operational Noise (Traffic)

The 2001/2004 UCP EIR determined that the impact from traffic noise would be significant and unavoidable because multiple roadway segments within the Adopted UCP area would experience increases in noise levels of more than 5 dB, and the ambient noise level would still increase to levels that exceed adopted standards with mitigation. New modeling was conducted to analyze traffic noise as the baseline scenario (existing conditions) has changed. The UCP Update would include the reconfiguration and extension of Campus Parkway. New sensitive receptors located along Campus Parkway would be required to comply with Adopted Mitigation Measure 4.10-3(b). Although Bellevue Avenue between G Street and Lake Road would exceed the City's incremental noise increase of 1.5 dB for roadway segments with an existing noise level of 65 dB L_{dn} , the difference in noise would be far below that which was analyzed under the 2001/2004 UCP EIR (16 dB as opposed to 2.8 dB). Additionally, the overall noise level along these segments with implementation of the UCP Update and VST Specific Plan (i.e., 68dB L_{dn}) would be less than what was anticipated with implementation of the Adopted UCP (i.e., 70 dB L_{dn}). Therefore, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain **significant and unavoidable**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR analyzed impacts from traffic noise under Impact 4.10-3. The 2001/2004 UCP EIR identified five roadway segments which would increase by more than 5 dB due to the implementation of the UCP. The combination of Adopted UCP Policies N 1.2, LU 5.16, 5.19, T 1.2, T 4.1, and T 4.3 and the adopted mitigation measures presented below were designed to reduce noise levels from increased traffic generated by development of the UCP area. Although implementation of the above policies and mitigation measures would minimize potential noise impacts, it was determined that the ambient noise level would still increase to levels that exceed adopted standards at the time. Therefore, the 2001/2004 UCP EIR determined that the impact would be significant and unavoidable.

Adopted Mitigation Measure 4.10-3(a): The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.

Adopted Mitigation Measure 4.10-3(b): For development within the UCP area, noise considerations should be taken into account during initial site planning, in order to maximize shielding by the planned structures or other on-site features.

UCP Update

The UCP Update would develop the UCP area in a similar manner to that which was analyzed in the 2001/2004 UCP EIR. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,600 square feet.

The City's General Plan includes maximum allowable noise exposure standards from transportation noise sources (Table N-3 of the City of Merced General Plan Noise Element, presented as Table 3.6-6 above) that are designed to protect sensitive land uses from excessive noise levels. Noise standards vary based on the land use type and proximity to existing freeways and roadways. Additionally, City General Plan Policy N-1.2 establishes standards for incremental noise increases from traffic (see City General Plan Policy N-1.2, Implementing Action 1.2.e).

Traffic volume increases could result in potentially significant impacts if traffic noise levels exceed the City's exterior noise compatibility standard of 60 dB L_{dn} for residential uses (see City of Merced General Plan Policy N-1.2). Additionally, the buildout of the UCP would result in potentially significant impacts if there is a traffic noise increase of 5 dB or greater at locations with existing noise levels less than 60 dB L_{dn} , a traffic noise increase of 3 dB or greater at locations with existing noise levels between 60 dB CNEL and 65 dB L_{dn} , and/or a traffic noise increase of 1.5 dB or greater at locations with existing noise levels greater than 65 dB L_{dn} (see City of Merced General Plan Policy N-1.2).

Table 3.6-11 compares calculated noise levels along major roadways under existing conditions to those that could occur with buildout of the UCP Update. Traffic noise modeling was conducted for existing (2021) and near-term with project (2030) conditions using traffic data generated for the project, which was based on anticipated land use

development contemplated under buildout conditions (VRPA Technologies 2022). To provide a point of comparison for existing and future noise conditions, noise levels were calculated at a distance of 100 feet from the roadway centerline. Noise levels at receptors farther away from roadway noise sources, or in locations with intervening topography, vegetation, or structures, would be lower than shown in the Table 3.6-11.

As presented in Table 3.6-11, all roadway segments exceed the City's exterior noise standard of 60 dB L_{dn} for residential uses from transportation sources under existing conditions. However, the reconfiguration of Campus Road would reduce traffic volumes along Lake Road; and thus, noise levels are expected to decrease along Lake Road with the buildout of the project. Bellevue Road would experience increases in traffic noise along both segments for which traffic noise modeling was conducted. As shown in Table 3.6-11, Bellevue Road between G Street and Lake Road would exceed the City's incremental noise increase standard of 1.5 dB for locations with an existing noise environment above 65 dB L_{dn} . Additionally, the construction of Campus Parkway would add a substantial amount of traffic noise in an area where there are existing and planned sensitive receptors.

Table 3.6-11 Summary of Modeled Traffic Noise Levels under Existing and Existing Plus Project Conditions

Segment Description		Noise (dB L_{dn}) at 100 feet from Roadway		
		Existing	Plus Project	Change
1	Bellevue Road (Between Snelling Highway and G Street)	63.7	65.8	2.1
2	Bellevue Road (Between G Street and Lake Road)	65.2	68.0	2.8
3	Lake Road (Between Campus Parkway and Meyers Gate Road)	64.5	--	N/A
4	Lake Road (Between Meyers Gate Road and Cardella Road)	64.5	55.5	-9
5	Lake Road (Between Cardella Road and Yosemite Avenue)	64.4	56.0	-8.4
6	Campus Parkway (Between Bellevue Road and Meyers Gate Road)	--	68.1	N/A
7	Campus Parkway (Between Meyers Gate Road and Cardella Road)	--	68.4	N/A
8	Campus Parkway (Between Cardella Road and Yosemite Avenue)	--	67.8	N/A

Notes: dB = a-weighted decibels, L_{nd} = Day-Night Level, N/A = Not Applicable

Source: Modeled by Ascent Environmental (2022); based on traffic data provided by VRPA Technologies (2022).

As identified in the 2001/2004 UCP EIR, implementation of UCP Policies N 1.2, N 2.1, LU 5.16, LU 5.19, T 4.1, and T 4.2 would reduce project-generated noise impacts from increased traffic in the UCP area. UCP Policies N 1.2 and N 2.1 would reduce the effects from traffic noise by dispersing and slowing vehicular travel through the implementation of roadway design strategies. UCP Policies LU 5.16, LU 5.19, T 4.1, and T 4.2 would provide pedestrian and bicycle facilities along with traffic calming throughout the UCP area to reduce the use of vehicles; thus, reducing traffic noise. As detailed in Chapter 2, "Project Description," Adopted UCP Policy T 1.2 is proposed to be removed because it is currently contained in the CalGreen codes and building codes.

Additionally, Adopted Mitigation Measures 4.10-3(a) and 4.10-3(b) would continue to be required. Adopted Mitigation Measure 4.10-3(a) would ensure interior noise levels of affected residential sensitive receptors do not exceed 45 dB L_{dn} . Adopted Mitigation Measure 4.10-3(b) would help reduce noise impacts through site planning. In addition, Mitigation Measure 3.6-2, above, incorporates the provisions set forth in Adopted Mitigation Measures 4.10-3(a) and 4.10-3(b) into UCP Policy N 1.1. Therefore, consistency with these standards would be required through both the adopted mitigation and the revised policy language. New sensitive receptors located along Campus Parkway would be required to comply with the UCP Policies, as proposed for revision, ensuring exterior and interior noise standards are met.

Traffic noise along Bellevue Road was modeled in the 2001/2004 UCP EIR. Modeled noise levels under existing conditions in 2000 along Bellevue Road were shown to be 54 dB L_{dn} and were anticipated to reach 70 dB L_{dn} with the buildout of the Adopted UCP. Therefore, traffic noise along Bellevue Road was expected to increase by 16 dB which is much higher than the 2.8 dB change modeled and shown in Table 3.6-11 for the same roadway segment. However, the 70 dB L_{dn} identified in the 2001/2004 UCP EIR for buildout of the UCP exceeds the traffic noise level of 68 dB L_{dn}

modeled for the UCP Update and VST Specific Plan. Therefore, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain **significant and unavoidable**.

VST Specific Plan

The traffic noise analysis provided above is based on the VST Specific Plan TIS conducted by VRPA Technologies which analyzed the combined buildout of the UCP Update and the VST Specific Plan. Therefore, the traffic noise modeling and analysis detailed above for the UCP Update is applicable to the VST Specific Plan. See discussion above and Appendix F for detailed traffic noise modeling. Consistent with the impact determination above, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain **significant and unavoidable**.

Mitigation Measures

No new feasible mitigation available for this impact.

Mitigation Measure 4.10-3(a) is now considered to be legally and technically infeasible. This mitigation measure assumes that the County would have unlimited access to private property, and that all affected parties would consent to the referenced improvements. The necessity for this mitigation is limited by the fact that traffic from the UCP and VST Specific Plan would be along Campus Parkway, Bellevue, G Street, and Yosemite. Development along these roads is designed with appropriate noise attention or mitigation features, and these areas are primarily non-residential uses which are not considered noise sensitive land uses. For these reasons, Adopted Mitigation Measure 4.10-3(a) would be revised as follows:

~~**Adopted Mitigation Measure 4.10-3(a):** The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.~~

Impact 3.6-4: Generate Excessive Groundborne Vibration or Groundborne Noise Levels

The 2001/2004 UCP EIR analyzed the project's effects on groundborne vibration from construction activities as it pertains to structural damage and determined the impact to be less than significant with the implementation of Adopted Mitigation Measure 4.10-5. Human response from vibration was not analyzed in the 2001/2004 UCP EIR. Modeling for the UCP Update identified that pile driving within approximately 630 feet of residential uses would result in an exceedance of the County's 70 VdB threshold. Because project-specific details are not available at this time, it cannot be guaranteed that pile driving would not occur within 630 feet of sensitive receptors, and thus the impact would be potentially significant. Mitigation Measure 3.6-3 would amend the Adopted UCP to include provisions for potential vibration-inducing activities; however, it is not possible to ensure that potential impacts would be reduced sufficiently without project-specific information. Therefore, the UCP Update could potentially generate excessive groundborne vibration. There would be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR, and the impact would be **significant and unavoidable**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR analyzed impacts from construction-generated groundborne vibration under Impact 4.10-5. The 2001/2004 UCP EIR determined that construction activities involving pile driving would be perceptible at a distance of 650 feet. Additionally, a vibration level of 0.2 in/sec ppv, Caltrans' threshold for potential structural damage, would be exceeded within 100 feet. The 2001/2004 UCP/EIR concluded that potential impacts from vibration would be less than significant with the below mitigation incorporated.

Adopted Mitigation Measure 4.10-5: Limit groundborne vibration due to construction activities to 0.2 in/sec velocity (limit of potential for damage to structures) in the vertical direction at sensitive receptors. For construction adjacent to highly sensitive uses, apply additional measures as feasible, including advance notice to occupants of sensitive facilities to ensure precautions are taken in those facilities to protect ongoing activities from the effects of vibration.

UCP Update

As detailed above, the 2001/2004 UCP EIR analyzed the effects of vibration as it pertains to structural damage. There have not been changes to the general type of development that would occur between the Adopted UCP and the UCP Update, and Caltrans' threshold for potential structural damage of 0.2 in/sec ppv is still applicable. Additionally, the project would be required to implement Adopted Mitigation Measure 4.10-5.

However, the 2001/2004 UCP EIR did not analyze groundborne vibration as it relates to human response. The County has since set forth guidelines for maximum acceptable vibration criteria, identifying a threshold of 70 VdB (see Policy HS-7.7 in the 2030 Merced County General Plan) for existing residential areas. If required, pile driving activities taking place within 630 feet of sensitive receptors could exceed the County's threshold for groundborne vibration as it relates to human response. See Appendix F for detailed modeling.

Although UCP Policy N 2.6 would help limit vibration through the management of construction noise, project-specific details regarding individual development projects under the UCP are not known at this time. Thus, it is not possible to guarantee that pile driving would not take place within 630 feet of sensitive receptors such that vibration levels would be reduced to meet the standard set forth by the in Policy HS-7.7 of the 2030 Merced County General Plan. Therefore, the UCP Update could potentially generate excessive groundborne vibration. Because this impact was not analyzed previously, there would be new significant effects not identified in the 2001/2004 UCP EIR. This impact would be **significant**.

VST Specific Plan

As discussed above, the 2001/2004 UCP EIR concluded that the impact of groundborne vibration would be less than significant with implementation mitigation because impact pile driving, which could generate levels of ground vibration at adjacent sensitive receptors that could cause structural damage, may be needed for certain development projects. Construction of the VST Specific Plan would utilize typical construction activities and would not require any pile driving, blasting with explosives, or boring. Because the VST Specific Plan would use typical construction activities that would not generate substantial levels of vibration, there would not be a potential for adverse human response and further evaluation of activities taking place within 630 feet of sensitive receptors is not required. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.6-4: Amend the UCP to Include Provisions for Potential Vibration-Inducing Activities

The County of Merced shall include the following policy in the UCP Update:

- **Policy N 1.20: Construction Vibration.** All potential vibration-inducing activities shall comply with the following measures, setback distances, precautions, monitoring programs, and alternative methods to traditional construction activities:
 - Ground vibration-producing activities, such as pile driving and blasting, shall be limited to the daytime hours between 7:00 a.m. to 6:00 p.m. on weekdays and shall not occur on weekends and holidays consistent with County of Merced Municipal Code Section 10.60.040.
 - If pile driving is used and would occur within 630 feet of existing residential receptors, pile holes shall be predrilled to the maximum feasible depth to reduce the number of blows required to seat a pile.
 - All construction equipment on construction sites shall be operated as far away from vibration-sensitive sites as reasonably possible.
 - Earthmoving and ground-impacting operations shall be phased so as not to occur simultaneously in areas close to sensitive receptors, to the extent feasible. The total vibration level produced could be significantly less when each vibration source is operated at separate times.
 - Minimum setback requirements for different types of ground vibration producing activities (e.g., pile driving and blasting) for the purpose of preventing negative human response shall be established based on the specific nature of the vibration producing activity (e.g., type and duration of pile driving), local soil conditions,

and the type of sensitive receptor. Established setback requirements (i.e., 630 feet) can be breached only if a project-specific, site-specific, technically adequate ground vibration study indicates that the buildings would not be exposed to ground vibration levels in excess of 70 VdB, and ground vibration measurements performed during the construction activity confirm that the buildings are not being exposed to levels in excess of 70 VdB.

- All vibration-inducing activity within the distance parameters described above shall be monitored and documented for ground vibration noise and vibration noise levels at the nearest sensitive land use and associated recorded data submitted to the County of Merced so as not to exceed 70 Vdb.
- Alternatives to traditional pile driving (e.g., sonic pile driving, jetting, cast-in-place or auger cast piles, nondisplacement piles, pile cushioning, torque or hydraulic piles) shall be considered and implemented where feasible to reduce vibration levels.

Significance after Mitigation

UCP Update

Implementation of Mitigation Measure 3.6-4 would require that pile driving and blasting not occur during sensitive times of the day (i.e., weekdays, 6:00 p.m. to 7:00 a.m.). Additional measures would require the construction contractor to minimize vibration exposure to nearby receptors by locating equipment far from receptors, phasing operations, and predrilling holes for potential piles. Further, the County would establish vibration control measures to further refine appropriate setback distances and identify and implement alternative methods to pile driving and blasting if required.

While these measures would substantially lessen human annoyance resulting from vibration levels, at this programmatic level of analysis it is not possible to conclude that vibration levels in all locations associated with all future development under the UCP Update would be reduced below the County threshold for human annoyance levels. There are no additional feasible mitigation measures to reduce this impact to less than significant. As a result, this impact would be **significant and unavoidable** for the UCP Update.

VST Specific Plan

No mitigation is necessary. (As described above, vibration generated by construction of the VST Specific Plan would result in a less-than-significant impact.)

Impact 3.6-5: Cumulative Noise Impacts

The 2001/2004 UCP EIR identifies the potential for regional impacts associated with noise, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR and the UCP Update and VST Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts associated with noise would remain **significant and unavoidable**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR determined that the Adopted UCP, in combination with other development in Merced County, could result in increased congestion on regional road networks which could result in an increase in ambient noise levels (Impact 4.10-6) as well as create substantial temporary or periodic increase in ambient noise levels due to construction of the proposed UCP (Impact 4.10-8) which would result in cumulatively significant and unavoidable impacts. However, as described in the 2001/2004 UCP EIR, development of the UCP contributing to cumulative increases in non-traffic noise at land uses within and near the UCP (Impact 4.10-7) would be addressed through compliance with established regulations and policies and would be less than cumulatively considerable.

The 2001/2004 UCP EIR includes Adopted Mitigation Measures 4.10-3(a), 4.10-3(b), 4.10-4, and 4.10-5, which would require the implementation of noise attenuation measures, a noise control program, and would require a limitation on groundborne vibration as a result of construction activities.

Adopted Mitigation Measure 4.10-3(a): The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.

Adopted Mitigation Measure 4.10-3(b): For development within the UCP area, noise considerations should be taken into account during initial site planning, in order to maximize shielding by the planned structures or other on-site features.

Adopted Mitigation Measure 4.10-4: Construction contractors shall comply with the following or an equivalent noise control program:

- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with exhaust mufflers and air-inlet silencers, where appropriate, in good operating condition that meet or exceed original factory specification.
- Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
- All mobile or fixed noise-producing equipment used on the project, that is regulated for output by local, state or federal agency, shall comply with such regulation while engaged with project-related activities.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable.
- Material stockpiles and mobile equipment staging, parking and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. No project-related public address loudspeaker, two-way radio, or music system shall be audible at any adjacent noise-sensitive receptor except for emergency use.
- The erection of temporary noise barriers will be considered where project activity is unavoidably close to noise-sensitive receptors.

Adopted Mitigation Measure 4.10-5: Limit groundborne vibration due to construction activities to 0.2 in/sec velocity (limit of potential for damage to structures) in the vertical direction at sensitive receptors. For construction adjacent to highly sensitive uses, apply additional measures as feasible, including advance notice to occupants of sensitive facilities to ensure precautions are taken in those facilities to protect ongoing activities from the effects of vibration.

UCP Update and VST Specific Plan

As described in the 2001/2004 UCP EIR, development of the UCP contributing to cumulative increases in non-traffic noise at land uses within and near the UCP would be addressed through compliance with established regulations and policies and would be less than cumulatively considerable. The VST Specific Plan would generally involve similar construction activities to those discussed in the 2001/2004 UCP EIR and, thus, would generate similar levels of noise. As a result, adopted mitigation measures included in the 2001/2004 UCP EIR would apply. Adopted Mitigation Measures 4.10-3(b), 4.10-4, and 4.10-5 would help to reduce project impacts, nonetheless, buildout of the UCP would result in increased noise levels that would contribute to the cumulative noise in the region. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Impacts would remain **significant and unavoidable**.

Mitigation Measures

No new mitigation is available for this impact.

Mitigation Measure 4.10-3(a) is now considered to be legally and technically infeasible. This mitigation measure assumes that the County would have unlimited access to private property, and that all affected parties would consent to the referenced improvements. The necessity for this mitigation is limited by the fact that traffic from the UCP and

VST Specific Plan would be along Campus Parkway, Bellevue, G Street, and Yosemite. Development along these roads is designed with appropriate noise attention or mitigation features, and these areas are primarily non-residential uses which are not considered noise sensitive land uses. For these reasons, Adopted Mitigation Measure 4.10-3(a) would be revised as follows:

~~**Adopted Mitigation Measure 4.10-3(a):** The County shall construct barriers and/or retrofit affected homes with noise attenuation measures (e.g., sound-rated windows) necessary to achieve a 45 L_{dn} interior noise level.~~

3.7 TRANSPORTATION AND CIRCULATION

This section describes the applicable federal, state, and local transportation regulations and policies; discusses the existing roadway network and transportation facilities in the vicinity of the project; and analyzes the potential transportation and circulation impacts from implementation of the UCP Update and VST Specific Plan. Mitigation measures that would reduce impacts, where applicable, are also discussed.

Pursuant to Senate Bill (SB) 743, Public Resources Code (PRC) Section 21099, and California Code of Regulations (CCR) Section 15064.3(a), generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts and a project's effect on automobile delay shall no longer constitute a significant impact under CEQA. Therefore, the transportation analysis herein evaluates impacts using VMT and does not include level of service (LOS) analysis. Information regarding the project's VMT impacts was provided primarily in the *Virginia Smith Charitable Trust (VST) Vehicle Miles Traveled Analysis (VMT Analysis)* prepared for the project (VRPA 2023), which is included as Appendix H of this EIR and incorporated herein. Although not addressed in this EIR, the analysis of traffic operations (e.g., intersection and freeway LOS analysis) for the project was conducted by VRPA Technologies and is included in the *VST Transportation Impact Study (TIS)* (VRPA 2022) attached as Appendix E.

The 2001/2004 UCP EIR included Section 4.14, "Transportation and Circulation," which evaluated the potential transportation and circulation impacts resulting from project implementation. The analysis concluded that impacts resulting from increased traffic congestion on local and regional roads would be significant with implementation of Adopted UCP policies and additional mitigation (Impact 4.14-1). Additionally, impacts generated by unacceptable LOS increases at intersections and streets, increased demand of regional and local transit use, unacceptable increase in emergency vehicle response times, and increased demand for new parking were found to be less than significant with implementation of Adopted UCP policies (Impacts 4.14-2, 4.14-3, 4.14-5, and 4.10-6). Similarly, impacts related to the increased generation of regional bicycle and pedestrian travel on existing routes were found to be less than significant with implementation of Adopted UCP policies and additional mitigation (Impact 4.14-4). One comment was received regarding transportation in response to the notice of preparation. This comment stated that there are no future roadways currently planned on campus lands by University of California (UC) Merced, and thus the transportation analysis in the EIR should assume that all project-generated traffic will access Lake Road only via the intersections at Meyers Gate Road, Virginia Smith Parkway, and Cardella Road, and not via any future intersections of future campus roads with Lake Road. Because a project's effects on automobile delay no longer constitute a significant impact under CEQA, comments related to automobile delay (e.g., LOS, congestion) are not addressed herein. See Appendix A for all notice of preparation comments received.

3.7.1 Regulatory Setting

The regulatory setting provided in the 2001/2004 UCP EIR remains applicable to this analysis. The regulatory setting in Section 4.14, "Transportation and Circulation," provided on pages 4.14-6 through 4.14-18 of the 2001/2004 UCP EIR provides a description of regulations related to transportation and circulation, including but not limited to VMT analysis, regional bikeway networks, and circulation accessibility. Federal and state regulations provided in the 2001/2004 UCP EIR remain applicable to this analysis; however, additional regulatory information is provided below to support the analysis of transportation and circulation and to include regulations that were adopted subsequent to the release of the 2001/2004 UCP EIR. Additionally, because the UCP area would be annexed by the City of Merced, local policies adopted by the City of Merced are also provided below.

FEDERAL

The Federal Highway Administration (FHWA), an agency of the U.S. Department of Transportation, provides stewardship over the construction and preservation of the nation's highways, bridges, and tunnels. FHWA also conducts research and provides technical assistance to state and local agencies to improve safety, mobility, and

livability and to encourage innovation in these areas. FHWA also provides regulation and guidance related to work zone safety, mobility, and temporary traffic control device implementation.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) is the state agency responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as the segments of the Interstate Highway System that lie within California. Caltrans District 10 is responsible for the operation and maintenance of State Routes (SRs) 99, 140, and 59 in the vicinity of the project site. Caltrans requires a transportation permit for any transport of heavy construction equipment or materials that necessitates the use of oversized vehicles on state highways.

The Caltrans Transportation Impact Study Guide (TISG) was prepared to provide guidance to Caltrans Districts, lead agencies, tribal governments, developers, and consultants regarding Caltrans' review of a land use project or plan's transportation analysis using a VMT metric. This guidance is not binding on public agencies, and it is intended to be a reference and informational document. The TISG replaces the Guide for the Preparation of Traffic Impact Studies and is for use with local land use projects, not for transportation projects on the State Highway System (Caltrans 2020).

Senate Bill 743

SB 743, passed in 2013, required the Governor's Office of Planning and Research (OPR) to develop new State CEQA guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any."

OPR published its proposal for the comprehensive updates to the State CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts pursuant to Senate Bill 743. These updates indicated that VMT would be the primary metric used to identify transportation impacts. In December of 2018, OPR published the most recent version of the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) (OPR 2018) which provides guidance for VMT analysis.

In December 2018, OPR and the State Natural Resources Agency submitted the updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law subsequently approved the updated CEQA Guidelines. As of July 1, 2020, Section 15064.3 of the updated CEQA Guidelines applies statewide.

REGIONAL

Regional Transportation Plan/Sustainable Communities Strategy

MCAG adopted the 2022 Regional Transportation Plan Sustainable Communities Strategy (RTP) in August 2022. The RTP provides a comprehensive long-range view of transportation issues, opportunities, and needs for Merced County. It established the goals, objectives, and actions for future transportation improvements. The RTP identifies the actions that should be taken and funding needs and options available for successful implementation.

Regional Bicycle Plan

The purpose of the Merced County Regional Bicycle Transportation Plan is to provide a comprehensive long-range view for the development of an extensive regional bikeway network that connects cities and unincorporated areas countywide (MCAG 2008). The Bicycle Transportation Plan is designed to reduce single-occupant vehicle travel. The Bicycle Transportation Plan identifies regional goals and objectives related to bicycle safety and education, as well as bicycle connectivity and accessibility.

LOCAL

Merced County General Plan

The 2030 Merced County General Plan, adopted in 2013 and amended in 2016, is the County's blueprint for future growth and development (County of Merced 2013). The Circulation Element of the General Plan includes policies to ensure that adequate access is provided and maintained for all County land uses. The following Circulation Element policies apply to the project:

- **Policy CIR-1.2: Efficient Transportation Network (RDR)** Encourage land use patterns that promote shorter travel distances between residences and employment centers within Merced County, allow for non-auto travel, plan for multi-modal access for communities near I-5 and other major roadways, provide traffic calming on local roadways, and promote the efficient expansion and maintenance of transportation-related infrastructure to avoid constructing new roadways that would cause the physical division of existing communities.
- **Policy CIR-1.3: Transportation Efficiency (RDR)** Encourage transportation programs that result in more efficient energy use, reduce greenhouse gas emissions and noise levels, and improve air quality.
- **Policy CIR-1.4: Traffic Studies (RDR/PSR)** Require a traffic study to be prepared for all specific and community plans that includes, at a minimum:
 - a) Assessment of internal circulation system needs and design of a primary traffic circulation network for the plan area;
 - b) Demonstrate consistency with the circulation policies of the General Plan;
 - c) Identify regional transportation infrastructure connectivity requirements; and
 - d) Identify specific traffic impacts related to the plan area and improvement measures to mitigate those impacts including the identification of proportionate impact levels for regional governments.
- **Policy CIR-1.7: Alternative Transportation Modes (RDR)** Require development projects that have the potential to reduce existing level of service to plan for and accommodate alternatives modes of transportation (i.e., bicycle, pedestrian, transit)
- **Policy CIR-1.8: Private Roadway Improvements (RDR)** Require private roads and related improvements to be designed and installed to County standards as contained in the Improvement Standards and Specifications Manual (Title 16 of County Code) and Subdivision Code (Title 17), unless it can be demonstrated to the satisfaction of the approval authority that alternative improvements will be provided sufficient to fulfill the goals and objectives of this Chapter and the respective Codes.
- **Policy CIR-1.11: Public Road Frontage (RDR)** Require newly created lots or parcels in Urban Communities and Rural Residential Centers to front on an approved public road that meets County standards. Exceptions to this policy may be permitted for Planned Developments (PD), or lots fronting on privately maintained gated roads provided adequate regional circulation and emergency access is maintained, or for access to four or fewer parcels in Rural Residential Centers so long as the roads have an all-weather surface.
- **Policy CIR-1.14: Required Structural Improvements (RDR/MPSP)** Require developers of mining, large commercial, agricultural commercial, and industrial projects to either make appropriate roadway improvements and/or provide a funding mechanism for maintenance of the structural sections of County roadways when such projects could result in appreciable increases to commercial truck traffic and/or compromise the integrity of existing road sections.
- **Policy CIR-1.15: Right-of-Way and Roadway Improvement Requirements (RDR)** Require right-of-way dedication and roadway improvements to offset project-related traffic and roadway impacts on all discretionary land use entitlement approvals.
- **Policy CIR-1.17: Encroachment Permits (RDR)** Require encroachment permits to control access points on public roads.
- **Policy CIR-1.18: Right-of-Way Work (RDR)** Require encroachment permits for work within a right-of-way.

- **Policy CIR-1.22: Complete Streets (RDR)** Require new urban streets within Urban Communities to be designed and constructed to not only accommodate automobile, truck, and bus traffic, but to also serve all users, including pedestrians, bicyclists, and transit passengers of all ages and abilities. This includes:
 - Creating multi-modal street connections in order to establish a comprehensive, integrated, and connected transportation network;
 - Minimizing curb cuts along non-local streets;
 - Consider planting street trees adjacent to curbs and between the street and sidewalk to provide a buffer between the pedestrian and the automobile, where appropriate;
 - Constructing sidewalks on both sides of streets, where feasible;
 - Coordinating with other agencies and cities to ensure connections are made between jurisdictions; and
 - Incorporating traffic calming devices such as roundabouts, bulb-outs at intersections, and traffic tables.
- **Policy CIR-3.1: Multi-Modal Transportation (RDR)** Encourage multi-modal transportation opportunities within Urban Communities.
- **Policy CIR-3.5: Ridesharing Promotion (RDR)** Encourage programs that promote the use of ridesharing, carpooling, and vanpooling.
- **Policy CIR-3.7: Commute Trip Reduction (RDR)** Support efforts to reduce auto commute trips, such as mixed-use developments or private shuttle vans at large employment centers.
- **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.
- **Policy CIR-4.2: Bicycle Lanes and Pedestrian Paths (RDR)** Require all new or major reconstructed streets within Urban Communities to accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the costs of including bikeways and walkways would be excessively disproportionate to the need or probable use.
- **Policy CIR-4.4: Bicycle Lane Standards (RDR)** Ensure that the design and construction of bicycle lanes is consistent with Caltrans criteria and standards.
- **Policy CIR-4.5: Bicycle Storage Facilities (RDR/IGC/JP)** Require the installation of bicycle storage facilities at major transportation terminals and commercial and employment centers.
- **Policy CIR-4.8: Bicycle and Pedestrian Amenities (RDR)** Encourage the installation of amenities that serve bicyclists and pedestrians, such as secure and convenient bicycle parking, water fountains, and shaded seating areas at public facilities.
- **Policy CIR-4.10: Bicyclist Amenities (RDR)** Require non-residential developments to provide amenities for bicyclists, including bicycle racks, showers, and changing facilities.

City of Merced General Plan

The Merced Vision 2030 General Plan (City of Merced 2012) lays out a vision for the future as the City of Merced grows and develops. The Transportation and Circulation Element identifies goals, policies, and actions to meet the City's vision for the transportation system. The following policies are relevant to the project:

- **Policy T-1.1** Design streets consistent with circulation function, affected land uses, and all modes of transportation.
- **Policy T-1.4** Promote traffic safety for all modes of transportation.
- **Policy T-1.5** Minimize unnecessary travel demand on major streets and promote energy conservation.

- **Policy T-1.6** Minimize adverse impacts on the environment from existing and proposed road systems.
- **Policy T-2.1** Provide for and maintain a major transitway along "M" Street and possibly along the Bellevue Road/Merced-Atwater Expressway and Campus Parkway corridors.
- **Policy T-2.2** Support and enhance the use of public transit.
- **Policy T-2.3** Support a safe and effective public transit system.
- **Policy T-2.4** Encourage the use of bicycles.
- **Policy T-2.5** Provide convenient bicycle support facilities to encourage bicycle use.
- **Policy T-2.6** Maintain and expand the community's existing bicycle circulation system.
- **Policy T-2.7** Maintain a pedestrian-friendly environment.
- **Policy T-2.8** Improve planning for pedestrians.
- **Policy T-2.9** Ensure that new development provides the facilities and programs that improve the effectiveness of Transportation Control Measures and Congestion Management Programs.

City of Merced Bicycle Transportation 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 (City of Merced 2013). The 2013 BTP enables the City of Merced to compete for state funds for bike-related improvements. Policies contained in the 2013 BTP that are relevant to the project are included below:

- Encourage and assist employers to implement bike-to-work incentive programs at the workplace.
- Encourage the use of bike transportation by providing students and school faculty with safe and direct bicycle facilities.
- Encourage large employers to promote carpooling and other transportation alternatives within their work force.
- Seek to create an incentive-based program as a means to encourage employers to provide destination amenities required by bicyclists, including safe, secure, covered bicycle parking and showers and lockers at workplaces.
- Strive to provide bikeways that link residential areas with employment centers, downtown, schools, shopping centers, parks, and other major target areas.
- The bikeway system should fit the needs of commuters, while serving recreational and exercise purposes.
- Site bicycle support facilities such as bike racks, lockers, water fountains, etc., along bikeways and near destination areas, to the extent possible.
- Plan bicycle facilities in coordination with the development of UC Merced.
- Continue to integrate bicycling with the transit system.
- Design bikeways that integrate with the City's Parks and Open Space Master Plan.
- To support those who choose to use bicycles as their sole means of transportation, try to design facilities that support riding at night.
- In addition to off-street Class I Bikeways and Class II Bike Lanes, explore designs and appropriate sites in Merced for bicycle use spaces to be located within street rights-of-way having limited exposure to vehicular traffic, such as sharrows, shared streets, and bike boulevards.
- Continue to design bikeways that minimize conflicts between bicyclists, vehicles, and pedestrians to the extent practical.
- Design bikeways that conform to the Caltrans Design Manual standards for bikeway classifications.

- Promote increased traffic safety with special attention to intersection operations and associated design, and hazards which could cause personal injury.
- Situations where bike paths are located along the back sides of homes with limited visibility should be avoided as much as possible. Open fencing along bike paths should be considered, especially adjacent to multi-family developments.

3.7.2 Environmental Setting

This section describes the existing environmental setting, which is the baseline scenario upon which project-specific impacts are evaluated. The 2001/2004 UCP EIR describes the regional and local road network, traffic conditions, and other transportation modes on pages 4.14-2 through 4.14-6. The following environmental setting for transportation includes updated baseline descriptions for roadway, transit, bicycle, and pedestrian facilities.

ROADWAY SYSTEM

Roadways are generally classified as freeways/highways, arterial streets, collectors, and local streets in Merced. A description of each is provided below:

- **Freeways and highways** provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within Merced and provide regional access including connections to other parts of the State. The freeways located in the project area are listed below.
- **Arterial streets** provide for mobility within Merced, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. Access to abutting private property and intersecting local streets is generally be restricted. The arterials applicable to the project are listed below.
- **Collectors** provide for internal traffic movement within communities and connect local roads to arterials. Direct access to abutting private property is generally permitted.
- **Local roadways** provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. Access to abutting private property and intersecting streets are permitted.

The following roadways provide access to the project area:

- **SR 99 (Highway 99):** SR 99 is the primary regional highway in the Merced area. SR 99 provides access to San Francisco and Sacramento to the north, and Fresno and Bakersfield to the south. Through the City of Merced, Highway 99 has three- to four-lanes in each direction.
- **SR 140 (Highway 140):** SR 140 is a major east-west highway serving regional and local travel. SR 140 is a two- to four-lane rural highway providing regional access to Yosemite National Park to the east, intersecting with Highway 99 in Merced, and extending to Interstate 5 in the western part of Merced County.
- **SR 59 (Highway 59):** SR 59 is a north-south highway extending from Route 152, near Los Banos, to Snelling, an incorporated community located north of the City of Merced on the Merced River. SR 59 is a two-lane rural highway through Merced.
- **G Street** is a north-south road extending from Highway 99 to La Paloma Road where it turns into Snelling Road. G Street is a four-lane road south of Mercy Avenue narrowing to two lanes north of Mercy Avenue.
- **Olive Avenue** is an east-west street providing cross-town travel in Merced. West Olive Avenue connects Highway 59 and R, M, and G Streets. It is a six-lane road between G Street and Highway 59 primarily serving a commercial corridor. West of Highway 59, Olive Avenue becomes Santa Fe Drive connecting the northern portions of Merced to the City of Atwater and Castle Airport. The segment of West Olive Avenue between Highway 59 and R Street is designated as an expressway. East of G Street, East Olive Avenue transitions from four lanes to two lanes and provides access to one of Merced's largest residential areas.

- **Kibby Road** is a north-south two-lane roadway that runs between East Yosemite Avenue to the north and East Childs Avenue to the south.
- **Cardella Road** is an east-west four-lane roadway between Freemark Avenue and G Street. Cardella Road terminates on its western end just past Freemark Avenue and its eastern end at Lake Road. East of G Street, Cardella Road is not fully paved and provides access to private agricultural land.
- **Campus Parkway** is a north-south four-lane roadway. Campus Parkway terminates in the north at East Yosemite Avenue and becomes East Missions Avenue on its southern end at the South Coffee Street intersection.
- **Bellevue Road** is a two-lane east-west road extending from Fox Road to its eastern terminus at Lake Road.
- **Yosemite Avenue** is a two-lane east-west road extending from R Street to its eastern terminus at Arboleda Drive.
- **Lake Road** is a two-lane north-south road extending from Yosemite Avenue to its northern terminus at Lake Yosemite.

TRANSIT SYSTEM

Local transit service provided in and around Merced County is provided by Merced County Transit, also referred to as "The Bus." The Merced County Transit System is the single countywide provider of public transit service in Merced County and is managed by the transportation division of the Merced County Department of Public Works.

Seventeen buses operate Monday through Friday on 12 fixed routes, supplemented by The Micro Bus, an on-demand transit service. There are 13 bus routes which serve Merced County. Urban transit routes connect downtown Merced, adjacent neighborhoods, and major trip generators, such as the Merced Civic Center, hospitals, shopping areas, and Merced College. Rural routes connect outlying cities and communities in Merced County. Merced County Transit also offers curb-to-curb paratransit service to eligible individuals.

CatTracks, operated by UC Merced, provides seven fixed route shuttles for faculty, staff, and students. The Bobcat Express, C-1, C-2, FastCat, FastCat 2, G Line, and Yosemite Express buses run Monday through Friday, and the E1 and E2 operate Saturdays and Sundays.

Additionally, Amtrak provides daily passenger rail service to the San Francisco Bay Area, the San Joaquin Valley, Southern California, and Yosemite National Park. The Merced Amtrak Station is located on the Atchison, Topeka, and Santa Fe (ATSF) rail line at 324 West 24th Street. The Transpo Center, located on 16th Street between M and P Streets in Merced, was constructed on the Southern Pacific line in 1990 in anticipation of a potential rerouting of passenger service from the ATSF line to the Southern Pacific (now Union Pacific) line. It provides service to Greyhound and local bus service.

BICYCLE SYSTEM

The bicycle and pedestrian transportation system in the Merced County is composed of bikeways and trails. The Bicycle Transportation Plan and Caltrans Highway Design Manual categorize bicycle facilities into the following three types:

- **Class I (Bike Path):** A bike path, or Class I bikeway, is a separate, off-road facility and does not share a road or street right-of-way with motor vehicles. Cross flows by motorists are minimized. Bike paths are intended for the exclusive use of bicyclists, although pedestrians and others sometimes use them.
- **Class II (Bike Lane):** A bike lane, or Class II bikeway, is a bike facility established within the paved area of a road or street and shares the roadway with motor vehicles. Bike lane stripes are intended to promote an orderly flow of traffic, by establishing specific lines of demarcation between areas reserved for bicycles and lanes to be occupied by motor vehicles. Bike lane signs and pavement markings support this effect. Bike lane stripes can increase bicyclists' confidence that motorists will not stray into their path of travel.
- **Class III (Bike Route):** A bike route, or Class III bikeway, shares the street with motor vehicles, or shares the sidewalk with pedestrians and others. Signs, but no road markings designate a bike route (MCAG 2008: 7).

- **Class IV (Separated Bikeway):** Additionally, a separated bikeway, or Class IV Bikeway, is designed for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking (Caltrans 2018 :3).

The City of Merced has the most extensive system of bicycle facilities in Merced County. Merced's bikeway system consists of Class I bicycle paths and Class II bicycle lanes along many of the major streets in the city and several of the local creek corridors. Existing Class II bicycle lanes include many of the arterial streets within the city, including major sections of G Street, M Street, Yosemite Avenue, and McKee Road. Several other streets have shorter sections with designated bicycle lanes. These include R Street, V Street, West Avenue, Main Street, 18th Street, and 21st Street (City of Merced 2013). The City of Merced has designated bicycle routes wherever bikeway connections are necessary, but no opportunity for lanes or paths exist. Merced County also maintains bicycle paths along portions of Bear Creek and along Land Road to Lake Yosemite.

PEDESTRIAN SYSTEM

Pedestrian facilities in the form of sidewalks and crosswalks are present in most of the urbanized areas of the City of Merced.

3.7.3 Environmental Impacts and Mitigation Measures

This section describes the analysis techniques, assumptions, and results used to identify potential significant impacts of the proposed project on the transportation system. Transportation impacts are described and assessed, and mitigation measures are recommended for impacts identified as significant or potentially significant.

METHODOLOGY

State CEQA Guidelines Section 15064.3 was added December 28, 2018, to address the determination of significance for transportation impacts. The new guideline requires that transportation impact analysis is based on VMT instead of congestion (such as LOS). The change in the focus of transportation analysis is the result of legislation (SB 743) and is intended to shift the emphasis from congestion to, among other things, reducing greenhouse gas emissions, promoting a diversity of land uses, and developing multimodal transportation networks. Pursuant to CEQA Guidelines Section 15064.3(c), CEQA required VMT analyses beginning July 1, 2020. Although the 2001/2004 UCP EIR relied on LOS for the traffic analysis, this SEIR includes a VMT analysis based on the new CEQA requirement.

When the County conducted the VMT analysis, the County, City, and regional transportation agencies had yet to adopt VMT guidelines and thresholds to meet the State requirements set by SB 743 and address CEQA Guidelines Section 15064.3. Therefore, in the absence of adopted guidelines and thresholds of significance, the VMT analysis herein relies on the guidance provided in CEQA Guidelines Section 15064.3 and the OPR Technical Advisory (OPR 2018). State CEQA Guidelines Section 15064.3(b) identifies four criteria for analyzing the transportation impacts of a project. To determine how the project should be considered, each of the criteria is discussed below.

Section 15064.3(b)(1) addresses land use projects. The UCP Update and VST Specific Plan are land use plans that were prepared to guide future development of the project area. Therefore, the UCP Update, VST Specific Plan, and the projects regulated under these policy documents would generally be considered "land use projects." Section 15064.3(b)(1) describes that projects with specified proximity to "major" or "high quality" transit should be presumed to cause a less than significant transportation impact. As defined in PRC Section 21064.3, a "major transit stop" means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. PRC Section 21155(b) defines a high-quality transit corridor as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

Additionally, Section 15064.3(b)(1) also describes that projects that result in decreased VMT in the project area as compared to existing conditions should also be presumed to have a less than significant effect.

Section 15064.3(b)(2) addresses transportation projects. As described above, the UCP Update and VST Specific Plan would generally be considered land use projects. However, projects regulated under these plans would include transportation improvements which would be required to be analyzed as they relate to their impact on VMT. Section 15064.3(b)(2) describes that transportation projects that reduce or have no impact on VMT should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.

Section 15064.3(b)(3), Qualitative Analysis, states that if existing models or methods are not available to estimate the VMT for the particular project being considered, a lead agency may analyze the project's VMT qualitatively. Additionally, this section notes that for many projects, a qualitative analysis of construction traffic may be appropriate.

Section 15064.3(b)(4), Methodology, explains that the lead agency, (in this case, County of Merced) has discretion to choose the most appropriate methodology to evaluate VMT subject to other applicable standards, such as CEQA Guidelines Section 15151 (standards of adequacy for EIR analyses).

The OPR Technical Advisory notes that projects generating or attracting fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact, absent substantial evidence indicating otherwise. Therefore, individual projects under the UCP Update and VST Specific Plan that would likely generate fewer than 110 trips per day, would likely result in a less-than-significant VMT impact. However, the change in VMT associated with the UCP Update and VST Specific Plan considers the plans as a whole.

The OPR Technical Advisory recommends methodologies and metrics for land use plans, general plans, community plans and larger-scale mixed-use projects, such as the VST Specific Plan and the UCP Update. For specific plans and community plans the OPR Technical Advisory recommends the use of the same VMT efficiency metrics as those recommended for project-level analyses. Thus, the following approaches and metrics detailed in the OPR Technical Advisory would apply to the analysis herein:

- **Mixed Use Projects:** Per OPR guidance, lead agencies can evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included (e.g., residential and retail). Alternatively, a lead agency may consider only the project's dominant use. In the analysis of each use, a project should take credit for internal capture.
- **Residential Uses (or the Residential Component of Mixed-Use Projects/Plans):** Per OPR's guidance, a proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita.
- **Office/Employment Uses (or Office/Employment Components of a Mixed-Use Plan):** Per OPR's guidance, a proposed project exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact.
- **Retail Uses (or Retail Components of Mixed-Use Projects):** Per OPR's guidance, a net increase in total VMT may indicate a significant transportation impact. Additionally, the OPR Technical Advisory notes that lead agencies generally may presume that local-serving retail development creates a less-than-significant transportation impact.

Use of a regional travel demand model is the preferred methodology for VMT analysis wherever a regional travel demand model is available and appropriate. However, the Three-County traffic model, maintained by MCAG, was determined to be not adequate for the analysis of this project for the following reasons (VRPA 2023):

- Regional travel demand models rely heavily on surveys of existing travel to forecast future travel patterns. This works well when the regional development patterns of the future are similar to regional development patterns of the under existing conditions. In the case of development patterns in Merced County, the implementation of the VST and the UCP would represent a substantially different development pattern than the existing condition. A

great deal of residential and commercial development would be available in close proximity to the UC Merced campus that does not exist today. This would greatly affect travel behavior for the UC Merced campus and nearby developments.

- Regional travel models typically rely on travel distance to determine the attractiveness of trips between various origins and destinations, but they also typically use adjustments known as K-factors to account for unusual travel patterns between certain origins and destinations. The K-factors are determined based on existing travel patterns and then used in future travel forecasting. In the case of the UC Merced campus and the nearby developments that are planned for the future, it is likely that K-factors would be needed to adjust for the strong relationship between UC Merced and the nearby development that is intended to serve the university. There is no way to develop these K-factors because there are no existing developments serving the university that could be used as a basis to survey existing travel patterns.

See Appendix H for additional details regarding methodology and assumptions. Due to the lack of an appropriate regional travel model for the purposes of VMT analysis for this project, an alternative VMT analysis methodology was utilized based on the following approach (VRPA 2023):

- Determine the trip generation of the project based on the Traffic Impact Study Assumptions and Methodology. See Appendix E.
- Determine the trip distribution of the project based on the Traffic Impact Study Assumptions and Methodology.
- Estimate a trip length for all project trips based on the trip generation and trip distribution characteristics.
- Determine the project VMT by multiplying the number of trips by the estimated trip lengths.
- Compare the expected project generated VMT per capita for residential land uses and VMT per employee for office land uses to regional averages, as recommended in the OPR Technical Advisory. For the residential land uses within the project, the project's VMT impact would be less than significant if its VMT per capita is 15 percent below the regional average VMT per capita. For the office land uses within the project, the project's VMT impact would be less than significant if its VMT per employee is 15 percent below the regional average VMT per employee.

For the purposes of the analysis herein, VMT is expressed by dividing the net VMT by the sum of residents, visitors, and employees (referred to as service population). The VMT per service population metric is a transportation efficiency metric that is used to identify potential impacts associated with implementation of the UCP Update and VST Specific Plan. This methodology provides a framework for analyses that is based on appropriate, adopted State guidance updated to reflect conditions in the city and county. It should be noted that the Merced County Association of Governments (MCAG) adopted the *VMT Thresholds and Implementation Guidelines* in November 2022, subsequent to initiation and completion of the VMT analysis for this project. However, because this guidance was not available at the time the VMT analysis was conducted it is not utilized herein. The VMT Thresholds and Implementation Guidelines provide a regional guide and recommend the use of the MCAG Travel Demand Model (TDM) for VMT analysis purposes. For land use plans, the existing regional average VMT per capita, VMT per employee, and/or VMT per service population is recommended as the threshold of significance. The MCAG guidelines set forth an assessment methodology that differs from the approach applied in this analysis and it would not be appropriate to apply the MCAG thresholds to the modeled VMT and evaluation of effects in this section.

For informational purposes, a comparison of the methodology used to analyze project VMT and that provided in the MCAG guidelines are detailed below:

- MCAG's VMT Thresholds and Implementation Guidelines state that mixed-use projects can be evaluated by analyzing each project land use type separately while taking credit for internal trips. Both components of the project (i.e., the UCP Update and the VST Specific Plan) include a mix of land use types, and the VMT analysis has followed this guidance by analyzing the residential and employment uses of the project separately.
- The 2001/2004 UCP EIR was certified under CEQA. The MCAG VMT Thresholds and Implementation Guidelines state that projects that were previously approved do not need to conduct a VMT analysis if the land uses are consistent; however, it does not provide guidance on how to analyze previously approved projects that include

changes in land use. The project would reduce development in the project area, including a reduction of the number of total dwellings units from 11,700 to 9,700 and a reduction of commercial/office spaces from 2,023,000 square feet to 1,257,000 square feet (see Table 2-1).

- As described previously, the MCAG VMT Thresholds and Implementation Guidelines recommend that project VMT is determined based on the MCAG TDM. The MCAG TDM only includes trips contained within Merced County, with estimates for external travel based on the California Household Travel Survey and does not include trips originating or ending outside of the county (such as commuter trips from cities within Madera, Fresno, or Stanislaus Counties). The VMT analysis for the project was based on the California Statewide Transportation Demand Model (CSTDM), which is supported by OPR for VMT analysis based on statewide guidance. The CSTDM is a comprehensive, well-researched, and well-documented model that identifies traffic patterns associated with all existing developments, including traffic within and between counties. Additionally, OPR recommends that thresholds based on "...a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold" (OPR 2018: 10). Therefore, the use of these thresholds based on the CSTDM is considered the most appropriate methodology for analyzing VMT of the project.

The VMT analysis for the project is consistent with MCAG's VMT Thresholds and Implementation Guidelines other than the discrepancies described above. The VMT analysis for the project is consistent with the CEQA Guidelines, OPR's Technical Advisory, and the proposed methodology prepared by VRPA in November 2020 which was reviewed and approved by the City, County, and Caltrans.

THRESHOLDS OF SIGNIFICANCE

The significance criteria used to evaluate the project impacts to transportation under CEQA are based on Appendix G of the CEQA Guidelines, CEQA Guidelines Section 15064.3, and the OPR Technical Advisory. Impacts to the transportation system would be significant if implementation of the 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);
 - VMT per capita above 13.54 (i.e., 15 percent below County average VMT per capita as established in the OPR Technical Advisory)
 - VMT per employee above 34.46 (i.e., 15 percent below County average VMT per employee as established in the OPR Technical Advisory)
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); and/or
- result in inadequate emergency access.

PLAN CHARACTERISTICS

UCP Update

The UCP Update includes the following policies (shown with edits to the Adopted UCP policies tracked):

Transportation

- **Policy T 1.1** Designate a functionally classified system of principal transportation facilities that represents the major backbone circulation system needed to serve the Community Plan at acceptable levels of service, as shown in the UC Circulation Plan, with the features described in ~~A sketch of the proposed backbone system is shown in Figure 16. Definitions of the street classifications are given in Table 1. 3, and typical cross-sections are shown graphically in Figures 17 and 18. The precise alignment and standards for transportation facilities shall be defined by an~~ Areawide Circulation Master Plan prepared prior to or concurrent with the preparation of the first sub-area

Specific Plan. These may modify the elements shown on Figure 3 provided that the underlying goals, objectives, and policies of the UCP for urban form, community character, and mobility are achieved. These include the establishment of a system that The Circulation Diagram is shown on Figure 3 to:

- Supports the development of County Campus Parkway and underlying interconnected grid street system
- Provide access to and from UC Merced, that is interconnected with and prevents adverse impacts on the Community's Town Center and Residential Villages
- Promote the use of public transportation and alternative modes
- Interfaces with the surrounding street network and development
- Provides access between the UCP sub areas.

The classified streets, their dimensions and features are described in Table 3.1.

- **Policy T 1.2 DELETED** ~~Develop individual but coordinated master plans to guide design and implementation of the principal circulation infrastructure, including plans that address streets, bikeways, pedestrian ways, transit, and parking.~~
- **Policy T 1.3** Reserve adequate rights-of-way to implement the designated circulation systems and designate access management restrictions for adjoining properties. The allocation of rights of way and improvement responsibility shall be established at the time of the first specific plan for facilities that are shared between adjacent land uses, such as Cardella Road and Meyers Gate Road.
- **Policy T 2.2** Discourage cul-de-sacs and other non-connecting street types where they are not necessary to comply with access management restrictions on major roadways. Where cul de sacs are used, adequate pedestrian, transit and bicycle access shall be provided to adjacent roadways.
- **Policy T 3.1** Define a set of street design standards that minimize paved area while ensuring safe and adequate access to the Community.
- **Policy T 3.2** Specify flexible design standards for arterial and primary collector streets to accommodate the mix of travel modes that may develop over time.
- **Policy T 3.3** Design roadways that are compatible with adjacent land uses, through choice of street width, median and landscaping treatment, parking provision, pedestrian/bicycle accommodation, and access management strategies. ~~The following images illustrate the concept [which show a collector or local road with a Class II bike lane and a turn lane; a commercial town center or downtown with a travel lane in each direction and onstreet parking; and, a two-lane Collector street with landscaped median].~~
- **Policy T 3.5** Protect the quality of residential areas by reducing or controlling traffic routing, volumes and speeds on local streets. Integrate traffic calming measures into street design, to enhance livability of neighborhoods. Examples of calming measures may include roundabouts, neckdowns, raised crosswalks, speed tables, and narrow or curving streets; ~~illustrations of these measures are shown in the following images.~~
- **Policy T 4.1** Create a complete, interconnected bicycle and pedestrian circulation system that serves both commuter and recreational travel, and provides access to major destinations.
- **Policy T 4.2** Work with UC Merced to establish convenient pedestrian and bicycle access routes to and through Campus.
- **Policy T 4.3** Install amenities to serve bicyclists and pedestrians, such as secure and convenient bicycle parking and shaded seating areas at public facilities.
- **Policy T 5.1** Promote and, where appropriate, participate in the development of high-frequency transit services that seamlessly connect major destinations, including the UC Merced campus. Encourage convenient transfers between transit and other modes of travel.

- **Policy T 5.3** Establish a transit hub at the interface stops in the UCP for hub at the interface between the town center and campus core for timed transfers between local campus/Community transit service and regional transit connections serving the City of Merced, the rest of Merced County, and major interregional destinations.
- **Policy T 5.5** Establish development standards, such as inclusion of handicap-accessible bus stops and shelters, to make transit attractive. Require development to fund its fair share of necessary transit facilities.

Land Use

- **LU 3.1** Concentrate land uses to minimize impacts on natural environmental resources and agricultural uses, and maximize the efficiency of supporting infrastructure, community/ pedestrian activity, and transit use.
- **LU 3.2** Establish a land use pattern composed of distinct districts and neighborhoods differentiated by function, use, physical form and character, and design that are integrated into a cohesive, seamless, and definable community. Land use districts shall be organized around a core activity area that is directly linked and blends with the core activities of UC Merced and provides a continuous network of parklands, open spaces, and multi-modal transportation corridors, (as conceptually illustrated in Figures 4 and 5). Distinct residential neighborhoods ("villages") shall be oriented around the University Community Town Center that serves as the primary focal point of Community identity and Community-campus interaction. Each neighborhood/village shall contain a mix of housing units/densities that focus on a school, park, local retail, and other services. A business center shall be developed adjacent and relate to the Town Center and UC Merced campus. Figure 1 is established as the land use plan and diagram for the UCP.
- **LU 3.3** Site and design land uses and buildings to maximize the Community's quality of life, including the establishment of pedestrian-oriented mixed-use districts and residential neighborhoods that reflect the traditional qualities of Merced, while providing opportunities for innovative and creative forms of development.
- **LU 3.4** Locate the highest residential development densities within and adjacent to the Town Center and primary transit corridors and stations to support community activity and transit use. Encourage the development of housing that is suitable and affordable for UC Merced students, faculty, and staff in proximity and adjacent to the Town Center.
- **LU 3.6** Locate and design land uses to promote efficiency of access, reduce costs, and enhance livability by the sharing of recreation, community and public facilities, institutions and cultural attractions, activity areas, and transportation infrastructure.
- **LU 5.7** Develop a multi-modal transportation center that serves both the community and the campus at the earliest feasible date to lessen automobile dependence. Work with the UC in the siting and design of this facility to ensure its compatibility with adjoining uses and the transportation network and facilities.
- **LU 5.8** Develop the Town Center with the highest densities in the University Community to reinforce its role as the "heart" of the community and foster pedestrian and transit use, according to the following standards:
 - C-MUR Retail and office uses (free-standing): Minimum floor area ratio (FAR) of 0.75 and maximum of 3.0 (one to six stories).
 - C-MUR m Mixed Use Town Center (housing/retail or office): Minimum FAR of 0.75 and maximum 3.0.
 - C-MUS Mixed uses zone for services, institutional uses and visitor-oriented uses with a minimum FAR of 0.40 and maximum of 1.0 for retail or office components (three to six stories).
 - Parking in the Town Center may be one space per 500 square feet. Parking requirements elsewhere in the UCP shall be per the City of Merced zoning ordinance.
 - Residential: An average range of 8 to 35 units per net acre (minimum height of two stories). Individual sites may be developed at lesser densities provided that the average density for the Town Center planning area is achieved.
- **LU 5.10** Integrate the Town Center's land uses into a cohesive urban pattern that provides the sense of complete and identifiable place. Establish an urban form that ties together individual parcels and uses into a cohesive

whole, addressing the location and massing of buildings, architecture, landscape, connective pedestrian paths and walkways, streets and transit, use of key landmarks, and similar elements.

- **LU 5.19** Design internal local streets to emphasize pedestrian activity and slow traffic using such techniques as narrow streets appropriate width, angled parking, traffic circles, landscaped “bulb outs,” alleys, and comparable techniques. Sidewalks shall be a standard of a minimum of 10 15 feet wide, and shall be developed in accordance with the Development Plan in the UCP North/VST specific plan. shall be established as the minimum width of sidewalks, which may be modified to reflect specific planned uses and urban form within the Town Center, provided that the intention for functional pedestrian sidewalks is achieved.
- **LU 6.8** Develop a network of streets, sidewalks, bicycle trails, infrastructure, and open spaces that connect with and continue the basic pattern established in UC Merced’s LRDP. abutting University campus, the Town Center, commercial districts, and Residential Villages.
- **LU 7.15** Integrate housing, parks, schools, commercial, public, and other uses into a cohesive urban pattern that provides the sense of a complete and identifiable neighborhood, in accordance with other policies in this section of the Plan. Establish an urban form that ties together individual parcels and uses into a cohesive whole, addressing the location and massing of buildings, architecture, landscape, connective pedestrian paths and walkways, use of key landmarks, and similar elements (as illustrated in Figure 12).
- **LU 7.18** Site and design development to enhance neighborhood quality of life by:
 - Establishing a pattern of blocks that are no longer than 500 feet with pedestrian access points, or which promotes access and neighborhood activity.
 - Minimizing the width of streets to slow traffic and promote intimacy while maintaining acceptable fire protection and traffic flows.
 - Integration of a diversity of housing types within a neighborhood and on individual blocks, ensuring their compatibility with adjoining units
 - Use of variable setbacks and parcel sizes to accommodate diverse housing types.
 - Physically and visually relating the unit to the street frontage
 - Locating and designing garages to minimize their visual dominance from the street, including the usage of common driveways.
 - Incorporating sidewalks and parkways to foster pedestrian activity
 - Promoting architectural diversity
 - Other appropriate techniques.
- **LU 7.20** Locate Village Commercial Centers within walking distance of all homes within the village/neighborhood, connected by a network of trails and pedestrian paths
- **LU 9.4** Develop a continuous greenbelt corridor/park system as the centerpiece of the University Community (“Village Green/Central Park”), which will be linked with each Village Center and Community open spaces by a network of connecting trails. Accommodate parklands and open spaces within the greenbelt system that provide residents with a diversity of open space experiences, ranging from active urban spaces to passive open lands. This may encompass landscaped urban squares, neighborhood and community-serving parks, mini-parks, linear greenways, landscaped hiking and bikeway trails, and similar elements (as illustrated on Figure 13). At a minimum, the greenbelts and parks shall be developed for active recreational use shall encompass 150 acres, based at an overall community plan area standard of 56 acres per 1,000 residents. The minimum park area within any one specific plan subarea shall be five acres per 1,000 residents. However, to create the amenity and economic and social values that are essential to uniquely define and differentiate the University Community, developers shall be encouraged to exceed this minimum for habitat and native grassland preserves, open space buffers, and other purposes.

VST Specific Plan

The VST Specific Plan includes the following policies:

- **Policy 1.6** Residential buildings along Meyers Gate Road, Virginia Smith Parkway, and Cardella shall be oriented to the street with front doors or porches fronting on the street. Dwellings along those streets and the principal north-side streets in the project (including, but not limited to Campus Parkway, Golden Bobcat, Center Street and Kibby Road) shall only have access from the side or rear and there shall be no direct individual driveway access to these roadways. Pedestrian and bicycle access to those roads should be provided through side-on cul de sacs and/or pedestrian walk throughs or other means.
- **Policy 1.16** Pedestrian linkages to nearby neighborhoods and commercial services should be provided within all zones.
- **Policy 2.2** The Village Commercial plazas shall be a minimum size of 5,750 sq. ft. each. These plazas shall provide for outdoor seating and eating places, public gathers and enhanced landscaping.
- **Policy 2.4** Each neighborhood area should provide convenient access to the Cottonwood Creek corridor, Linear Park along Virginia Smith Parkway and the Fairfield Canal open space.
- **Policy 2.5** The character of Center Street in the Village Commercial area should provide a pedestrian-friendly environment with accessible sidewalks, bulbouts, parkway landscaping, street trees, limited driveway access points, and reduced front building setbacks.
- **Policy 2.6** Roundabouts, bulbouts, and decorative paving should be incorporated at primary intersections locations and within subdivisions to enhance pedestrian access and provide traffic calming. Roundabouts shall provide decorative landscaping, including trees that provide for monumentation and reference points within the project, as shown on Figure 14. The Campus Parkway roundabouts at University and Campus Parkway will provide a transition from the project to UC Merced and shall provide thematic improvements such as those illustrated on Figure 15. At-grade crossing, curb extensions and bulbouts shall be used on local and minor streets no less frequently than one every 500 feet to ensure that traffic speeds along longer stretches of local streets are limited to 25 miles per hour or less. Figure 16 shows examples of the use of these features.

ISSUES NOT DISCUSSED FURTHER

All potential transportation impacts are evaluated below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.7-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle and Pedestrian Facilities

Implementation of the UCP Update and VST Specific Plan would develop a transportation network for all modes of transportation including pedestrians, bicycles, and transit. Policies proposed under the UCP Update and VST Specific Plan encourage the construction of a fully integrated bicycle and pedestrian system with supportive amenities and transit improvements. Additionally, the VST Specific Plan would locate new transit bus stops throughout the plan area and design Class I bicycle paths and Class IV bicycle lanes to meet or exceed the minimum standards established by the California Department of Transportation Highway Design Manual and City design standards. The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The impact would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR evaluated whether the project's generation of transit ridership would be adequately supported by the policies contained in the Adopted UCP in Impact 4.14-3. The 2001/2004 UCP EIR stated that the

regional transit demand likely to be generated by the Adopted UCP would be substantially higher than in other areas served by Merced County Transit; thus, creating a potentially significant impact on the County's transit system. It was determined that Adopted UCP Policy T 3.2 would provide for a street system within the UCP area designed to meet the travel-time and maneuvering requirements of transit vehicles. Additionally, UCP Policies T 5.1, T 5.2, and T 5.3 would provide for high transit levels of service and operating efficiency, including preference at intersections, and integration with regional and University transit services. The 2001/2004 UCP EIR found that the combination of UCP policies and the County's commitment to supporting transit service for the community and UC Merced campus would reduce the impact to a less-than-significant level.

Additionally, Impact 4.14-4 of the 2001/2004 UCP EIR evaluated whether the project's generation of regional bicycle and pedestrian travel would be adequately supported by the bicycle and pedestrian facilities in the area. The 2001/2004 UCP EIR found that pedestrians and bicycle access to the UCP area was limited to travel on shoulders along high-speed rural roads such as Bellevue Road and Lake Road and to the off-street bicycle path along the east side of Lake Road at the time the environmental review took place. The condition of the Lake Road bike path due to deferred maintenance of the surface material and the surrounding landscaping led to concerns that the project's increased bicycle use could not be supported by the area's facilities which would lead to a conflict with adopted policies supporting alternative transportation modes. For this reason, that impact was considered significant. The 2001/2004 UCP EIR found that Adopted UCP Policies T 1.2 and T 3.2 would provide for sidewalks and bike lanes on all streets where needed to promote safe and efficient bicycle and pedestrian use. Additionally, Adopted UCP Policies T 3.3 and T 3.5 would ensure that the street system disperses traffic and slows traffic speeds to keep concentrations of traffic or high speeds from creating significant pedestrian or bike conflicts. Adopted UCP Policy T 3.6 would enact a standard that prioritizes pedestrian and bicycle flow at intersections. Adopted UCP Policies T 4.1 through 4.4 would establish a system of interconnected, appropriately designed pedestrian and bicycle routes, and T 7.4 would call for bicycle and pedestrian amenities.

Further, Adopted UCP Policy T 4.2 requires the County to work with UC Merced to establish convenient bicycle routes between the University Community and the UC Merced campus. Adopted UCP Policies ARM 1.3 and ARM 5.1 require planning for a cohesive bikeway system linking the University Community, the UC Merced campus, and the City of Merced, as well as street signage to clearly communicate travel routes. Adopted UCP Policies T 8.1, T 8.2, and T 8.3 would provide for ongoing coordination with neighboring jurisdictions and regional agencies to manage traffic growth and coordinate timely implementation of bicycle and pedestrian systems and services.

Lastly, the County's Regional Bicycle Plan was identified as a regulatory document which would support the improvement of regional bikeway connections to the UCP and UC Merced campus. The 2001/2004 UCP EIR found that the combination of UCP policies and the County's Regional Bicycle Plan would reduce the impact to a less-than-significant level; however, the 2001/2004 UCP EIR provided proposed mitigation, presented below, to further reduce the impact.

Adopted Mitigation Measure 4.14-4: Merced County will, and the City of Merced should, ensure adequate maintenance of the existing path along Lake Road and other regional bicycle and pedestrian facilities that provide access to the proposed UCP.

UCP Update

As detailed above, the 2001/2004 UCP EIR analyzed impacts from the project's increased generation of bicycle use, pedestrians, and transit ridership. Overall, the UCP Update area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,600 square feet. Additionally, the UCP Update includes revising the alignment of Campus Parkway through the UCP area as shown in UCP Figure 1. The changes in the UCP Update regarding the Campus Parkway alignment would require amendments to the County General Plan Circulation Element to recognize the "urban expressway" designation and dimensions proposed for Campus Parkway in the UCP area.

Because the proposed land uses would be less intensive and there would be fewer residents than previously proposed, the previously anticipated impacts from increased bicycle, pedestrian, and transit use would not increase, but may actually be reduced. Additionally, as detailed in the OPR Technical Advisory, when evaluating impacts to multimodal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact. Therefore, the UCP would accommodate all methods of transportation by providing bicycle, pedestrian, and transit facilities, and capacity would be accommodated.

The UCP Update includes revisions to the adopted UCP policies. UCP policies relevant to transportation would not hinder bicycle or pedestrian facilities, nor would they influence transit services. Implementation of the UCP Update and UCP policies would only enhance the availability and use of alternative modes of transportation. UCP Policies T 3.2, T 3.3, and T 3.5 would provide for traffic calming and complete streets design approaches in the UCP area. Additionally, UCP Policies T 4.1, T 4.2, and T 4.3 would improve pedestrian and bicycle facilities including the implementation of supportive amenities to serve those travel modes. UCP Policies T 5.1, T 5.3, and T 5.5 support transit improvements for the City, County, and UC Merced communities. Further, UCP Policies LU 3.1, LU 3.2, LU 3.3, LU 3.4, LU 3.6, LU 5.7, LU 5.8, LU 5.10, LU 5.19, LU 6.8, LU 7.15, LU 7.18, LU 7.20, and LU 9.4 would develop the UCP area in a manner that would integrate land uses to encourage increased pedestrian, bicycle, and transit use.

The policies contained in the UCP Update have been designed and verified to be consistent with the Merced County Regional Bicycle Transportation Plan (MCAG 2008) and the City's 2013 BTP, as well as relevant policies in the County and City general plans. The UCP Update would develop bicycle, pedestrian, and transit facilities in a manner that encourages increased use of alternative modes of transportation by providing an integrated network of facilities to facilitate these types of trips and are supported by the UCP policies referenced above. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

The VST Specific Plan includes a Circulation Framework which includes the planned circulation system elements, design standards, and circulation system phasing. Additionally, the Circulation Framework describes the location of major facilities in or adjacent to the VST Specific Plan area including Campus Parkway, connector roads to UC Merced (as described in the university's Long Range Development Plan), and special street widths and amenities. The Circulation Framework also addresses parking and loading standards, if different than standard City requirements, transit needs, and non-vehicular modes of circulation such as pedestrians and bicycles.

Pedestrian circulation would be accommodated by street design standards that include sidewalks on both sides of the street for most classifications of streets within developed areas; off-street, multi-use paths along streets adjacent to open space areas; and a network of multi-use and Class IV buffered and protected bicycle facilities that will connect to the street system within the UCP area and the UC Merced campus. Additionally, the VST Specific Plan proposes a comprehensive system of on-street and off-street bicycle facilities in and around the VST Specific Plan area. Further, the Circulation Framework proposes off-street Class I multi-use paths that travel parallel to creeks and riparian corridors such as Cottonwood Creek and the Fairfield Canal, and off-street paths adjacent to streets and on-street bicycle lanes. Bicycle facilities implemented as part of the VST Specific Plan would meet or exceed minimum standards established in the Caltrans Highway Design Manual and City design standards. As detailed in Chapter 2, "Project Description," buffered bike lanes would occur on all internal collector, arterial, and expressway streets. Additionally, a pedestrian intersection density of over 500 intersections per square mile would be implemented through pedestrian connections that have been identified along and between residential blocks, which would increase walkability throughout the area. Furthermore, the VST Specific Plan proposes new bus stops throughout the VST Specific Plan area for City and UC transit buses. Finally, information and/or incentive packages would be provided for transit ridership.

For these reasons, implementation of the VST Specific Plan would enhance the environment for people walking, bicycling, and/or taking transit. Buildout of the Circulation Framework would be consistent with policies in the City's General Plan including T-1.1, T-1.4, T-2.2, T-2.4, T-2.5, T-2.6, and T-2.7 which provide for the safe and efficient movement of people using alternative modes of transportation. Additionally, the VST Specific Plan supports the objectives in the City's 2013 BTP which intends to provide bicycle improvements throughout the city. Furthermore,

VST Specific Plan Policies 1.16, 2.2, 2.5, and 2.6 provide for pedestrian-friendly connections and amenities within the plan area. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.7-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)

The 2001/2004 UCP EIR did not evaluate the Adopted UCP's impact on VMT because it was not required under CEQA at the time. The UCP Update and VST Specific Plan intends to develop the circulation network in the project area to accommodate all modes of transportation including pedestrians, bicycles, and transit. Additionally, development consistent with the UCP Update would contain higher densities and locate various land uses within closer proximity to one another. Thus, implementation of the UCP Update and VST Specific Plan would encourage the use of alternative modes of transportation, reducing vehicular travel and would not result in exceedances of the established VMT per capita or VMT per employee significance thresholds. Therefore, there would not be new or more severe significant effects beyond those identified in the 2001/2004 UCP EIR. The impact to would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR did not include an impact analysis or significance determination related to VMT as it was not required under CEQA at the time. The analysis within this section is based on the analysis and findings of the *VST VMT Analysis* prepared by VRPA Technologies in April of 2023, which evaluates and compares the VMT effects of the proposed UCP Update and VST Specific Plan to the County average VMT. The VMT Analysis memo is included as Appendix H and provides additional detailed data, modeling, and information related to the VMT analysis.

UCP Update

The UCP Update includes revisions to the adopted UCP policies. There are no UCP policies that directly address VMT; however, many revised UCP policies would enhance the availability and use of alternative modes of transportation which would result in reduced VMT. UCP Policies T 3.2, T 3.3, and T 3.5 would provide for traffic calming and complete streets design approaches in the UCP area. Additionally, UCP Policies T 4.1, T 4.2, and T 4.3 would improve pedestrian and bicycle facilities including the implementation of supportive amenities to serve those travel modes. UCP Policies T 5.1, T 5.3, and T 5.5 support transit improvements for the city, county, and UC Merced communities. Further, UCP Policies LU 3.1, LU 3.2, LU 3.3, LU 3.4, LU 3.6, LU 5.7, LU 5.8, LU 5.10, LU 5.19, LU 6.8, LU 7.15, LU 7.18, LU 7.20, and LU 9.4 would develop the UCP area in a manner that would integrate land uses to encourage increased pedestrian, bicycle, and transit use. Please note that the UCP policies were not accounted for in the modeling conducted to calculate project VMT.

The UC Merced area currently has few residential developments or amenities and much of the existing travel to and from the university is oriented toward the City of Merced. The purpose of the UCP and VST Specific Plan is to provide residential units, office space, and retail developments that would serve the university at a much closer distance, resulting in shorter trip lengths. In addition, the UCP Update is a mixed-use development where a substantial number of employment and shopping trips can be made within the area, with relatively short trip lengths and a low level of VMT (VRPA 2023).

Table 3.7-1 presents the average VMT generated by the UCP Update, the Merced County average VMT, and the city's average VMT. The city VMT data is presented for comparison purposes only and is not utilized as the basis for any significance determination here-in.

Table 3.7-1 UCP Amendment VMT Analysis

Metric	Merced County VMT Data		City of Merced VMT Data (For Comparison Purposes Only)		UCP Amendment VMT Data	
	Average VMT	Threshold (15% Below Average)	Average VMT	15% Below Average	Project VMT	Significant Impact?
VMT per Capita	15.93	13.54	9.89	8.41	4.90	No
VMT per Employee	40.54	34.46	37.89	32.21	12.47	No

Source: VRPA Technologies, Inc. 2023 (Adapted from Table 3-3).

As shown in Table 3.7-1, the UCP Update would result in VMT per capita of 4.90 compared to the County average of 15.93. Therefore, the VMT per capita associated with the UCP Update would not result in an exceedance of the significance threshold (15 percent below County average VMT per capita) of 13.54. Additionally, the UCP Update would result in a VMT per employee of 12.47 compared to the County average of 40.54. Therefore, the VMT per employee associated with the UCP Amendment would not result in an exceedance of the significance threshold (15 percent below County average VMT per employee) of 34.46. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

Table 3.7-2 presents the average VMT from the VST Specific Plan, Merced County average VMT, and the city's average VMT. The city VMT data is presented for comparison purposes only and is not utilized as the basis for any significance determination herein.

Table 3.7-2 VST Specific Plan VMT Analysis

Metric	Merced County VMT Data		City of Merced VMT Data (For Comparison Purposes Only)		VST Specific Plan VMT Data	
	Average VMT	Threshold (15% Below Average)	Average VMT	15% Below Average	Project VMT	Significant Impact?
VMT per Capita	15.93	13.54	9.89	8.41	3.72	No
VMT per Employee	40.54	34.46	37.89	32.21	8.77	No

Source: VRPA Technologies, Inc. 2023 (Adapted from Table 3-3).

The VMT generated with implementation of the VST Specific Plan would be influenced by the proximity and policy considerations detailed above for the UCP Update. As shown in Table 3.7-2, the VST Specific Plan would result in a VMT per capita of 3.72 compared to the County average of 15.93. Therefore, the VMT per capita associated with buildout of the VST Specific Plan would not exceed the significance threshold (15 percent below County average VMT per capita) of 13.54. Additionally, the VST Specific Plan would result in a VMT per employee of 8.77 compared to the County average of 40.54. Therefore, the VMT per employee associated with the VST Specific Plan would not result in an exceedance of the significance threshold (15 percent below County average VMT per employee) of 34.46. As a result, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.7-3: Substantially Increase Hazards Due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)

The 2001/2004 UCP EIR evaluated transportation hazards only associated with increased bicycle and pedestrian activity on existing facilities. Subsequent projects under the UCP Update and VST Specific Plan would be required to meet all applicable design standards and would be subject to review by County and/or City staff to ensure these regulations are met. Additionally, proposed policies under the UCP Update and VST Specific Plan intended to create an integrated circulation system that accommodates all modes of transportation would increase safety. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The impact to would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR analyzed transportation hazards in relation to the degradation of bicycle and pedestrian facilities due to increased facility use in Impact 4.14-4. The 2001/2004 UCP EIR determined that pedestrians and bicycle access to the UCP area was limited to travel on shoulders along high-speed rural roads such as Bellevue Road and Lake Road, and to the off-street bicycle path along the east side of Lake Road. Additionally, the 2001/2004 UCP EIR stated that Lake Road bike path was not being maintained adequately, raising concerns about potential increases in hazards due to design features and relative speeds of motorized and non-motorized uses. The 2001/2004 UCP EIR determined that Adopted UCP Policies T 1.2, T 1.3, T 3.2, T 3.3, T 3.5, T 3.6, T 4.1, T 4.2, T 4.4, T 5.1, T 7.4, T 8.1, T 8.2 and T 8.3 in combination with Adopted Mitigation Measure 4.14-4 would reduce the impact to a less-than-significant level.

Adopted Mitigation Measure 4.14-4: Merced County will, and the City of Merced should ensure adequate maintenance of the existing path along Lake Road and other regional bicycle and pedestrian facilities that provide access to the proposed UCP.

UCP Update

The 2001/2004 UCP EIR assumed that all roadways within the UCP would comply with the County's roadway standards. The UCP Update anticipates annexation into the City of Merced. For this reason, City of Merced design standards would be applied. The City of Merced has well-established roadway and site design standards that guide the design and construction of new transportation facilities to minimize design hazards for all users of the circulation system. City policies require evaluation of safety conditions as part of the project review process. This includes the review of roadway improvements to ensure that safety-related standards are met, such as driver sight distance requirements. As needed, improvements to meet safety standards are identified and required as part of project approval. New roadways are required to be designed according to applicable Federal, State and, local design standards including *The City of Merced's Standard Designs of Common Engineering Structures*.

Additionally, the UCP Update revises the adopted UCP policies that are intended to reduce a potential conflict between road use types. Updated UCP policies relevant to transportation would not increase transportation hazards. Implementation of the UCP Update and UCP policies would only enhance safety for all modes of transportation. Policies intended to create a safe, comprehensive, and integrated system of trails, sidewalks, and bikeways include Policies T 3.3, T 3.5, T 3.6, T 4.1, T 4.2, and T 4.3. UCP Policy T 3.3 would design roadways that would accommodate pedestrians and bicyclists. UCP Policy T 3.5 would establish a "Person LOS" which would put a focus on the efficiency of active transportation users in conjunction with the County's traditional vehicle LOS standard for project approval. UCP Policies T 4.1 and T 4.2 intend to create a complete bicycle and pedestrian circulation system throughout the UCP area and to and from the UC Merced campus. UCP Policy T 4.3 provides for the installation of bicycle and pedestrian amenities to support those modes of transportation. Through implementation of these policies, existing conflicts between motor vehicles and non-motorized travelers would be reduced over time. Additionally, all future development under the UCP Update would be subject to, and designed in accordance with, applicable design and safety standards. Adopted Mitigation Measure 4.14-4 from the 2001/2004 UCP EIR would continue to address potential hazards due to degradation of bicycle and pedestrian facilities along Lake Road. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

As detailed above, under UCP Update, the City of Merced roadway design standards would apply to subsequent projects in the VST Specific Plan. Individual projects related to build out of the VST Specific Plan would be subject to review by City staff to ensure safety standards are met. As described above, the City of Merced has well-established roadway and site design standards that guide the design and construction of new transportation facilities to minimize design hazards for all users of the circulation system. Additionally, City policies require evaluation of safety conditions as part of the project review process which includes the review of roadway improvements to ensure that safety-related standards are met, such as driver sight distance requirements. New roadways are required to be designed according to applicable Federal, State and, local design standards including *The City of Merced's Standard Designs of Common Engineering Structures*.

Additionally, the VST Specific Plan includes policies that are intended to result in a reduction in potential conflict between vehicles and pedestrians. Policies intended to create a safe, comprehensive, and integrated system of paths and sidewalks include Policies T 1.6, T 2.5, and T 2.6. VST Specific Plan Policy 1.6 provides for pedestrian connections throughout the plan area. Policy 2.5 calls for a pedestrian-friendly environment which would include sidewalks, shorter crossings, and limited driveway access points. Policy 2.6 pertains to traffic calming features to reduce vehicle speeds and enhance safety. Through implementation of these policies, existing conflicts between motor vehicles and non-motorized travelers would be reduced over time. Additionally, all future development under the VST Specific Plan would be subject to, and designed in accordance with, applicable design and safety standards.

As detailed in Chapter 2, "Project Description," the VST Specific Plan establishes the plan line for the extension of Campus Parkway through the VST plan area, and its ultimate connection to Bellevue Road to complete the eastern side of the Merced-Atwater perimeter expressway. As a result, Lake Road would terminate just north of Meyers Gate Road; thus, vehicles and bicyclists are expected to shift from their current travel along Lake Road to Campus Parkway once the connection is made. Therefore, potential for effects to the existing bike path on Lake Road would be reduced, as new routes for bicycle travel are established. Adopted Mitigation Measure 4.14-4 from the 2001/2004 UCP EIR would continue to address potential hazards due to degradation of bicycle and pedestrian facilities along Lake Road. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.7-4: Result in Inadequate Emergency Access

Subsequent projects and transportation improvements under the UCP Update and VST Specific Plan would be required to meet State and local standards pertaining to emergency access. Additionally, Adopted UCP Policies T 1.1, T 1.3, T 1.4, T 2.1, T 2.2, T 3.1, T 3.2, and T 8.1, which were determined to reduce the impact to less than significant in the 2001/2004 UCP EIR and would still pertain to the UCP Update and VST Specific Plan. The project would not result in inadequate emergency access. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The impact to would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR evaluated the project's impact to emergency access in Impact 4.14-5. The 2001/2004 UCP EIR determined that the Adopted UCP's intent to minimize reliance on the automobile and accommodation of alternative modes of transportation through design and traffic calming features could reduce emergency vehicle response times. The 2001/2004 UCP EIR found that the implementation of UCP Policies T 1.1, T 1.2, T 1.3, T 1.4, T 3.1, and T 3.2 would ensure that the UCP street system would provide adequate connectivity and capacity and would be implemented in a timely manner relative to the pace of development. Additionally, Adopted UCP Policies T 2.1 and T 2.2 would provide for a grid street system with multiple access routes to all points within the UCP area, and Policy T 8.1 would assure that traffic capacity requirements and maneuvering criteria are taken into consideration in designing streets and

intersections. The 2001/2004 UCP EIR determined that these UCP policies would adequately support emergency response vehicles and would reduce the impact to a less-than-significant level.

UCP Update

The 2001/2004 UCP EIR assumed that all roadways within the UCP would comply with the County's roadway and emergency access standards. The UCP Update anticipates annexation into the City of Merced. For this reason, City of Merced emergency access standards would be applied. The UCP Update includes revisions to the adopted UCP policies. There are no UCP policies that directly address emergency access; however, many UCP policies would help maintain adequate emergency access throughout the UCP area as the project is developed. Similar to the Adopted UCP, the UCP Update would include Policies T 1.1, T 1.3, T 1.4, T 2.1, T 2.2, T 3.1, T 3.2, and T 8.1. As detailed in Chapter 2, "Project Description," Adopted UCP Policy T 1.2, which related to parking, is proposed to be removed because it is currently contained in the CalGreen codes and building codes. Therefore, deletion would not affect the conclusions in the 2001/2004 UCP EIR.

Development and associated transportation improvements related to the UCP Update would be required to meet emergency access design standards contained in Appendix D of the California Fire Code as adopted by the City Municipal Code Section 17.32.180. Therefore, due to the required adherence to local and State emergency access and design standards and regulations, the amended UCP policies would continue to ensure that adequate emergency access is provided. Project implementation is not expected to substantially hinder emergency vehicle access or response times due to the surrounding transportation network. There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

VST Specific Plan

The VST Specific Plan is a component of the UCP Update. Implementation of the VST Specific Plan would increase residential densities within this area compared to the Adopted UCP, and would provide a mix of uses within the plan area. As described above, the UCP Update includes policies that would result in sufficient emergency access. The proposed circulation plan for the VST Specific Plan builds on the idea of grid street system with multiple access routes to all points within the area (see Figure 2-8) and includes traffic calming features and infrastructure for alternative transportation.

Subsequent development projects and transportation improvements would be required to meet emergency access design standards contained in Appendix D of the California Fire Code as adopted by the City Municipal Code Section 17.32.180. Additionally, individual projects would be subject to review by applicable staff and emergency service agencies to ensure each project meets emergency access standards. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.7-5: Cumulative Transportation Impacts

The 2001/2004 UCP EIR identifies the potential for increased congestion on local and regional roads, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR and the UCP Update and VST Specific Plan would not change the potential for the project to contribute to cumulative impacts. However, since adoption of the 2001/2004 UCP EIR VMT has generally replaced LOS as the most appropriate measure of potential effects on regional transportation. Project-generated VMT would not exceed the established efficiency threshold, which is aligned with long-term goals and relevant plans. Cumulative impacts to transportation would be **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR determined that the Adopted UCP, in combination with other development in Merced County, could result in increased congestion on local and regional roads (Impacts 4.14-7 and 4.14-8). The analysis

finds that implementation of proposed road improvements would adequately mitigate the potential for cumulative impacts in regard to emergency access; however, impacts as a result of increased congestion would remain significant. The 2001/2004 UCP EIR includes Mitigation Measures 4.14-7(a) through 4.14-7(d) and 4.14-8(a) and 4.14-8(b), which would require a monetary contribution toward roadway and intersection improvements and include adequate maintenance to regional bicycle and pedestrian facilities that provide access to the UCP. However, the 2001/2004 UCP EIR identified the cumulative impacts associated with increased congestion on local and regional roads as cumulatively significant and unavoidable.

Adopted Mitigation Measure 4.14-7(a): UCP development shall contribute its fair share toward the following Tier road improvements which are shown in Figure 4.14-3 [in the 2001/2004 UCP EIR]:

- Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road
- Highway 59, new segment between Highway 99 and 140
- Yosemite Avenue, extend from R Street to Highway 59
- Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street
- Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway
- R Street, extend from Yosemite Avenue to Bellevue Road
- Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road
- Highway 59, new alignment along Mission Avenue
- Mission Avenue, widen to 4 lanes, Highway 99 to Highway 59
- Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 59

Adopted Mitigation Measure 4.14-7(b): For development through year 2025, UCP development shall only contribute its fair share toward the following Tier road improvements, which are shown on Figure 4.14-4:

- Yosemite Avenue, extend from R Street to Highway 59
- Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street
- R Street, extend from Yosemite Avenue to Bellevue Avenue
- Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road
- Bellevue Road, widen to 4 lanes, Highway 59 to Campus Parkway

Adopted Mitigation Measure 4.14-7(c): For development through Year 2015, the County shall analyze the expected future operations of the Lake/Yosemite intersection at the following milestone points: (1) determination of conceptual alignment for Campus Parkway, (2) preparation of the Geometric Approval Drawings for Campus Parkway, and (3) each October, beginning in the opening year of the UC Merced Campus. If any of these analyses determine that the Lake/Yosemite intersection will operate at unacceptable LOS, the proposed UCP shall contribute its fair share toward the cost of any improvements deemed necessary at the intersection. Monitoring of the Lake/Yosemite intersection shall end upon completion of the Campus Park extension from Yosemite Avenue to Bellevue Road.

Adopted Mitigation Measure 4.14-7(d): The County shall work with the City of Merced, Caltrans and MCAG to establish rights-of-way and access management requirements along the routes identified above.

Adopted Mitigation Measure 4.14-8(a): Implement Mitigation Measure 4.14-7(a). In addition, UCP development shall contribute its fair share toward intersection improvement along G Street between Highway 99 and Childs Avenue.

Adopted Mitigation Measure 4.14-8(b): Implement Mitigation Measure 4.14-7(d).

UCP Update and VST Specific Plan

Buildout of the UCP would result in increased development of roadways and roadway improvements that would contribute to the cumulative transportation and circulation system in the region in the same manner described in the 2001/2004 UCP EIR. However, as explained above, pursuant to SB 743, PRC Section 21099, and CCR Section 15064.3(a), a project's effect on automobile delay no longer constitutes a significant impact under CEQA. Therefore, this transportation analysis does not consider the potential for the UCP to contribute to a cumulative increase in congestion on local and regional roads as a significant and impact of the project. Note, however, that the Financing, Services and Governance chapter of the VST Specific Plan includes a fair share analysis for impacted intersections and road segments. Tables 9 through 11 of the VST Specific Plan identify the VST share of improvements necessary to support the development of the VST Specific Plan. The contribution to these facilities is to comply with General Plan and UCP conformity. Those facilities are as follows:

Roadway Intersections

- Snelling Highway / Bellevue Road
- G Street / Bellevue Road
- Lake Road / Bellevue Road
- G Street / Cardella Road
- Lake Road / Cardella Road
- Snelling Highway / Yosemite Avenue
- G Street / Yosemite Avenue
- Gardner Avenue / Yosemite Avenue
- McKee Road / Yosemite Avenue
- Lake Road / Yosemite Avenue
- Snelling Highway / Olive Avenue
- R Street / Olive Avenue
- M Street / Olive Avenue
- G Street / Olive Avenue
- Snelling Highway / 16th Street
- Martin Luther King Jr / SR 99 NB Ramps
- G Street / SR 99 NB Off-Ramp
- Campus Pkwy/ Yosemite Avenue
- Campus Parkway / Olive Avenue
- Campus Parkway / Connector Road
- SR 140 / Connector Road
- Campus Parkway / Childs Avenue
- Campus Parkway / Gerard Avenue
- Campus Parkway / Coffee Street
- Sr 99 NB Ramps / Campus Parkway
- Meyers Gate Road / Lake Street

- Meyers Gate Road / Campus Parkway
- Virginia Smith Parkway / Lake Road
- Virginia Smith Parkway / Campus Parkway
- Virginia Smith Parkway / Golden Bobcat
- Virginia Smith Parkway / Center Street
- Virginia Smith Parkway /Kibby Road

Roadway Segments

- Bellevue Road--Snelling Hwy to G
- Bellevue Road--G to Lake
- Lake Road--Bellevue to Meyers Gate Road²
- Lake Road--Meyers Gate Road to Cardella
- Lake Road--Cardella to Yosemite
- Yosemite--Campus Parkway to Lake
- Yosemite Avenue--Lake to Parsons
- Yosemite Avenue--Parsons to G Steet
- G Street--Bellevue to Cardella
- G Street--Cardella to Mercy
- Campus Parkway--Yosemite to Cardella¹
- Campus Parkway--Cardella to Meyers Gate^{1,5}
- Campus Parkway--Meyers Gate to Bellevue¹

As discussed in Impacts 3.7-1, 3.7-3, and 3.7-4 of this Draft SEIR, neither the UCP Update nor the VST Specific Plan would disrupt any existing or planned transit, bicycle, or pedestrian facilities or conflict with a program, plan, ordinance, or policy addressing these facilities. Additionally, any demand for transit, bicycle, and pedestrian facilities generated by the UCP Update or VST Specific Plan would be satisfied by project related improvements and other planned improvements in the vicinity. Thus, there would be no new significant effects, the impacts would not be more severe than the impacts identified in the 2001/2004 UCP EIR, and both the UCP Update and the VST Specific Plan would result in a less-than-significant impact to transit, bicycle, and pedestrian facilities. Thus, the project's impacts related to transit, bicycle, and pedestrian facilities would be less than cumulatively considerable.

The 2001/2004 UCP EIR does not evaluate traffic impacts in terms of VMT. Prior to the enactment of SB 743, level of service was used to address potential vehicle delay. Public Resources Code (PRC) Section 21099 and California Code of Regulations (CCR) Section 15064.3(a), now establish that VMT is generally the most appropriate measure of transportation impacts. The discussion of VMT impacts associated with the project in Impact 3.7-2, 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 3.7-2, implementation of the proposed UCP Update and VST Specific Plan would result in VMT below the established threshold, which is a reduction compared to a countywide average. Therefore, the project's contribution to substantial effects related to VMT would not be cumulatively considerable.

There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. The cumulative transportation impact of the UCP Update and VST Specific Plan would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Based on financing commitments in the VST Specific Plan, Adopted Mitigation Measures 4.14-7(a) through 4.14-7(d) and 4.14-8(a) and 4.14-8(b) are updated as follows:

~~**Adopted Mitigation Measure 4.14-7(a):** UCP development shall contribute its fair share toward the following Tier road improvements which are shown in Figure 4.14-3 [in the 2001/2004 UCP EIR]:~~

- ~~• Highway 59, widen to 4 lanes, Yosemite Avenue to Bellevue Road~~
- ~~• Highway 59, new segment between Highway 99 and 140~~
- ~~• Yosemite Avenue, extend from R Street to Highway 59~~
- ~~• Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street~~
- ~~• Bellevue Road, widen to 6 lanes, Highway 59 to Campus Parkway~~
- ~~• R Street, extend from Yosemite Avenue to Bellevue Road~~
- ~~• Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road~~
- ~~• Highway 59, new alignment along Mission Avenue~~
- ~~• Mission Avenue, widen to 4 lanes, Highway 99 to Highway 59~~
- ~~• Childs Avenue, widen to 4 lanes, Campus Parkway to Highway 59~~

~~**Adopted Mitigation Measure 4.14-7(b):** For development through year 2025, UCP development shall only contribute its fair share toward the following Tier road improvements, which are shown on Figure 4.14-4:~~

- ~~• Yosemite Avenue, extend from R Street to Highway 59~~
- ~~• Yosemite Avenue, widen to 4 lanes, Campus Parkway to G Street~~
- ~~• R Street, extend from Yosemite Avenue to Bellevue Avenue~~
- ~~• Parsons Avenue/Gardner Avenue, extend and widen to 4 lanes, Childs Avenue to Bellevue Road~~
- ~~• Bellevue Road, widen to 4 lanes, Highway 59 to Campus Parkway~~

~~**Adopted Mitigation Measure 4.14-7(c):** For development through Year 2015, the County shall analyze the expected future operations of the Lake/Yosemite intersection at the following milestone points: (1) determination of conceptual alignment for Campus Parkway, (2) preparation of the Geometric Approval Drawings for Campus Parkway, and (3) each October, beginning in the opening year of the UC Merced Campus. If any of these analyses determine that the Lake/Yosemite intersection will operate at unacceptable LOS, the proposed UCP shall contribute its fair share toward the cost of any improvements deemed necessary at the intersection. Monitoring of the Lake/Yosemite intersection shall end upon completion of the Campus Park extension from Yosemite Avenue to Bellevue Road.~~

~~**Adopted Mitigation Measure 4.14-7(d):** The County shall work with the City of Merced, Caltrans and MCAG to establish rights-of-way and access management requirements along the routes identified above.~~

~~**Adopted Mitigation Measure 4.14-8(a):** Implement Mitigation Measure 4.14-7(a). In addition, UCP development shall contribute its fair share toward intersection improvement along G Street between Highway 99 and Childs Avenue.~~

~~**Adopted Mitigation Measure 4.14-8(b):** Implement Mitigation Measure 4.14-7(d).~~

3.8 UTILITIES AND SERVICE SYSTEMS

This section evaluates the availability of existing utility and infrastructure systems (water, wastewater, stormwater, electricity, and natural gas) to serve the UCP Update and VST Specific Plan project and the impact of the project on these systems. The VST Specific Plan area is currently within the County of Merced, but it would be annexed by the City of Merced and served by the City's utility providers. Therefore, the analysis is based on information obtained from the City of Merced and other utility service providers for the City, which include the Merced Irrigation District (MID) and Pacific Gas and Electric Company (PG&E).

The 2001/2004 UCP EIR included Section 4.15, "Utilities," which evaluated the water supply infrastructure, wastewater collection and treatment facilities, solid waste disposal facilities, and energy (electricity and natural gas) needed to serve the UCP. The impact conclusions from the 2001/2004 UCP EIR are summarized as follows:

- **Water:** The 2001/2004 UCP EIR concluded that the impact from construction and expansion of water supply extraction, treatment, and distribution facilities would be less than significant (Impact 4.15-1) and the impact from interruption of irrigation water delivery to agricultural properties would be less than significant (Impact 4.15-2).
- **Wastewater:** The 2001/2004 UCP EIR concluded that the impact from construction and expansion of wastewater infrastructure would be less than significant (Impact 4.15-3 and 4.15-4). In addition, the impact from generation of biosolids that would exceed existing disposal site capacity or exceed treatment standards would be less than significant (Impact 4.15-5). However, the cumulative impact from the increase in demand for wastewater treatment facilities would be significant and unavoidable (Impact 4.15-6).
- **Solid Waste:** The 2001/2004 UCP EIR concluded that the impact from generation of solid waste as a result of the Adopted UCP would be less than significant (Impact 4.15-7). In addition, the impact on the Highway 59 Landfill from the solid waste generated from cumulative development would be less than significant with implementation of the Adopted UCP (Impact 4.15-8).
- **Energy:** The 2001/2004 UCP EIR concluded that the impact from increased demand for electricity and natural gas (Impact 4.15-9); the extension of electrical and natural gas transmission and distribution infrastructure (Impact 4.15-10); and the cumulative increase in demand for electricity and natural gas (Impact 4.15-11) would be less than significant with implementation of the Adopted UCP.

No comment letters were received in response to the notice of preparation expressing concerns related to utilities and service systems.

3.8.1 Regulatory Setting

The regulatory setting in Section 4.15, "Utilities," of the 2001/2004 UCP EIR provides a description of regulations related to water supply (pages 4.15-4 through 4.15-5), wastewater treatment (pages 4.15-15 through 4.15-16), solid waste (pages 4.15-30 through 4.15-32), and energy (page 4.15-42). Federal and state regulations provided in the 2001/2004 UCP EIR remain applicable to this analysis; however, additional regulatory information is provided below to support the analysis of utilities and service systems and to include regulations that were adopted subsequent to the release of the 2001/2004 UCP EIR. Additionally, because the UCP area would be annexed by the City of Merced, local policies adopted by the City of Merced are also provided below.

DOMESTIC WATER

Federal

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, the U.S. Environmental Protection Agency (EPA) regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed every 3 years. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to the State Water Resources Control Board Division of Drinking Water (SWRCB-DDW). SWRCB-DDW is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

State

Urban Water Management Plan

In 1983, the California Legislature enacted the Urban Water Management Planning Act (UWMPA) (California Water Code Sections 10610–10656). The UWMPA states that every urban water supplier that provides water to 3,000 or more customers, or that provides more than 3,000 acre-feet (AF) of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. This effort includes the adoption of an urban water management plan (UWMP) by every urban-water supplier and an update of the plan every 5 years on or before December 31, of every year ending in a five or zero. The UWMPA has been amended several times since 1983 with the most recent amendment occurring with Senate Bill (SB) 318 in 2004. The UWMPA and SB 610, described below, are interrelated; the UWMP is typically relied upon to meet the requirements for SB 610.

The City of Merced adopted the 2020 UWMP on August 16, 2021. The UWMP describes the City's water system, characterizes water use, describes the water supply sources for the city, and analyzes the reliability of the City's water service for normal, dry, and 5-year drought conditions for the 20- year planning horizon (City of Merced 2021).

Senate Bill 610

SB 610, codified in California Water Code Section 10910(c)(2), makes changes to the UWMPA to require additional information in UWMPs if groundwater is identified as a source available to the supplier. Required information includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if nonadjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current California Department of Water Resources publication regarding that basin. If the basin is in overdraft, the plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to CEQA supplied with water from a public water system be provided a specific water supply assessment (WSA), except as specified in the law. WSAs are required under SB 610 for projects that include 500 units of residential development, projects that would demand an amount of water equivalent to or greater than the water required by a project with 500 dwelling units, or projects that would increase the number of the public water system's existing service connections by 10 percent.

Sustainable Groundwater Management Act

Under the Sustainable Groundwater Management Act (SGMA), passed in 2014, the Department of Water Resources identified 94 basins and subbasins throughout the State as medium and high priority, of which 21 were identified as critically overdrafted. As defined by SGMA, critical overdraft occurs when "continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." SGMA requires local agencies in high- and medium-priority basins to form groundwater sustainability agencies (GSAs). GSAs are responsible for developing and implementing groundwater sustainability plans (GSPs). GSPs serve

as a roadmap for (1) how to achieve long-term groundwater sustainability, (2) how to manage groundwater, and (3) how to avoid undesirable effects from groundwater overdraft, such as reduced groundwater levels and storage, land subsidence, depletion of surface water, and degradation of groundwater quality (Merced SGMA 2020).

The Merced Groundwater Basin underlies the project area. Upon passage of SGMA, the Merced Groundwater Basin was formally designated as a critically overdrafted and a high-priority basin. In 2017, three GSAs were formed within the Merced Subbasin: Merced Subbasin GSA, Merced Irrigation-Urban GSA, and Turner Island Water District GSA. These three GSAs, collectively referred to as the Merced Sustainability Management Agency, or Merced SGMA, adopted the Merced Groundwater Subbasin GSP in December 2019. The Merced Groundwater Subbasin GSP identifies 12 priority projects and management actions to either (1) increase surface water supplies to augment the sustainable groundwater yield, or (2) increase groundwater recharge, and thereby increase the amount of groundwater that can be sustainably used (Merced SGMA 2020). Now that the GSP has been adopted, the GSAs are moving into the GSP implementation phase.

California Safe Drinking Water Act

The SWRCB-DDW is responsible for implementing the federal SDWA and its updates, as well as California statutes and regulations related to drinking water. State primary and secondary drinking-water standards are promulgated in California Code of Regulations (CCR) Title 22, Sections 64431–64501.

The California Safe Drinking Water Act (CA SDWA) was passed in 1976 to build on and strengthen the federal SDWA. The CA SDWA authorizes DHS to protect the public from contaminants in drinking water by establishing maximum contaminant levels (MCLs) that are at least as stringent as those developed by EPA, as required by the federal SDWA.

Local

Merced County General Plan

The Water Element of the 2030 Merced County General Plan (Merced County 2013) addresses water resource issues, such as water supply, water quality, and watershed management. The following policies related to domestic water are applicable to the UCP Update and VST Specific Plan project:

- **Policy W-1.1: Countywide Water Supply (MPSP/IGC).** Ensure that continued supplies of surface and groundwater are available to serve existing and future uses by supporting water districts and agencies in groundwater management and water supply planning; requiring that new development have demonstrated long-term water supply; and assisting both urban and agricultural water districts in efforts to use water efficiently.
- **Policy W-1.2: Demonstrating Sufficient Water Supply for New Development (RDR/MPSP/IGC).** Require all new development within the adopted service area of a water purveyor to demonstrate adequate quantity and quality of water will be available prior to issuing building permits.
- **Policy W-1.5: New Well Guidelines (RDR/IGC).** Coordinate with the cities and special districts in developing County-wide guidelines regarding the location and construction of new water wells.
- **Policy W-1.7: Water Sufficiency Requirement (RDR).** Require new developments to prepare a detailed source water sufficiency study and water supply assessment per Title 22 and SB 610, consistent with any Integrated Regional Water Management Plan or similar water management plan. This shall include studying the effect of new development on the water supply of existing users, with public input.
- **Policy W-3.6: New Construction (RDR/SO).** Promote efficient water conveyance systems in new construction, including systems for the recycling of greywater.

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 (City of Merced 2012) address issues related to water supply and conservation. The following policies related to domestic water are applicable to the UCP Update and VST Specific Plan project:

- **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.
- **Policy OS-5.1:** Promote water conservation throughout the planning area.

WASTEWATER AND STORMWATER

Federal

Clean Water Act

The Clean Water Act (CWA) employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Those portions of the CWA that relate to wastewater and stormwater discharges are discussed below.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established under the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint sources. Each NPDES permit identifies limits on allowable concentrations and mass loadings of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

NPDES permits cover various industrial and municipal discharges, including discharges from storm sewer systems in larger cities, stormwater generated by industrial activity, runoff from construction sites disturbing more than 1 acre, and mining operations. Point source dischargers must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). So-called "indirect" point source dischargers are not required to obtain NPDES permits. "Indirect" dischargers send their wastewater into a public sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering any surface water.

The CWA was amended in 1987 with Section 402(p) requiring NPDES permits for nonpoint source (i.e., stormwater) pollutants in discharges. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of the NPDES stormwater regulations is to improve the water quality of stormwater discharged to receiving waters to the "maximum extent practicable" using structural and nonstructural best management practices (BMPs). BMPs can include educational measures (e.g., workshops informing the public of what impacts can result when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage-facility design), public-policy measures (e.g., labeling storm-drain inlets as to impacts of dumping on receiving waters), and structural measures (e.g., filter strips, grass swales, and detention ponds).

State

NPDES General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems

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.

NPDES Permit for the Merced Wastewater Treatment Facility

The Merced Wastewater Treatment Facility (WWTF) provides treatment of all wastewater collected through the City's sanitary sewer system. 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.

Local

Merced County Ordinance No. 1923

The County adopted Ordinance No. 1923 (Stormwater Ordinance) to carry out the enforcement measures found in the NPDES General Permit for Waste Discharge Requirements (WDR) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) adopted by the SWRCB (Order No. 2013-0001-DWQ). The ordinance includes regulations for the management of construction projects, the layout and design of new projects, and the inspection and monitoring of existing facilities that may cause or contribute pollution or illicit discharges to storm drainage systems within the County.

Merced County General Plan

The Public Facilities and Services Element of the Merced County General Plan provides guidance for the logical and efficient expansion and upgrading of services and facilities in the county. The following policies related to wastewater and stormwater are applicable to the UCP Update and VST Specific Plan project:

- **Policy PFS-1.3: Funding for Required Infrastructure Facilities (MPSP/FB).** Require new infrastructure facilities to be fully funded and that development contributes its proportionate share of costs by:
 - a. Increasing public-private partnership opportunities for capital improvements as well as ongoing operations and service delivery costs;
 - b. Requiring developers to fully fund their proportionate share of public infrastructure through a combination of impact fees, community facility districts, or through private funding sources; and

- c. Identifying and using existing financing mechanisms to fund capital facility expansion and ongoing maintenance costs.
- **Policy PFS-1.8: New Development Financing (FB).** Require new development to provide adequate financing, where a nexus can be shown, that meets all identified public facility costs.
 - **Policy PFS-2.2: Wastewater Treatment and Disposal Capacity (RDR/MPSP).** Require applicants for discretionary projects located within special district boundaries to provide a “Can and Will Serve” letter or other documentation from the appropriate sewer and/or water district demonstrating the commitment of capacity prior to acceptance of the discretionary application as complete. Discretionary applications generally include: general plan amendments, zone changes, conditional use, location and development, tentative subdivision and administrative permit applications.
 - **Policy PFS-2.3: Sewer and Water District Requirement (RDR).** Require at the final map or building permit stage for permitted developments proof of approved service from a local sewer and/or water district or approval from the County Health Department for on-site systems outside districts outside urban special districts service boundaries. For discretionary applications, a “Can and Will Serve” letter from the local sewer and/or water district shall be required as part of the application materials. For discretionary applications outside a district, initial clearance for processing must be obtained from the County Health Department for projects utilizing on-site systems.
 - **Policy PFS-3.1: Stormwater Management Plans (MPSP).** Require stormwater management plans for all Urban Communities to reduce flood risk, protect soils from erosion, control stormwater runoff, and minimize impacts on existing drainage facilities.
 - **Policy PFS-3.2: Stormwater Facilities in New Development (RDR/MPSP).** Require that new development in unincorporated communities includes adequate stormwater drainage systems. This includes adequate capture, transport, and detention/retention of stormwater.
 - **Policy PFS-3.3: Community Drainage Systems (MPSP/SO).** Encourage development of community drainage systems rather than individual project level systems, in order to use land more efficiently and protect people, property and the environment in a more comprehensive manner.
 - **Policy PFS-3.5: Pre-Development Storm Flows (MPSP).** Require on-site detention/retention facilities and velocity reducers when necessary to maintain pre-development storm flows and velocities in natural drainage systems.
 - **Policy PFS-3.6: Retention/Detention Facility (RDR/MPSP).** Encourage stormwater detention/retention project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, are visually unobtrusive and, where feasible, provide a natural watercourse appearance and a secondary use, such as recreation.

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 UCP Update and VST Specific Plan project:

- **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.

ELECTRIC POWER, NATURAL GAS, AND COMMUNICATIONS INFRASTRUCTURE

Federal

No federal plans, policies, regulations, or laws are applicable to the UCP Update and VST Specific Plan project.

State

California Environmental Quality Act

Appendix F of the State CEQA Guidelines sets forth goals for energy conservation, including decreasing per capita energy consumption and reliance on fossil fuels and increasing reliance on renewable energy sources. CEQA requires EIRs to describe potential energy impacts of projects, with an emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code [PRC] Section 21100[b][3]).

California Energy Commission Integrated Energy Policy Report

The California Energy Commission (CEC) adopts an Integrated Energy Policy Report (IEPR) every 2 years and an update every other year. The purpose of the IEPR is to assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (CEC 2022a). Energy efficiency is one of the key components of the state's strategy to reduce greenhouse gas emissions (GHGs) and to achieve reduction targets set forth by Assembly Bill (AB) 32, SB 32, and Governor Brown's Executive Order B-30-15. Efficiency achieved through building codes, appliance standards, and ratepayer-funded programs has had a positive impact on GHG emissions in recent years. The policy report discusses efforts to decarbonize California's energy system and recognizes transitioning to zero- and near-zero emission vehicles will be a fundamental part of meeting the state's climate goals.

California Public Utilities Commission Energy Efficiency Strategic Plan

The California Public Utilities Commission (CPUC) 2008 Energy Efficiency Strategic Plan established goals of having all new residential construction in California be zero net energy (ZNE) by 2020 and all new commercial construction ZNE by 2030 (CPUC 2008). The Strategic Plan was subsequently updated in January 2011 to include a lighting chapter (CPUC 2011).

Clean Energy and Pollution Reduction Act

On October 7, 2015, the Clean Energy and Pollution Reduction Act (SB 350) was signed into law, establishing new clean energy, clean air and GHG reduction goals for 2030 and beyond. SB 350 codifies Governor Brown's clean energy goals to increase California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030, and is part of California's overall strategy to address climate change. SB 350 enhances the state's ability to meet its long-term climate goal of reducing GHG emissions to 40 percent of 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (CEC 2022b).

California Code of Regulations, Energy Efficiency Standards

Energy consumption in new buildings in California is regulated by State Building Energy Efficiency Standards (CALGreen) contained in the California Code of Regulations, Title 24, Part 2, Chapter 2-53. Title 24 applies to all new construction of both residential and nonresidential buildings, and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The 2022 Building Energy Efficiency Standards have improved efficiency requirements from previous codes and the updated standards are expected to result in a statewide consumption reduction.

Local

Merced County General Plan

The Natural Resources Element of the Merced County General Plan provides the policy context of the County to achieve its vision for the management and preservation of natural resources, including energy resources. The following policy related to energy is applicable to the UCP Update and VST Specific Plan project:

- **Policy NR-2.11: Energy-Efficiency Focused Design (RDR).** Encourage the use of energy-efficiency design features such as site orientation, light colored building materials, and tree canopies.

City of Merced General Plan

The Sustainable Development Element of the Merced Vision 2030 General Plan addresses issues related to energy resources. The following policies related to energy resources are applicable to the UCP Update and VST Specific Plan project:

- **Policy SD-3.1:** Promote the use of solar energy technology and other alternative energy resources.
- **Policy SD-3.2:** Encourage the use of energy conservation features, low-emission equipment, and alternative energy sources for all new residential and commercial development.

SOLID WASTE

Federal

No federal plans, policies, regulations, or laws are applicable to solid waste for the UCP Update and VST Specific Plan project.

State

California Building Standards Code (Title 24)

CALGreen establishes mandatory minimum green building standards and requirements for construction and demolition (C&D) material diversion. Under Section 5.408 of the CALGreen Code, projects involving C&D activities are required to recycle and/or salvage for reuse a minimum of 65 percent of their nonhazardous C&D material. Applicable projects are required to prepare and implement a construction waste management plan.

California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of in landfills, the State Legislature passed the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. According to AB 939, all cities and counties were required to divert 25 percent of their generated waste from landfill facilities by January 1, 1995 and 50 percent by January 1, 2000. Solid waste plans are required to explain how each city's AB 939 plan will be integrated with the county plan. In order of priority, the plans must promote source reduction, recycling and composting, and environmentally safe transformation and land disposal.

Local

Merced County General Plan

The following policies related to solid waste from the Public Facilities and Services Element of the Merced County General Plan are applicable to the UCP Update and VST Specific Plan project:

- **Policy PFS-4.5: Solid Waste Service Availability (RDR).** Require all new development to adequately provide solid waste storage, handling, and collection through the development review and permitting process.
- **Policy PFS-4.6: Solid Waste Reduction (SO).** Support and promote feasible waste reduction, recycling, and composting efforts.

- **Policy PFS-4.7: Composting and Green Waste Facilities (SO).** Encourage the proper siting and operation of composting and green waste facilities in rural areas of the County.

City of Merced General Plan

The Public Services and Facilities Element of the Merced Vision 2030 General Plan addresses issues related to solid waste. In addition to Policies P-1.2 and P-1.3 listed under “Domestic Water” above, the following policies related to solid waste are applicable to the UCP Update and VST Specific Plan project:

- **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.

3.8.2 Environmental Setting

The environmental setting in Section 4.15, “Utilities,” of the 2001/2004 UCP EIR is relevant to understanding the potential public utility impacts of the project. The environmental setting of the 2001/2004 UCP EIR provides information related to water infrastructure (pages 4.15-1 through 4.15-4), wastewater services (pages 4.15-13 through 4.15-15), solid waste services (pages 4.15-29 through 4.15-30), and energy services (pages 4.15-37 through 4.15-41) in the UCP area, and is hereby incorporated by reference. As noted above, the project is currently within the County of Merced, but would be annexed by the City of Merced and served by the City’s utility providers. Therefore, additional information from the City of Merced and other utility service providers for the city, is provided below.

Public utilities in the UCP area are provided by various entities, as identified in Table 3.8-1 and discussed in detail below.

Table 3.8-1 Utilities Providers for the UCP Area

Utility	Agency/Provider
Water Supply	City of Merced
Wastewater Collection and Conveyance	City of Merced
Wastewater Treatment	Merced Wastewater Treatment Facility
Stormwater Conveyance	City of Merced
Solid Waste Collection	City of Merced
Electrical Service	Pacific Gas & Electric, Merced Irrigation District
Natural Gas	Pacific Gas & Electric

Source: Data compiled by Ascent Environmental in 2021.

WATER SUPPLY

The information in this section is based in part on the WSA that was prepared for the VST Specific Plan to comply with the requirements of SB 610, which is included in Appendix I (MKN 2021a).

The City’s water distribution system is currently supplied solely by groundwater wells. The system includes 20 groundwater wells with a total firm capacity of 55,100 gallons per minute (gpm), 280 miles of pipeline, and four elevated storage tanks with a total volume of 1.5-million-gallons (MG). The distribution mains are typically 16 inches in diameter and smaller. In addition, UC Merced maintains a 250,000-gallon ground level storage tank that receives water from the city. However, this storage tank is for UC Merced use only and is not counted as part of the City’s existing distribution system. The quality of the water pumped currently meets all California Code of Regulations primary and secondary drinking water standards (MKN 2021a).

The City extracts its groundwater from the Merced Groundwater Subbasin, which has been identified as a critically overdrafted and a high-priority basin. Section 3.5, “Hydrology and Water Quality,” includes additional information

about existing groundwater conditions in the Merced Groundwater Subbasin. Table 3.8-2 includes a summary of the amount of groundwater pumped by the City since 2013.

Table 3.8-2 Amount of Groundwater Pumped by the City

Year	Merced Subbasin	Percent of Total Supply
2013	27,470	100
2014	25,232	100
2015	17,855	100
2016	17,813	100
2017	18,692	100
2018	19,488	100
2019	18,931	100
2020	20,076	100

Notes: acre feet per year = AFY

Source: From City of Merced 2020 Urban Water Management Plan; compiled by MKN & Associates, Inc. 2021.

Table 3.8-3 includes projections of future groundwater pumping from the Merced Subbasin for the City's groundwater supply.

Table 3.8-3 Future Estimates of Groundwater Pumping from the Merced Subbasin by the City

Year	Normal Year Supply ¹	Single Dry Year Supply ¹	Sustainable Condition ²
2025	24,418	29,301	24,983
2030	26,691	32,041	24,983
2035	24,935	30,734	24,983
2040	27,765	34,130	24,983

Notes: acre feet per year = AFY

¹ Estimates from 2020 Urban Water Management Plan. Note: Groundwater supply is reduced and estimated from 2030 to 2040 to account for new supplies from exchange and transfer opportunities with Merced Irrigation District

² Sustainable Condition groundwater production for the City of Merced, derived per the Merced Subbasin GSA

Source: From City of Merced 2020 Urban Water Management Plan; compiled by MKN & Associates, Inc. 2021.

The City of Merced's 2020 UWMP was adopted in August of 2021. The population forecasts used in the 2020 UWMP include the forecasted population for the VST Specific Plan. In 2020, the City supplied 20,076 AF of potable water and 4,050 AF of recycled water. Potable water demands are projected to increase to 31,825 AF by 2040 due to increases in the City and UC Merced population. The City's water supply is projected to sufficiently meet expected demands through 2040 through the installation of additional groundwater wells and construction of a 10 million gallons per day (MGD) surface water treatment plant. The surface water treatment plant is projected to use surface water supplied by MID and begin operation by 2030 (City of Merced 2021).

Although the water supply currently consists of sustainable groundwater production, the City anticipates utilizing surface water from MID to supplement its water supply and meet future water demands. According to the City's 2020 UWMP, the City expects to receive approximately 60 AF in 2030, 4,060 AF in 2035, and 4,060 AF in 2040 from the MID. The City may also utilize recycled water in the future to help meet future water demands (City of Merced 2021 and MKN & Associates, Inc. 2021).

WASTEWATER AND STORMWATER

Wastewater Collection System

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 (City of Merced 2017a).

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 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 (City of Merced 2023).

Wastewater Treatment and Disposal

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 (City of Merced 2020). As an alternative to expansion of the existing Merced WWTF, the City's WCS Master Plan (City of Merced 2017a) and associated Draft EIR (City of Merced 2020) identify the potential to construct a new North Merced WWTF with a buildout capacity of up to 15 MGD.

Stormwater Drainage Patterns

The VST Specific Plan area is bisected by the Fairfield Canal, and the associated Dunn Lateral that extends from the Fairfield Canal to the Hunt Property to the south. The portion of the VST Specific Plan area west of the Fairfield Canal is bisected by Cottonwood Creek, a natural drainage channel that extends from the UC Merced campus to the north to the Hunt property to the south. An irrigation basin is located on the northern-central portion of the site just east of the Fairfield Canal.

Stormwater in the western portion of VST Specific Plan area that does not percolate runs in a southerly to southwesterly direction into Cottonwood Creek. The stormwater then continues in a south-southwesterly direction on the east side of Lake Road, crosses under Lake Road in a culvert 850 feet south of Cardella Road, and continues east to its confluence with Fahrens Creek. Ponding occurs on the east side of Lake Road due to a capacity constraint in the culvert under Lake Road. The runoff from the east side of the VST Specific Plan area generally sheet-flows in a southeasterly direction onto adjacent lands where it evaporates or percolates. The Fairfield Canal interrupts the flow of stormwater runoff in various locations, causing stormwater to pond on the upgradient side of the canal levees. Occasionally, the stormwater tops and enters the canal. A substantial amount of stormwater seeps underneath the canals and continues to flow in a downgradient direction (USACE and UC Merced 2008: 4.8-45).

The most recent Storm Drain Master Plan, released in April 2002, was developed to facilitate the planning and implementation of drainage infrastructure improvements needed to accommodate stormwater runoff under buildout conditions in the City's 2015 General Plan (City of Merced 2002).

ELECTRIC POWER, NATURAL GAS, AND COMMUNICATIONS INFRASTRUCTURE

There are two potential public utility providers that could provide electricity to the UCP area: PG&E and MID (USACE and UC Merced 2008: 4.14-35). PG&E provides electricity to the city from the Wilson Substation and associated aboveground and underground transmission lines. MID operates as an electric utility and distributes electricity to the city through a series of underground lines. Natural gas would be provided to the UCP area by PG&E. Major transmission and distribution lines run parallel to Highway 99, Highway 59, Yosemite Avenue (Merced County 2001).

SOLID WASTE

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 UCP area would be served by the Highway 59 Landfill. 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 (MCAG 2016). 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.

3.8.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

As discussed in Section 1.3, "Scope of the Environmental Analysis," the impacts associated with the UCP Update and VST Specific Plan are made in comparison to the County's 2001/2004 UCP EIR. Impacts on utilities and service systems that would result from the project were identified by comparing existing service capacity and facilities against future demand to determine the potential necessity of new or updated facilities, the construction of which could have physical effects on the environment.

As noted above, the VST Specific Plan area is currently within the County of Merced, but it would be annexed by the City of Merced and served by the City's utility providers. Therefore, the analysis is based on information obtained from the City of Merced and other utility service providers for the city, which include MID and PG&E.

Water Demand

CEQA Guidelines Section 15155 requires preparation of a WSA when a project is of sufficient size to be defined as a "water-demand project." As such, evaluation of potential water supply impacts was based on the WSA prepared in accordance with SB 610 for the VST Specific Plan, which is included in Appendix I (MKN 2021a). The WSA utilizes information from the City's 2020 UWMP and 2014 Water System Master Plan (WMP) update, the Merced Integrated Regional Water Management Plan, and the Merced Groundwater Subbasin GSP Annual Report Water Years 2016-2019.

Wastewater Treatment and Disposal

Impacts related to wastewater conveyance and treatment capacity were evaluated based on the Merced Wastewater Collection System Analysis 2021 Update, which is included in Appendix J. This report was prepared to determine the City's wastewater collection system capacity and necessary improvements based on current per capita wastewater flow findings. The report evaluated the City's wastewater collection system under three scenarios: (1) existing, (2) near-term, and (3) near-term with VST Specific Plan development. These model scenarios were evaluated under wet weather conditions to demonstrate a "worst case" flow (MKN 2021b).

Stormwater

Impacts related to stormwater were evaluated were evaluated by comparing the stormwater drainage needs as discussed in the 2001/2004 UCP EIR and comparing whether there would be additional need for stormwater facilities with implementation of the UCP Update and VST Specific Plan. A *Storm Drain Master Plan* was prepared to identify the stormwater drainage infrastructure needed to accommodate the proposed development within the VST Specific Plan area (RRM Design Group 2020).

Energy

The impact analysis focuses on whether the UCP Update and VST Specific Plan would demand additional electricity and natural gas service such that there could be environmental effects from new facilities that may be needed.

Solid Waste

Information on landfill disposal data, capacity, and disposal rates were obtained from CalRecycle databases. The analysis assumes a disposal rate of 6.8 pounds per resident per day, which is based on California's 2019 per capita residential disposal rate (CalRecycle 2021). Information regarding the planned Highway 59 landfill expansion was obtained from the Merced County Association of Governments' Highway 59 Valley Fill Project Environmental Impact Report (MCAG 2016).

THRESHOLDS OF SIGNIFICANCE

A utilities and service systems impact is considered significant if implementation of the UCP Update and VST Specific Plan would do any of the following:

- require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
- result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments;
- generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure;
- negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals; and/or
- comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

PLAN CHARACTERISTICS

UCP Update

The proposed UCP Update includes the following policies related to the development of utility infrastructure systems that have been revised to eliminate consideration of potential onsite water treatment and reflect City standards (shown with edits to the Adopted UCP policies tracked):

- **Policy IW 1.1:** Ensure the provision of potable water infrastructure (wells and storage) to provide water supply to meet community needs.
- **Policy IW 1.3:** Require that a water distribution system (line pressure, pump stations, pipes, valves, connections, storage facilities, etc.) be designed, constructed, and operated in accordance with applicable standards ~~prior to occupancy.~~
- **Policy IW 1.4:** Ensure the provision of water systems that match appropriate water quality to water use requirements.
- **Policy IW 1.5:** Design potable water system to meet federal and state drinking water regulatory standards.
- **Policy IW 1.6:** Required that water supply wells be developed, constructed, and installed in accordance with the American Water Works Association (AWWA) Standards A-100 for Water Wells and the water well standards presented in applicable California Department of Water Resources Bulletins, or the most current standards at the time of development.
- **Policy IW 1.7:** Require that new water sources meet or exceed the DHS Title 22 regulation regarding water quality.
- **Policy IW 1.8:** Require that adequate capacity exists to treat the wastewater flows generated by development ~~and that sufficient capacity is available for the treatment and disposal of sludge before approving new development.~~

- **Policy IW 1.9:** Ensure the provision of adequate stormwater conveyance and storage infrastructure to accommodate planned development.
- **Policy IW 1.10:** ~~Discourage~~ Encourage the provision of on-site wastewater treatment and disposal, where feasible. Onsite treatment and disposal of wastewater shall be considered only if the City of Merced is unable or unwilling to provide sewer service to the site.
- **Policy IW 1.11:** ~~DELETED Establish as the highest priority the development of on-site storage for treated wastewater that reduces the need for connections to local community wastewater treatment systems and which maximizes the availability of recycled water for appropriate uses in the University Community, where feasible and timely in consideration of its technology, costs, funding, practicality, and permitting requirements and processes.~~
- **Policy IW 1.14:** Ensure that the stormwater conveyance and storage system is designed consistent with Merced County and City of Merced standards.
- **Policy IW 2.1:** Ensure the provision of water-related infrastructure systems that allow operation under multiple demand scenarios and emergency conditions.
- **Policy IW 2.4:** Ensure the provision of reliable water and wastewater treatment processes, with appropriate backup systems.
- **Policy IW 2.5:** Comply with the water system design requirements specified in the City of Merced's Water Master Plan and improvement standards. ~~Ensure the provision of a reliable water supply system by requiring adequate water storage to meet the needs of the University Community as follows:~~
 - ~~Diurnal Operational Needs (for meeting peak flows)—25 percent of peak daily demand~~
 - ~~Fire Reserve—provide fire reserve as required by the ISO, California DHS/Waterworks Standards, and the standards of Merced County~~
 - ~~Emergency Storage—25 percent of average daily demand.~~
- **Policy IW 5.1:** ~~Implement an active~~ Establish building system standards to achieve potable water usage that is 25 percent lower than the five year average for City of Merced residents. ~~conservation program in the University Community to reduce future water demand to the extent allowed by law by establishing building requirements for new construction, providing educational information through local media sources, and establishing effective rate changes to encourage conservation.~~
- **Policy IW 5.2:** Require the use of best available technologies (BAT) for water conservation to achieve the 25 percent reduction target, including, but not limited to water-conserving toilets, showerheads, faucets, and water-conserving irrigation systems.
- **Policy IW 10.1:** Ensure that long-term plans for the design and construction of water-related infrastructure include flexibility that allows for changes in technology, funding, and/or management.
- **Policy IW 11.1:** Require that the University Community water supply infrastructure system be consistent with regional water supply plans, particularly the Merced Water ~~Supply~~ Master Plan.
- **Policy IW 11.2:** Require that groundwater wells be sited consistent with City of Merced operational strategy.
- **Policy IW 11.4:** Require that the groundwater well distribution conforms to the City of Merced well grid system.
- **Policy IW 11.5:** Ensure, if necessary, that the wastewater systems include a connection to a municipal wastewater treatment system for discharge of wastewater in excess of amounts recycled and used on site or for other beneficial uses.
- **Policy IW 11.6:** Ensure, if necessary, that the opportunity for on-site seasonal storage of treated effluent is provided and consistent with state and local guidelines.

- **Policy IW 11.7:** Ensure that water systems are designed to conform to local jurisdictional design standards, where such systems may be connected to the local jurisdiction.
- **Policy ISW 1.1:** ~~Require that adequate solid waste collection be provided for commercial, industrial, and residential uses in accordance with state law.~~
- **Policy ISW 1.2:** ~~Provide for the installation and maintenance of trash and recycling receptacles along streets in commercial areas and along major arterials; design receptacles to be aesthetically compatible with the district in which they are located.~~
- **Policy ISW 1.3:** ~~Investigate the feasibility of implementation of joint solid waste collection with UC Merced.~~
- **Policy ISW 2.1:** ~~Ensure that future developments are consistent with the requirements of the Merced County Integrated Waste Management Summary Plan.~~
- **Policy ISW 2.2:** ~~Encourage the development of recycling programs for solid wastes from non-residential uses in the University Community and ensure that they are recycled at an approved materials recycling facility.~~
- **Policy ISW 2.3:** ~~Maximize curbside recycling opportunities for yard wastes and other recyclables.~~
- **Policy ISW 2.4:** ~~Support programs that promote home composting.~~
- **Policy ISW 2.5:** ~~Collaborate with UC Merced in the implementation of recycling, composting, and source reduction.~~
- **Policy ISW 2.6:** ~~Promote community awareness of recycling and composting program activities and services in coordination with the County of Merced, City of Merced, Merced County Association of Governments (MCAG), and UC Merced.~~
- **Policy ISW 2.7:** ~~Require that developers work with the Solid Waste Division of Merced County to implement recycling programs for construction materials to reduce the amount of waste disposed of at the landfill.~~

VST Specific Plan

The VST Specific Plan does not include policies specific to utilities and service systems.

ISSUES NOT DISCUSSED FURTHER

All thresholds discussed above are evaluated in this SEIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Environmental Effects due to Construction of New or Expanded Infrastructure

The 2001/2004 UCP EIR evaluated whether the project would require construction of new or expanded utility infrastructure with potential to result in significant environmental effects. Future development under the UCP Update and VST Specific Plan would require new utility infrastructure that was not previously evaluated in the 2001/2004 UCP EIR. The impacts associated with new infrastructure were evaluated as part of the project in Sections 3.1 through 3.8 of this SEIR. As disclosed in those sections, the UCP Update and VST Specific Plan would not result in new significant impacts or impacts that are substantially more severe than the impacts identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Water

Summary of 2001/2004 UCP EIR Impact

Impact 4.15-1 of the 2001/2004 UCP EIR (page 4.15-10) evaluated whether the Adopted UCP would require the construction of substantial new or expanded water supply extraction, treatment, and distribution facilities to meet anticipated demand. The Adopted UCP would require construction of groundwater extraction wells, treatment, storage, and distribution facilities, which would result in potentially significant impacts. However, the analysis states Policies IW 1.1, IW 1.3 through IW 1.7, IW 1.14, IW 2.1, IW 2.4, IW 2.5, IW 10.1, IW 11.1, IW 11.2, IW 11.4, IW 11.7, IW 11.8, and 13.1 through IW 13.4 would reduce these impacts to less than significant levels. These policies, which are listed on pages 4.15-6 to 4.15-9 of the 2001/2004 UCP EIR, are intended to ensure a safe, reliable, and adequate drinking water supply that protects groundwater supply by maximizing water conservation. No additional mitigation was required.

UCP Update

The UCP Update would include modifications to the UCP boundary; revisions to the UCP to reflect current conditions, regulations, and best practices; and updates to the land use and circulation diagram to reflect the land uses proposed within the VST Specific Plan. The UCP Update, in and of itself, would not result in any changes in water demands that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would consist of 1,841 acres, compared to the previously evaluated 2,100-acre Adopted UCP. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet. Because the proposed land uses would be less intensive than previously proposed, the water demand from the UCP Update is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.1, IW 1.3 through IW 1.7, IW 1.14, IW 2.1, IW 2.4, IW 2.5, IW 10.1, IW 11.1, IW 11.2, IW 11.4, and IW 11.7 to reduce impacts related to water supplies. Amendments to the UCP would include removal of Policies IW 11.8, 13.1, and IW 13.4 because the project area would be annexed by the City of Merced and the construction of onsite water supply infrastructure is no longer being considered. Rather, the UCP, specifically Policy IW 2.5, would be revised to reflect connection to water services provided by the City of Merced.

Whereas the Adopted UCP evaluated construction and operation of water extraction wells throughout the UCP area, the UCP Update proposes a single backup well within the VST Specific Plan Area and connection to the City of Merced's water supply and distribution system. As described in Chapter 2, this would require extension of a 16-inch water line for approximately 1 mile in the paved area of Lake Road from Virginia Smith Parkway to Bellevue Road. This offsite extension is a component of the project evaluated throughout this SEIR. Additionally, as described above, the City of Merced's 2020 UWMP projects that the City's has adequate water supply to meet expected demands through 2040, including development of the UCP North (i.e., the VST Specific Plan) through the installation of additional groundwater wells and construction of a 10 MGD surface water treatment plant. The surface water treatment plant is projected to use surface water supplied by MID and begin operation by 2030 (City of Merced 2021). The UCP South portion of the UCP area is not anticipated to begin construction until 2030. Refer to Impact 3.8-2, below, for a discussion of water supply to serve the project. This impact would remain **less than significant**.

VST Specific Plan

The VST Specific Plan proposes to extend the City's water distribution system to serve the new development, which includes various residential, retail, public, and open space land use designations. As described in Section 2.5.2, "Proposed VST Specific Plan," the main water facilities identified to serve the VST Specific Plan area consist of the existing municipal well located on the UC Merced campus, an onsite municipal well to be developed in Phase 1A of the VST Specific Plan (and to be located in the Community Recreation Center in Phase 1D), an 18-inch main in Lake Road to be extended as part of the project from the Bellevue/Lake Road intersection to the VST Specific Plan area, and water mains on the site ranging in size from 8 to 12 inches in diameter. The environmental effects of constructing offsite infrastructure are evaluated throughout this SEIR.

As described above, the 2001/2004 UCP EIR assumed that water to serve the UCP area, including the VST Specific Plan area, would be supplied by onsite groundwater extraction wells, requiring onsite facilities for treatment and storage. The potential to connect to the City's water supply infrastructure would not result in additional environmental impacts due to the construction of infrastructure not evaluated in the 2001/2004 UCP EIR. The 1-mile extension of water main within the disturbed right-of-way of Lake Road was evaluated as a component of the project in this SEIR, and no new or more severe environmental effects were identified. Consistency with the UCP policies described under the "UCP Update" section above would reduce impacts associated with construction of groundwater extraction wells, treatment, storage, and distribution facilities. As disclosed throughout this SEIR, the VST Specific Plan would not result in new significant impacts or impacts that are substantially more severe than the impacts identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Wastewater Treatment and Stormwater Drainage

Summary of 2001/2004 UCP EIR Impact

Impact 4.15-3 of the 2001/2004 UCP EIR (page 4.15-22) evaluated whether the Adopted UCP would require the construction of new facilities for wastewater treatment and disposal. The Adopted UCP would generate wastewater that would exceed the planned capacity of existing treatment plants. However, the analysis states that Policies IW 1.8, IW 1.10, IW 1.11, IW 8.5, IW 10.1, IW 11.5 through IW 11.9, and IW 13.4 would reduce these impacts to less than significant levels. No additional mitigation was required.

UCP Update

The UCP Update, in and of itself, would not result in any changes in wastewater flows that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet. Because there would be less overall development in the UCP area than previously proposed, the wastewater flows from the amended UCP area is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.8, IW 1.10, IW 10.1, and IW 11.5 through IW 11.7 to reduce impacts related to increased demands for wastewater treatment and stormwater drainage. Amendments to the UCP would include removal of Policies IW 1.11, IW 8.5, IW 11.8, IW 11.9, and IW 13.4, which were identified as mitigation in the Adopted UCP. However, as discussed in Section 2.5.1, "Proposed Amendments to the University Community Plan," these policies were removed because the project area would be annexed by the City of Merced and the construction of onsite wastewater treatment infrastructure is no longer being considered. Rather, the UCP, specifically Policy IW 1.10, is being revised to reflect the intention to connect to sewer services provided by the City of Merced. Therefore, the amended policies would continue to adequately minimize impacts related to increased demands for wastewater treatment. This impact would remain **less than significant**.

VST Specific Plan

The VST Specific Plan does not include onsite wastewater treatment because the VST area would be annexed into the city of Merced. Improvements necessary to serve the VST Specific Plan include a force main from Cardella Road to Bellevue Road, where the sewage flows would be discharged to the Bellevue Trunk line. Because the City's sewer collection master plan identifies a gravity trunk sewer line between Lake Road and G Street, onsite sewer flows would be directed southwest to Cardella Road and Lake Road, where there would be an interim pump station to supply the force main. Once the Cardella Trunk line is completed, the VST area would be connected to the Cardella Trunk Sewer. In order to provide sewage collection capacity for Phase 2, an improvement would be needed to provide additional capacity to the West Trunk sewer line between 16th Street and 6th Street in south central Merced. This improvement would be a 30-inch gravity sewer in V Street between 16th Street and 6th Street (MKN 2020). This capacity expansion is evaluated as a component of the project in this SEIR. Because construction would occur within the existing, disturbed road right-of-way, significant environmental impacts are not anticipated. 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 is needed (City of Merced 2020).

The Adopted UCP, County drainage ordinance, and City's drainage regulations require compliance with the Central Valley RWQCB's MS4 requirements for the design and distribution of drainage basin and storm water treatment areas. In accordance with these regulations, the open space areas, parks, landscaped areas, the linear parks, and the Cottonwood Creek corridor areas would be used to capture, treat, and release stormwater at the discharge rates prescribed by State and local regulations. There are no large detention or retention basins planned within the VST Specific Plan area.

The proposed sewer system and stormwater drainage improvements would result in a similar impact as identified in the 2001/2004 UCP EIR because they would be constructed in conformance with the City's design and development standards. Consistency with the UCP policies described under the "UCP Update" section above would reduce impacts associated with construction of sewer system and stormwater drainage improvements. Furthermore, the impacts associated with new sewer system and stormwater drainage infrastructure were evaluated as part of the project in Sections 3.1 through 3.8 of this SEIR. As disclosed in those sections, the VST Specific Plan would not result in new significant impacts or impacts that are substantially more severe than the impacts identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Electric Power, Natural Gas, and Communications Infrastructure

Summary of 2001/2004 UCP EIR Impact

Impact 4.15-10 of the 2001/2004 UCP EIR (page 4.15-49) evaluated whether the Adopted UCP would require the extension of electrical and natural gas transmission and distribution infrastructure. The Adopted UCP could require upgrading existing substation and transmission line equipment, expanding existing substations, and building new substations and transmission lines. The analysis states that Policies IE 1.1 and IE 1.3 would reduce these impacts to less than significant levels. No additional mitigation was required.

UCP Update

The UCP Update, in and of itself, would not result in any changes in electric power and natural gas demand that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet. Because the proposed land uses would be less intensive than previously proposed, the anticipated electric power and natural gas demand from the amended UCP area is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR. Further, regulations, including State energy efficiency standards and building regulations (CALGreen), have generally reduced the demand for energy on a per-unit basis compared to the industry standard when the 2001/2004 UCP EIR was prepared. Therefore, there would not be new significant effects or more severe impacts than identified in the 2004 UCP EIR.

Amendments to the UCP would include removal of Policies IE 1.1 and IE 1.3, which were identified as mitigation in the Adopted UCP. These policies were components of a goal to establish a coordinated approach for the development of a reliable supply of energy. Policy IE 1.1 required preparation and approval of an Energy Services Plan (as a component of the Infrastructure Master Plan) for the entire University Community prior to approval of the first specific plan. The stated purpose of this policy is "to ensure that the infrastructure and capacity of the energy systems is able to meet the energy needs." Policy IE 1.3 requires that "sufficient electricity and natural gas distribution facilities be designed, located, and constructed to meet energy demands prior to occupancy."

As indicated above, the UCP area could be served by either PG&E or MID. The plan area is within PG&E's service territory, and PG&E would be obligated to provide the energy necessary to meet the demand of the project. The UCP area would connect to the existing power infrastructure in Lake Road and no additional offsite infrastructure would be necessary to adequately serve the project. The upgrades and expansions that were necessary to serve the development in 2001 have been completed and are no longer necessary. The project would not require or result in the relocation or construction of new or electric power or natural gas facilities that have not been evaluated for

potential environmental effects and Policies IE 1.1 and IE 1.3 are not necessary to ensure adequate provision of electricity and natural gas. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain **less than significant**.

VST Specific Plan

The VST Specific Plan includes policies requiring that all new residential units are electric, and all other uses have limited access to natural gas. Natural gas infrastructure would be extended to and through all commercial areas, to the water well site, to the school site, and to the lift station site, but not outside of those areas (generally a loop along Lake Road, Cardella, Meyers Gate Road, Virginia Smith Parkway, and Main/Center, and a stub extended to the school site). Space heating and cooling in all structures would be from electric heat-pumps (or their equivalent).

The Specific Plan includes an Infrastructure/Public Facilities Framework that covers electricity, natural gas, and communications. PG&E would provide underground extensions from existing facilities, from overhead lines along the west side of Vachell Lane, and along the south side of the Suburban properties to the north. Cable TV/phone facilities exist along Vachell Lane and would be extended to serve the VST Specific Plan area. The VST Specific Plan area is also intended to be a "5G" and "megabit" community through the use of high-speed wireless and fiber optic broadband service.

The VST Specific Plan also includes several elements that would improve energy efficiency. Special design requirements include the use of Advanced Framing/Engineering (wider stud placement for decrease in transmission loss and reduction in required framing lumber), Quality Insulation Installation to minimize envelope and duct seal energy losses, compact plumbing to minimize plumbing runs and distance between hot water taps and water heaters, and usage of EPA WaterSense fixtures to reduce indoor water usage. The VST Specific Plan includes a requirement for onsite generation of 100 percent of the electrical demand through onsite photovoltaic solar generation ("Solar PV"). Residential buildings in the VST Specific Plan area would include a combination of solar canopies, roof-top solar panels, and solar shingles. Single family units must provide adequate roof area for the required area for the solar array (equivalent of 275-300 square feet per unit of tilted south-facing roof area). The VST Specific Plan would result in subsequent projects that are "net zero," with all the units with rooftop or solar canopy PV systems that provide at least 100 percent of the unit's electrical energy demand or equivalent energy saving improvements.

Based on the above discussion, the VST Specific Plan would not result in new significant impacts or impacts that are substantially more severe than the impacts identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-2: Insufficient Water Supply in Normal, Dry, and Multiple Dry Years

The 2001/2004 UCP EIR and the City's UWMP did not evaluate whether the City has sufficient available water supply to serve future development in the VST Specific Plan. However, a WSA prepared for the VST Specific Plan determined that the City has adequate water supply available to serve the project through the year 2040 under the sustainable condition described in the Merced Groundwater Subbasin GSP. Therefore, there would not be new significant effects or more severe impacts than what would have occurred with the Adopted UCP, and this impact is **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR did not specifically evaluate whether there would be sufficient water supplies available to serve the proposed UCP and reasonably foreseeable future development during normal, dry, and multiple dry years. However, Impact 4.15-1 of the 2001/2004 UCP EIR (page 4.15-10) evaluated whether the UCP would require the construction of substantial new or expanded water supply extraction, treatment, and distribution facilities to meet anticipated demand. As evaluated in the 2001/2004 UCP EIR, the UCP would require construction of groundwater extraction wells and treatment, storage, and distribution facilities, which would result in potentially significant impacts. The analysis states Policies IW 1.1, IW 1.3 through IW 1.7, IW 1.14, IW 2.1, IW 2.4, IW 2.5, IW 10.1, IW 11.1, IW 11.2, IW 11.4, IW 11.7, IW 11.8, and IW 13.1 through IW 13.4 would reduce these impacts to less than significant levels. These policies, which are listed on

pages 4.15-6 to 4.15-9 of the 2001/2004 UCP EIR, are intended to ensure a safe, reliable, and adequate drinking water supply that protects groundwater supply by maximizing water conservation. No additional mitigation was required.

UCP Update

The UCP Update, in and of itself, would not result in any changes in water demands that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet. The proposed land uses would be less extensive than previously proposed due to the reduced geographic area for development. Development capacity in the UCP South would be approximately the same as the Adopted UCP. Within the UCP North/VST Specific Plan area, land uses would generally be more concentrated, which can reduce water use associated with outdoor landscape watering. Therefore, the anticipated water demand from the amended UCP area is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.1, IW 1.3 through IW 1.7, IW 1.14, IW 2.1, IW 2.4, IW 2.5, IW 10.1, IW 11.1, IW 11.2, IW 11.4, and IW 11.7 to reduce impacts related to water supplies. Amendments to the UCP would include removal of Policies IW 11.8, IW 13.1, and IW 13.4, which were identified as mitigation in the Adopted UCP. However, as discussed in Section 2.5.1, "Proposed Amendments to the University Community Plan," these policies were removed because the project area would be annexed by the City of Merced and the construction of onsite water supply infrastructure is no longer being considered. Rather, the UCP, specifically Policy IW 2.5, would be revised to reflect the intention to connect water services provided by the City of Merced. In addition, Policies IW 5.1 and IW 5.2 would be revised to require that projects within the UCP area achieve a 25 percent reduction in water use compared to the five-year average for city residents. Therefore, the amended policies would continue to adequately minimize impacts related to increased demands for water services. There would not be new significant effects or more severe impacts than what would have occurred with the Adopted UCP. This impact would be **less than significant**.

VST Specific Plan

The VST Specific Plan area is currently in agricultural production. Water is provided by MID. Subject to annexation or an Out of Boundary Service Agreement, the City would be the water provider to the new development within the VST Specific Plan area. In accordance with SB 610, a WSA was prepared to determine whether the City has adequate water supply available for the VST Specific Plan (MKN 2021a). The WSA is included in Appendix I.

The VST Specific Plan would include the development of residential, retail, school sites, and open space land uses over an area of 650 acres. At full buildout, the water demand for the VST Specific Plan is projected to be 1,373,297 gallons per day, or 1.37 MGD. Although this water demand is less than the historical groundwater usage for irrigation of existing agricultural operations within the VST Specific Plan area, it is considered a new demand for water because the water provider would be different.

Table 3.8-4 includes a summary of the City's water demand and the water demand from the VST Specific Plan. As shown in Table 3.8-4, the water demand from the VST Specific Plan would represent approximately 1 to 5 percent of the City's total projected water demand, depending on the year.

Table 3.8-4 Comparison of City-wide Water Demand and VST Specific Plan Water Demand

	2020	2025	2030	2035	2040
City-wide water demand, including water demand from the VST Specific Plan (AFY)	20,076	22,257	24,384	26,429	29,009
VST Specific Plan-related water demand served by the City (AFY)	0	0	380	904	1,535
VST Specific Plan water demand as a percentage of total City demand	0%	0%	1.56%	3.42%	5.29%

Notes: AFY = acre-feet per year

Source: MKN & Associates, Inc. 2021a

Table 3.8-5 includes a comparison of the City's water supply and demand, which accounts for the water demand associated with the VST Specific Plan. Section 3.8.2, "Environmental Setting," includes additional discussion of the City's existing and projected water supply.

Table 3.8-5 Comparison of Water Demand and Supply

		2025	2030	2035	2040
Supply	Sustainable Groundwater Production (AFY) ¹	24,983	24,983	24,983	24,983
	Surface water utilization from MID (AFY) ²	0	0	4,000	4,000
	Irrigation utilization from MID (AFY) ²	0	60	60	60
	Total Supply (AFY)	24,983	25,043	29,043	29,043
Demand	City-Wide water demand including VST Specific Plan related water demand (AFY)	22,257	24,384	26,429	29,009
	Total Supply Surplus (+)/Deficit (-)	+2,726	+659	+2,614	+34

Notes: AFY = acre-feet per year; MID = Merced Irrigation District

¹ Sustainable Condition groundwater production for the City of Merced, derived per the Merced Subbasin GSP

² 2020 Urban Water Management Plan City of Merced

Source: MKN & Associates, Inc. 2021a

As noted in Table 3.8-5, the City has a sustainable groundwater production capacity of 24,983 AFY and anticipates utilizing around 4,000 AFY of surface water and 60 additional AFY from MID to serve demands by 2035. Combining groundwater production capacity with MID supply gives the City 29,043 AFY of total water supply. (According to the Merced Integrated Regional Water Management Plan Update, MID deliveries are projected to be 60 AFY initially, potentially rising to 15,000 AFY in 2030). The City's total water demand in 2040, including the demand from the VST Specific Plan, is estimated to be 29,009 AFY, which is less than the city's supply capacity. Therefore, the City would be capable of supplying the water required to meet the city's water demands, including the demand from the VST Specific Plan, through the year 2040. As noted in the WSA, this determination assumes that the City would continue to utilize groundwater as the main source of water through the year 2030 and add surface water by 2035. In addition, this determination assumes that the City would continue to construct required groundwater facilities as outlined in the City's 2014 WMP (as evaluated in the *Mitigated Negative Declaration and Initial Study for City of Merced 2016 Water Master Plan Update* [City of Merced 2017b]), maintain existing wells in service through the year 2040, and replace or deepen wells as necessary. Further, consistency with the UCP policies described under the "UCP Update" section above would reduce impacts related to water supplies.

Based on the above discussion, there would be sufficient water supplies available to serve the proposed UCP Update and VST Specific Plan and reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.8-3: Wastewater Treatment Capacity

The 2001/2004 UCP EIR evaluated whether the project would result in the need for new wastewater collection facilities and whether the project would be adequately served by the City's WWTF. While the VST Specific Plan could result in greater wastewater generation, the WWTF has available capacity to serve buildout of the VST Specific Plan and necessary wastewater infrastructure would be constructed prior to future development. Therefore, there is no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR indicates that treatment of Adopted UCP wastewater at the City of Merced's WWTF would require expansion of the WWTF. However, the analysis notes that Policy IW 1.8 would require that adequate capacity for wastewater treatment be assured prior to approval of specific plans (page 4.15-22). In addition to Policy IW 1.8, the analysis states that Policies IW 1.9, IW 1.11, IW 10.1, and IW 13.4 would reduce impacts related to increased demands for wastewater treatment to less than significant levels (page 4.15-23). No additional mitigation was required.

UCP Update

The UCP Update, in and of itself, would not result in any changes in wastewater flows that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet. Because the proposed land uses would be less extensive than previously proposed, the anticipated wastewater flows from the UCP Update are anticipated to be less than what was evaluated in the 2001/2004 UCP EIR. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR.

Similar to the Adopted UCP, the UCP Update would include Policies IW 1.9 and IW 10.1 to reduce impacts related to increased demands for wastewater treatment. Amendments to the UCP would include removal of Policies IW 1.11 and IW 13.4, which were identified as mitigation in the Adopted UCP. However, as discussed in Section 2.5.1, "Proposed Amendments to the University Community Plan," Policies IW 1.11 and IW 13.4 were removed because the project area would be annexed by the City of Merced and the construction of onsite wastewater and water-related infrastructure is no longer being considered. Rather, the UCP, specifically Policy IW 1.10, is being revised to reflect the intention to connect to sewer services provided by the City of Merced. Therefore, the amended policies would continue to adequately minimize impacts related to increased demands for wastewater treatment. This impact would remain **less than significant**.

VST Specific Plan

According to wastewater flow projections used in development of the City of Merced Wastewater Collection System Master Plan 2022 Update, the City forecasts wastewater flows of approximately 27.24 MGD under reasonable buildout of the service area, which accounts for areas under pre-annexation agreements. The VST Specific Plan area is identified as a pre-annexation area; therefore, wastewater flows from buildout of the VST Specific Plan were factored into the City's forecast (City of Merced 2023).

The *Merced Wastewater Collection System Analysis 2021 Update* was prepared to determine the City's wastewater collection system capacity and necessary improvements based on current per capita wastewater flow findings. The report evaluated the City's wastewater collection system under three scenarios: (1) existing, (2) near-term, and (3) near-term with VST Specific Plan development. These model scenarios were evaluated under wet weather conditions to demonstrate a "worst case" flow. MKN & Associates, Inc. used 50 gpcd to estimate wastewater flow for the residential portion of the VST Specific Plan. The report concludes that the City's existing wastewater collection system has sufficient capacity to accommodate flows through buildout of all projects on the City's planned and approved development list as of September 2021, including buildout of the VST Specific Plan development (MKN 2021b). Although the *Merced Wastewater Collection System Analysis 2021 Update* applied different wastewater flow assumptions than the City of Merced Wastewater Collection System Master Plan 2022 Update, the City has indicated that the report provides a reasonable assumption for the purpose of this analysis (Beltran, pers. comm., 2023). Wastewater infrastructure improvements necessary to serve the VST Specific Plan are described under Impact 3.8-1. Additionally, improvements to the City's WWTF are currently being planned that will provide adequate treatment capacity.

Consistency with the UCP policies described under the "UCP Update" section above would reduce impacts related to increased demands for wastewater treatment. Additionally, water conservation development standards would be implemented to reduce water demands from the VST Specific Plan development and associated wastewater flows. Based on the above discussion, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.8-4: Generate Solid Waste that Exceeds the Capacity of Local Infrastructure or Conflicts with Waste Reduction Regulations

The project would result in an increase in the generation of solid waste and a corresponding need for disposal facilities. The Merced County Highway 59 Landfill has capacity to serve the project over the next 15 to 20 years. There would be no new significant impact and the impact is not substantially more severe than the impact identified in the 2001/2004 UCP EIR. This impact would remain **less than significant** as identified in the 2001/2004 UCP EIR.

Summary of 2001/2004 UCP EIR Impact

Impact 4.15-7 of the 2001/2004 UCP EIR (page 4.15-33) evaluated whether the project would generate solid waste and Impact 4.15-8 evaluated the potential for the Adopted UCP to exceed the permitted capacity of the Highway 59 Landfill in combination with cumulative development (page 4.15-37). The analysis states that the Adopted UCP would generate approximately 18,598 tons per year, or approximately 51 tons per day, of solid waste, which could be accommodated by the Highway 59 Landfill with either a 43 percent or 50 percent diversion rate. Policies ISW 1.1 through ISW 1.3 and ISW 2.1 through ISW 2.7 would further reduce impacts related to solid waste. These policies would reduce the amount of solid waste that would be generated by the UCP and sent to the landfill through ensuring that future developments are consistent with Merced County solid waste management plans and promoting recycling and composting programs. Therefore, impacts would be less than significant. No additional mitigation was required.

UCP Update

The UCP Update, in and of itself, would not result in any changes in solid waste generation that would increase the severity of impacts anticipated under the previously adopted plan. Overall, the UCP area would be reduced to 1,841 acres, when compared to the previously evaluated 2,100-acre UCP boundary. Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units, and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet. Because the proposed land uses would be less extensive than previously proposed, the anticipated solid waste generation from the UCP Update is anticipated to be less than what was evaluated in the 2001/2004 UCP EIR. Therefore, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR.

Amendments to the UCP would include removal of Policies ISW 1.1 through ISW 1.3 and ISW 2.1 through ISW 2.7, which were identified in the Adopted UCP to reduce impacts related to solid waste to less-than-significant levels. However, as discussed in Section 2.5.1, "Proposed Amendments to the University Community Plan," the waste reduction achieved by these policies is now required by state laws and regulations. The deleted policies were intended to promote waste diversion by installing recycling receptacles along streets (Policy ISW 1.2), encouraging recycling programs (Policy IWS 2.2), maximizing curbside recycling (Policy ISW 2.3), support for composting (Policy ISW 2.4), and promoting awareness of recycling composting (Policy ISW 2.6). These types of policies do not require actions that would result in real, quantifiable reductions in solid waste generation. In addition, Policies ISW 1.3 and ISW 2.5 were removed because solid waste services would be provided by the City of Merced following annexation and joint solid waste collection with UC Merced is no longer being considered. Similarly, policies calling for consistency with County regulations would not be applicable following annexation (Policy ISW 2.1 and Policy ISW 2.7). Other policies requiring compliance with laws and regulations (Policy ISW 1.1) are not required. Although these policies would be removed from the UCP, compliance with AB 939 requires recycling programs, which are expected to result in a 50 percent diversion from landfills. This impact would remain **less than significant**.

VST Specific Plan

Within the VST Specific Plan area, the VST Specific Plan would accommodate more residential units, and commercial, office, and hotel space than anticipated in the 2001/2004 UCP EIR. Development of these land uses could increase waste generation compared to the assumptions of the 2001/2004 UCP EIR. Buildout of the VST Specific Plan would result in approximately 11,110 new residents. Based on a daily disposal rate of 6.8 pounds per resident, approximately

15,669 cubic yards of waste would be generated annually from residential uses in the VST Specific Plan area. This waste would be 0.2 percent of the total remaining capacity of the Highway 59 Landfill. Waste generation rates for the commercial, office, hotel, and mixed-use developments would vary depending on the specific development proposal. Because the VST Specific Plan would comply with regulations (AB 939) and local standards related to waste diversion and recycling, the VST Specific Plan would not impair the attainment of solid waste reduction goals. Further, development would require a small amount of the remaining capacity of the Highway 59 Landfill and would be phased over 15 to 20 years. The solid waste generated would not be expected to exceed the capacity of local infrastructure, and the proposed VST Specific Plan would result in similar impacts as identified in the 2001/2004 UCP EIR. Based on the above discussion, there would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would be **less than significant**.

Mitigation Measures

No new mitigation is required for this impact.

Impact 3.8-5: Cumulative Water Demand Impacts

The UCP Update is anticipated to reduce water demand compared to the Adopted UCP. The WSA prepared for the VST Specific Plan, which account for anticipated cumulative development, demonstrate adequate capacity in the cumulative condition. Cumulative impacts to water supply would remain **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR concluded that implementation of the Adopted UCP would not contribute to a cumulative impact related to the capacity of existing and planned water-related infrastructure because the water-related infrastructure necessary to serve the UCP would be constructed solely for the UCP. Additionally, the 2001/2004 UCP EIR concluded that groundwater supplies would be sufficient to accommodate implementation of the Adopted UCP, in combination with the UC Merced campus and other development in the Merced Region; therefore, implementation of the Adopted UCP would not contribute to a cumulative impact related to groundwater supplies.

UCP Update and VST Specific Plan

As discussed above, the UCP Update would reduce the intensity of the land uses proposed under the Adopted UCP. Although there have been changes to the cumulative context since the 2001/2004 UCP EIR, these changes are captured in the water supply planning documents described throughout this section. These documents do not identify a cumulatively significant water supply condition. Therefore, the UCP Update would not result in a new or greater contribution to cumulative effects beyond what was identified in the 2001/2004 UCP EIR.

The UCP area is currently within the County of Merced, but it would be annexed by the City of Merced and served by the City's utility providers. The WSA prepared for the VST Specific Plan demonstrates that the City has adequate water supply available to serve the project through the year 2040 under the sustainable condition described in the Merced Groundwater Subbasin GSP (MKN 2021a). The analysis is cumulative in nature because the WSA accounts for the city's total future water demand, including the water demand from the VST Specific Plan, based on projected population growth in the city. New water facilities would be needed to serve the VST Specific Plan area, including an onsite municipal well and water mains. New water infrastructure would be constructed in conformance with applicable UCP polices, the City's design and development standards, and the City's 2014 Water System Master Plan, which would ensure that cumulative impacts related to water supplies and the provision of new water infrastructure would not be considerable.

There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Cumulative water demand impacts would remain **less than significant**.

Mitigation Measures

No additional mitigation is required.

Impact 3.8-6: Cumulative Impacts to Wastewater and Stormwater Systems

The UCP Update is anticipated to reduce utility demand compared to the Adopted UCP. Utility capacity analyses prepared for the VST Specific Plan, which account for anticipated cumulative development, demonstrate adequate capacity in the cumulative condition. Cumulative impacts to wastewater and stormwater systems would remain **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR concluded that the Adopted UCP would not contribute to a cumulative impact on wastewater treatment facilities if wastewater were treated with on-site treatment systems or conveyed and directed to the Merced WWTF. However, the 2001/2004 UCP EIR concluded that the Adopted UCP would contribute to a cumulative impact on wastewater treatment facilities if wastewater were conveyed and directed to the Atwater WWTF. Various policies (Policies IW 1.8, IW 1.9, IW 1.11, IW 10.1, IW 11.6 through IW 11.8, and IW 13.4) are included in the Adopted UCP, but the cumulative impact to the Atwater WWTF was identified as significant and unavoidable.

UCP Update and VST Specific Plan

As discussed above, the UCP Update would reduce the total amount of development proposed under the Adopted UCP. Although there have been changes to the cumulative context since the 2001/2004 UCP EIR, these changes are captured in the planning documents described throughout this section. These documents do not identify a cumulatively significant water supply condition. Therefore, the UCP Update would not result in a new or greater contribution to cumulative effects beyond what was identified in the 2001/2004 UCP EIR. Wastewater from the UCP area would be conveyed and directed to the Merced WWTF, which is planned to be expanded to serve the area upon buildout. Therefore, the UCP Update's contribution to the cumulative impact to wastewater collection and treatment systems would be reduced compared to the Adopted UCP.

An evaluation of the current and future capacity of the wastewater collection system and of the City's wastewater treatment plant was conducted, which includes an assessment of the current and projected flows from UC Merced, from future development that has been approved by the City, and from buildout of the VST Specific Plan. The report concluded that the City's existing wastewater collection system has sufficient capacity to accommodate flows through buildout of all projects on the City's planned and approved development list as of September 2021, including buildout of the VST Specific Plan development (MKN 2021b). Although the *Merced Wastewater Collection System Analysis 2021 Update* applied different wastewater flow assumptions than the City of Merced Wastewater Collection System Master Plan 2022 Update, the City has indicated that the report provides a reasonable assumption for the purpose of this analysis (Beltran, pers. comm., 2023). Wastewater infrastructure improvements necessary to serve the VST Specific Plan are described under Impact 3.8-1. Additionally, the City has evaluated improvements to the City's WWTF that will provide adequate treatment capacity. As an alternative to expansion of the existing Merced WWTF, the City's WCS Master Plan (City of Merced 2017a) and associated Draft EIR (City of Merced 2020) identify the potential to construct a new North Merced WWTF with a buildout capacity of up to 15 MGD. With these improvements, the City would have adequate planned capacity to accommodate the additional wastewater generated by development under the VST Specific Plan, in combination with the City's planned and approved development list. Therefore, the VST Specific Plan's contribution to the cumulative impact on wastewater collection and treatment systems would not be considerable.

UCP policies, the Merced County drainage ordinance, and City drainage regulations require compliance with the Central Valley RWQCB's MS4 requirements for the design and distribution of drainage basin and storm water treatment areas. In accordance with these regulations, the open space areas, parks, landscaped areas, the linear parks would be used to capture, treat, and release stormwater at the discharge rates prescribed by State and local regulations. Compliance with RWQCB requirements would ensure that the VST Specific Plan's contribution to the cumulative impact on stormwater drainage systems would not be considerable.

There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Cumulative impacts to wastewater and stormwater systems would be **less than significant**.

Mitigation Measures

No additional mitigation is required.

Impact 3.8-7: Cumulative Impacts to Electric Power, Natural Gas, and Communications Infrastructure

The UCP Update is anticipated to reduce utility demand compared to the Adopted UCP. Demand for electric power, natural gas, and communication infrastructure would not contribute to an adverse cumulative condition. Cumulative impacts to utilities and service systems would remain **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR concluded that the Adopted UCP would not contribute to a cumulative impact on energy because the UCP would comply with applicable Title 20 and 24 regulations. Additionally, various policies (Policies IE 1.2, IE 1.4 through IE 1.6, IE 2.1, IE 3.1 through IE 3.9, and IE 4.1 through IE 4.7, and IW 6.1 through IW 6.5), included in the Adopted UCP would reduce cumulative impacts to less-than-significant levels.

UCP Update and VST Specific Plan

The UCP Update would reduce the amount of development proposed under the Adopted UCP. Therefore, the UCP Update would not result in a new or greater contribution to cumulative effects beyond what was identified in the 2001/2004 UCP EIR. Therefore, the UCP Update's contribution to the cumulative impact would not be cumulatively considerable.

As discussed above, the VST Specific Plan is not anticipated to require construction of offsite infrastructure for electrical facilities and natural gas to serve new development. Electric power, natural gas, and communication infrastructure would be installed within existing and proposed road rights of way in conjunction with the improvements identified in Chapter 2, "Project Description." The need for new or upgraded offsite electrical substation and transmission lines to serve cumulative development would be determined by the utility service provider and would be subject to separate environmental review. Consistency with State energy efficiency standards and building regulations (CALGreen) would reduce energy demands and the associated need for construction of electric power and natural gas infrastructure. Therefore, the contribution to the cumulative impact would not be considerable.

There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Cumulative impacts to electric power, natural gas, and communication infrastructure would remain **less than significant**.

Mitigation Measures

No additional mitigation is required.

Impact 3.8-8: Cumulative Impacts to Solid Waste

The UCP Update is anticipated to reduce solid waste generation compared to the Adopted UCP. Utility capacity analyses prepared for the VST Specific Plan, which account for anticipated cumulative development, demonstrate adequate capacity in the cumulative condition. Cumulative impacts to solid waste facilities would remain **less than significant**.

Summary of 2001/2004 UCP EIR Impact

The 2001/2004 UCP EIR concluded that the Adopted UCP would not contribute to a cumulative impact related to exceeding the permitted capacity of the Highway 59 Landfill with implementation of various policies (Policies ISW 1.1, ISW 1.3, ISW 2.1 through ISW 2.7) that were included in the Adopted UCP.

UCP Update and VST Specific Plan

As discussed above, the UCP Update would reduce the footprint of development proposed under the Adopted UCP. Therefore, the UCP Update would not result in a new or greater contribution to cumulative effects beyond what was

identified in the 2001/2004 UCP EIR. Therefore, the UCP Update's contribution to the cumulative impact would not be cumulatively considerable.

As discussed above, the VST Specific Plan would result in an increase in waste generation; however, this waste would represent a small percentage (0.2 percent) of the total remaining capacity of the Highway 59 Landfill. Additionally, the project would comply with the regulations (AB 939) and local standards related to waste diversion and recycling. Therefore, the contribution to the cumulative impact would not be considerable.

There would not be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. Cumulative impacts to solid waste facilities would remain **less than significant**.

Mitigation Measures

No additional mitigation is required.

This page intentionally left blank.

4 ALTERNATIVES

4.1 INTRODUCTION

Title 14 of the California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "... a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "...shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126[e][2]).

In defining "feasibility" (e.g., "... feasibly attain most of the basic objectives of the project ..."), CCR Section 15126.6(f) (1) states, in part:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here Merced County. (See PRC Sections 21081.5, 21081[a] [3].)

4.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR.

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives. The ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-maker(s). At the time of action on the project, the decision-maker(s) may consider evidence beyond that in this EIR in addressing such determinations. The decision-maker(s), for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint. The decisionmakers may reject an alternative on that basis provided that the decision-maker(s) adopts a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence.

4.2.1 Attainment of Project Objectives

As described above, one factor that must be considered in selection of alternatives is the ability of an alternative to attain most of the objectives of the Project (State CEQA Guidelines Section 15126.6[a]). Chapter 2, "Project Description," articulates the following objectives.

ADOPTED UCP OBJECTIVES

The purpose of the UCP is to provide a planning framework for how lands are to be developed and important resources are to be protected and conserved, in anticipation of the growth and development associated with UC Merced.

The adopted objectives of the Adopted UCP are:

- To support the successful development of the University of California, Merced, campus by providing for a community that is physically contiguous to the campus and that includes appropriate and sufficient housing, commercial, industrial/business park, civic, and open space uses to meet the long-term needs of the campus and population;
- To provide adequate land and development opportunities to absorb the equivalent of 100 percent of the new growth demand generated by UC Merced over time;
- To provide a community that can be developed in an integrated fashion through a master developer rather than a fragmented subdivision process;
- To provide a community with patterns of land use and urban form that support principles of livable communities and environmental sustainability;
- To provide adequate circulation and utility infrastructure that supports the long-term sustainability of the UC Merced campus and University Community;
- To establish and support linkages and transitions that will integrate the University Community with greater Merced;
- To complement and support the economy on the City of Merced and the greater Merced region;
- To support the educational goals of the Virginia Smith Trust by enhancing its scholarship fund;
- To support regional programs to conserve and protect the County's important agricultural and natural resources as development of UC Merced and the University Community proceeds;

- To be configured and planned so that environmental permitting allows community development to proceed at the pace necessary to support campus development;
- To be affordable and financially feasible; and
- To support implementation of the Merced County General Plan.

UCP UPDATE OBJECTIVES

In addition, the proposed project modifications are intended to:

- amend the Adopted UCP boundaries to reflect existing land ownership;
- reallocate the potential housing units attributed to land now owned exclusively by UC Merced to within the amended UCP boundaries without substantially changing the range of unit types;
- improve consistency between County and City general plans, and the UC LRDP;
- revise the Adopted UCP to conform to current development regulations;
- update the Adopted UCP land use plan to be compatible with adjacent development;
- update the Adopted UCP circulation plan to be compatible with existing standards and plans for regional infrastructure, including Campus Parkway;
- update the phasing program to reflect current market conditions and changes to the UCP boundaries; and
- develop a “university community” that meets the needs of UC’s staff and students, as currently projected, including providing a range of housing opportunities appropriate for the local demographics and lifestyles.

VST SPECIFIC PLAN OBJECTIVES

The objectives of the VST Specific Plan are to:

- provide a mix of land uses and a financially feasible phasing and implementation plan that will maximize the contribution to the VST scholarship endowment to provide college scholarships to county residents per the the VST’s charter and bylaws;
- provide a master planned community with community amenities that will attract students and retain highly skilled and educated staff;
- provide diverse town and neighborhood centers to offer local shopping and service opportunities for people of different ages, income levels, cultures, and education levels;
- provide increased housing density next to town centers and overall housing densities in conformance with Adopted UCP policies;
- provide a diversity of housing sizes, prices, and types to serve the full range of employees, instructors, staff, and students at UC Merced, consistent with the vision of the Adopted UCP;
- comply with the City of Merced’s RHNA housing production policies by providing sufficient units that would be restricted for affordability;
- provide diverse multimodal and active transportation alternatives and a network of bike paths, pedestrian paths, and transit connections;
- connect to UC Merced’s existing and planned circulation facilities to provide a seamless connection between the VST plan area and the UC Merced campus for pedestrian, bicycle, vehicle, and transit modes;
- create a continuous network of parks and open spaces; and
- prioritize livability, activity, and shared community space, with neighborhoods centered around parks and schools.

4.2.2 Environmental Impacts of the UCP Update and VST Specific Plan

As described further in Chapter 5, "Summary of Significant Impacts," in this SEIR, the UCP Update and VST Specific Plan would result in impacts that are similar to the environmental effects disclosed in the adopted 2001/2004 UCP EIR.

Chapter 1, "Introduction," of this SEIR, describes impacts related to aesthetics, agriculture and forestry, cultural resources, energy, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire would be consistent with the 2001/2004 UCP EIR. Impact determinations reached in the 2001/2004 UCP EIR related to these topics would remain accurate and mitigation measures identified to reduce significant impacts would remain applicable. Significant impacts would occur, as previously identified, related to change in visual character, scenic resources, and light and glare; conversion of farmland; incompatible land use; and cumulative impacts to Lake Yosemite Park.

The 2001/2004 UCP EIR also identified significant and unavoidable impacts in the following resource areas, which were evaluated in detail in Chapter 3, "Environmental Impacts and Mitigation Measures," of this SEIR: air quality, biological resources (cumulative), and noise (construction, operational traffic, and cumulative). Cumulative contributions to biological resources impacts, construction noise impacts, long-term operational traffic noise impacts, and cumulative contributions to noise impacts would remain significant and unavoidable with the UCP Update.

This SEIR identified a new significant and unavoidable impact related to GHG emissions and energy efficiency of the UCP Update, because the UCP Update would not include project design features to achieve consistency with State and local plans for GHG reduction and energy efficiency, and the feasibility and effectiveness of such design features cannot be assured at this time. This SEIR also identified a new significant and unavoidable impact related to groundborne noise and vibration. This impact is unique to the UCP Update and is associated with the uncertainty around future construction techniques. In both cases, the impacts have been identified using standards of analysis not applied in the 2001/2004 UCP EIR. There is no aspect of the UCP Update that would result in greater potential for impact than the Adopted UCP, and it is anticipated that the impacts of the Adopted UCP would have been significant and unavoidable if they had been analyzed at the time the 2001/2004 UCP EIR was prepared. Due to changing circumstances and analysis methodology, this SEIR also demonstrates that there would no longer be significant and unavoidable impacts associated with release of air pollutants, level of service on area roadways, and cumulative impacts to wastewater treatment facilities, as disclosed in the 2001/2004 UCP EIR. The analysis in this SEIR also demonstrates that previously identified significant impacts related to Merced Hills Golf course, long-term operational emissions of criteria air pollutants and precursors, transportation level of service, and cumulative impacts to wastewater treatment facilities would no longer be considered significant and unavoidable impacts due to changes with respect to the circumstances under which the project would be undertaken.

4.3 ALTERNATIVES CONSIDERED IN THE 2001/2004 UCP EIR

This SEIR incorporates by reference the prior alternatives analysis in the 2001/2004 EIR as that analysis evaluated alternatives to the development of the approved UCP. The 2001/2004 UCP EIR analyzes a total of 17 alternatives, including six onsite alternatives, four alternatives that would occur in the former location of the City of Merced Specific Urban Development Plan, six offsite alternatives that would be constructed in other parts of the county, and a No Project Alternative. The 10 offsite alternatives were identified and evaluated by the County and the University of California through a Comprehensive Alternatives Analysis, which was completed as an initial step in the process of applying for permits from the United States Army Corps of Engineers for development of portions of the UC Merced campus and the UCP. The four offsite alternatives that were within the former City of Merced Specific Urban Development Plan, which was located northwest of Lake Yosemite, are no longer viable alternatives for development because this area has been preserved as part of the biological resources permitting completed by VST and UC Merced. The other six offsite alternatives, which were located in other part of the county, were based on the assumption that the main UC Merced campus would also be constructed in these alternative locations. Because UC Merced has been constructed at Bellevue Road and Lake Road, construction of the UCP in one of these remote alternative locations would no longer meet the key objectives of the project related to providing housing and

supporting infrastructure to efficiently serve the student and faculty population of UC Merced. Accordingly, the prior evaluation of off-site alternatives satisfies the requirement to consider off-site alternatives under CEQA.

The six onsite alternatives evaluated in the 2001/2004 UCP EIR represent various configurations of the UCP area that would achieve the basic project objectives and would lessen impacts related to farmlands, biological resources, transportation-related effects, and impacts to public utilities and services. These alternatives are summarized below:

No Loss of Prime Farmland Alternative: This alternative would reconfigure the UCP to avoid conversion of Prime Farmland without reducing the overall size and capacity of the UCP. With this alternative, the UCP would not include land south of Cardella Road, which contains Prime Farmland. Instead, the UCP area would extend east and west of the Adopted UCP boundaries to include land west of Lake Road and east of the Fairfield Canal. Because the land use program would be the same as the Adopted UCP, population-generated impacts were determined to be the same as the Adopted UCP. Although agricultural impacts would be reduced, other configuration-specific impacts to resources including wetlands, aesthetics, air quality concerns associated with traffic congestion, and noise would increase. In addition, the evaluation determined that the alternative would fail to meet a number of the basic objectives established for the Adopted UCP. This alternative would also require the expansion of the SUDP/SOI and result in a discontinuous development that would not be functionally integrated within the UCP or with the UC Merced campus. The City of Merced recognizes that certain Prime Farmlands should be developed if necessary to provide for key infrastructure improvements (like Campus Parkway).

No Loss of Prime Farmland/Reduced Community Size Alternative: This alternative would reconfigure the UCP to avoid conversion of Prime Farmland by reducing the overall size and capacity of the UCP. With this alternative, the UCP would not include the UCP South portion of the UCP, the land south of Cardella Road, which contains Prime Farmland. Like the No Loss of Prime Farmland Alternative, the UCP area would extend east of the Fairfield Canal, as reviewed in the 2009 LRDP EIR, and approved by the City of Merced and LAFCo. However, the western boundary would remain Lake Road. The alternative would cover 1,100 acres and there would be a 40 percent reduction in population and support uses. Because the population and non-residential uses would be reduced under this alternative compared to the Adopted UCP, population-generated impacts would be proportionately reduced. In addition, because the area of potential development would be reduced, some site-specific impacts would be reduced. However, impacts to habitat would increase and many other effects would remain similar to the Adopted UCP. The growth planned for UCP South may occur at other locations in the county outside of the Merced SUDP/SOI which may or may not be Prime Farmland. This alternative would fail to achieve most of the basic Adopted UCP objectives related to providing adequate land and development opportunities to absorb the new growth generated by UC Merced and providing adequate circulation that supports the long-term sustainability of the UC Merced campus.

Limited Loss of Prime Farmland Alternative: This alternative would reconfigure the UCP to reduce, but not eliminate, conversion of Prime Farmland without reducing the overall size and capacity of the UCP. The boundaries of this alternative would include all lands in the UCP within the City of Merced SOI/SUDP, but would exclude lands north of Yosemite to Dunn Road. This alternative would extend east of the Adopted UCP to include additional land east of the Fairfield Canal. Lake Road would form the western boundary. Because the Limited Loss of Prime Farmland Alternative includes the same population and mix of land uses as the Adopted UCP, most impacts were found to be the same as those of the Adopted UCP. Impacts to wetlands and endangered species would be greater than the Adopted UCP and the alternative would fail to achieve most of the basic project objectives.

Reduced Residential Density Alternative: This alternative would reduce the population of the UCP without reducing the overall size; the UCP boundaries would stay the same, but the residential densities would be reduced. Most impacts would be similar to the Adopted UCP under this alternative, although the 2001/2004 UCP EIR identified potential for slight localized reductions in effects to air quality, biological resources, and utilities. Under this alternative, the reduction in residential development in the UCP could result in university students and staff residing at locations farther away from the university and requiring more vehicle miles travelled than the Adopted UCP to commute to campus. The Reduced Residential Density Alternative would fail to achieve a number of the basic project objectives. In particular, it would not result in a community with patterns of land use and urban form that support

principals of livable communities and environmental sustainability and would not be affordable and financially feasible.

Reduced Community Size and Population Alternative: The acreage and configuration (as well as the assumed population) of this alternative would be the same as the No Loss of Prime Farmland/Reduced Community Size Alternative. The effects of implementing this alternative relative to the Adopted UCP would be the same as summarized above for the No Loss of Prime Farmland/Reduced Community Size Alternative. The total population is assumed to be 18,464. This alternative assumes that the UC Merced campus would be 610-acres with 15,000 students. This alternative would fail to achieve Adopted UCP objectives related to providing adequate land and development opportunities to absorb the new growth generated by UC Merced and providing adequate circulation that supports the long-term sustainability of the UC Merced campus.

Increased Community Size and Population Alternative: This alternative would increase the size and population of the UCP to respond to an increase in the size and population of UC Merced. The western boundary would extend west of Lake Road and the eastern boundary would extend east of the Fairfield Canal. In total, the UCP would be 2,800 acres and the population would increase by 40 percent. Population-generated impacts would increase proportionately. In addition, because the area of this alternative would increase compared to the Adopted UCP, site-specific impacts related to agricultural and biological resources would increase.

No Project Alternative: The evaluation of the No Project Alternative in the 2001/2004 UCP EIR remains applicable to this analysis. Under this alternative, the UCP would not be developed, and the area would remain in agricultural use. The 2001/2004 UCP EIR determined that the No Project Alternative would fail to meet any of the UCP's basic objectives.

This alternative would be inconsistent with the adopted UCP because the County already adopted land use designations and rezoned the UCP area for residential mixed-use development, and the property is no longer designated and zoned for agricultural uses. A No Project Alternative would result in residential mixed-use development occurring in other unspecified locations in Merced County and the City of Merced to compensate for the loss of housing and employment generating uses within the UCP and VST Specific Plan area. This would result in a lack of integration with the UC Merced campus that could result in effects related to associated with increased traffic, air quality, noise, greenhouse gas (GHG) emissions, energy and other similar impacts.

4.4 ALTERNATIVES TO THE UCP UPDATE AND VST SPECIFIC PLAN

As described in Chapter 5, "Summary of Significant Impacts," the 2001/2004 UCP EIR identified significant and unavoidable impacts in the following resource areas, which were evaluated in detail in Chapter 3, "Environmental Impacts and Mitigation Measures," of this SEIR: air quality, biological resources, noise, transportation, and utilities. This SEIR finds that the following significant impacts previously identified in the 2001/2004 UCP EIR would no longer occur: long-term operational emissions or criteria air pollutants and precursors, operations-related (level of service) transportation impacts, and cumulative impacts to wastewater treatment facilities. Chapter 3 of this SEIR has identified the following significant and unavoidable impacts from the 2001/2004 UCP EIR that would remain significant and unavoidable: cumulative impacts to biological resources, construction noise, long-term operational traffic noise, and cumulative noise impacts. Impacts associated with GHG emissions and energy efficiency of the UCP update because the feasibility and effectiveness of the project-level design features in Mitigation Measure 3.4-1 cannot be assured at this time. This impact is unique to the UCP Update and is associated with the uncertainty around future construction techniques. In both cases, the impacts have been identified using standards of analysis not applied in the 2001/2004 UCP EIR. There is no aspect of the UCP Update that would result in greater potential for impact than the Adopted UCP, and it is anticipated that the impacts of the Adopted UCP would have been significant and unavoidable if they had been analyzed at the time the 2001/2004 UCP EIR was prepared. (Note that other significant and unavoidable impacts identified in the 2001/2004 UCP EIR were also verified in Chapter 1, "Introduction" of this SEIR to remain significant; however, the consideration of alternatives to the UCP Update and VST Specific Plan focused on significant impacts identified in Chapter 3 of the SEIR, as it focused on issue areas where the project could result in new or substantially more severe significant impacts.) Alternatives to the UCP Update and VST Specific Plan were considered to minimize or avoid these new significant impacts or substantially greater impacts. In addition to

CEQA-required no project alternatives (described below), several alternatives were identified that could reduce impacts associated with the UCP Update and VST Specific Plan. These alternatives would include: a reduced development footprint to reduce, but not likely avoid, a considerable contribution to cumulative impacts to biological resources; a reduced intensity alternative to reduce, but not likely avoid, operational traffic noise and the considerable contribution to cumulative noise impacts.

In reviewing the six onsite alternatives (described above) that were identified in the 2001/2004 UCP EIR, there are three alternatives that would reduce the project's development footprint: No Loss of Prime Farmland Alternative, No Loss of Prime Farmland/Reduced Community Size Alternative, and Limited Loss of Prime Farmland Alternative. Because the 2001/2004 UCP EIR already included three reduced development footprint alternatives, no new reduced development footprint alternative is necessary. The 2001/2004 UCP EIR determined that the No Loss of Prime Farmland Alternative, No Loss of Prime Farmland/Reduced Community Size Alternative, and Limited Loss of Prime Farmland Alternative would result in effects to biological resources, including cumulative effects, that would be similar or greater than the Adopted UCP (see Table 5-2 in the 2001/2004 UCP EIR). The 2001/2004 UCP EIR includes a detailed evaluation of these alternatives, including habitat mapping (see pages 5-10, 5-17, 5-18, 5-24, and 5-25) and determined that the effects on sensitive habitat, while slightly different, would remain significant and unavoidable. These alternatives would also result in similar or reduced impacts related to construction noise, long-term operational traffic noise, groundborne vibration, and cumulative noise impacts.

Two alternatives identified in the 2001/2004 UCP EIR would reduce the intensity of the project: Reduced Residential Density Alternative and Reduced Community Size and Population Alternative. Therefore, no new reduced intensity alternative is necessary. These alternatives would also result in effects to biological resources, including cumulative effects, that would be similar to or greater than the Adopted UCP. The Reduced Residential Density Alternative and Reduced Community Size and Population Alternative would both reduce construction noise, long-term operational traffic noise, groundborne vibration, and cumulative noise impacts (see Table 5-2 in the 2001/2004 UCP EIR).

As described above, the 2001/2004 UCP EIR analyzes 10 offsite alternatives. As stated in Section 15126.6(f)(2) of the State CEQA Guidelines, the rule of reason applied to assessment of alternative locations in a CEQA evaluation is whether any of the significant effects of the project would be avoided or substantially lessened by developing the project in another location. Under an offsite alternative, the UCP and VST Specific Plan would be developed on a separate site within the unincorporated county. Only locations that would avoid or substantially lessen significant effects of the project need be considered in the EIR.

An alternative site would need to be of a similar size as the UCP area (approximately 1,800 to 2,000 acres) and would need to be able to be available for acquisition, at least in part, by VST. Further, the alternative site would need to be located a similar distance from UC Merced to provide the similar benefits to residents, including short commute times and future transit access. To permit annexation into the city of Merced, the offsite alternative would also need to be located in an area that would be a logical extension of the city boundary. Although there are other areas within the county that could potentially be developed to accommodate the anticipated growth associated with UC Merced, the UCP area is intended to make use of property already owned by VST, in a manner consistent with the existing agreements and planning described in Chapter 2, "Project Description." An offsite Alternative would not meet the objectives of the Adopted UCP to support the successful development of the University of California, Merced, campus by providing for a community that is physically contiguous to the campus and that includes appropriate and sufficient housing, commercial, industrial/business park, civic, and open space uses to meet the long-term needs of the campus and population. Because UC Merced has been constructed at Bellevue Road and Lake Road, construction of the UCP Update in a remote alternative location would no longer meet the key objectives of the project related to providing housing and supporting infrastructure to efficiently serve the student and faculty population of UC Merced. For these reasons, consideration of a new offsite alternative was determined to be infeasible. This alternative would be inconsistent with the Adopted UCP because the County already adopted land use designations and rezoned the UCP area for residential mixed-use development, and the property is no longer designated and zoned for agricultural uses as explained above.

This SEIR incorporates by reference Chapter 5, "Alternatives Analysis," of the 2001/2004 UCP EIR. Alternatives evaluated in this SEIR include two No Project Alternatives. These are described in detail below.

4.4.1 No Project/No Development Alternative

The 2001/2004 UCP EIR includes a No Project Alternative that assumes no development. Although development of UC Merced has occurred since certification of the 2001/2004 UCP EIR, other conditions within and adjacent to the UCP have not changed substantially. The evaluation of this alternative in the 2001/2004 UCP EIR remains applicable to the analysis in this SEIR. As summarized above, although this alternative would eliminate the potential for several significant and unavoidable effects of development related to visual resources, agricultural resources, biological resources, land use conflicts, and noise, these impacts would occur based on the Adopted UCP and the UCP Update and VST Specific Plan do not result in any new or substantially greater impacts related to these resource areas than the Adopted UCP. Development of a No Project/No Development Alternative would result in a lack of integration with the UC Merced campus that could result in effects related to associated with increased traffic, air quality, noise, GHG emissions, energy and other similar impacts.

As described in the 2001/2004 UCP EIR, this alternative would not achieve the key objectives of the Adopted UCP. The No Project Alternative would not meet the objective of the UCP Update to provide a “university community” that meets the needs of UC’s staff and students, as currently projected, including providing a range of housing opportunities appropriate for the local demographics and lifestyles. Further, none of the VST Specific Plan objectives related to provision of housing and circulation facilities and services that connect to UC Merced would be achieved.

4.4.2 No Project/No UCP Update, No VST Specific Plan Alternative

This SEIR evaluates the 2001/2004 UCP EIR compared to the proposed UCP Update and VST Specific Plan. As explained throughout this SEIR, the effects of implementing the UCP Update and VST Specific Plan are anticipated to be similar to the impacts of the Adopted UCP. Although the analysis in this SEIR identified several impacts that are anticipated to be reduced compared to the impact disclosed in the adopted 2001/2004 UCP EIR, these impact reductions are largely attributable to changes in circumstances that would also apply to the Adopted UCP, if implemented. A notable exception is related to GHG emissions. The UCP Update and VST Specific Plan include a number of progressive requirements related to vehicle miles traveled and energy efficiency that would not be applied under to development of the Adopted UCP. Therefore, related impacts could be greater under the No Project/No UCP Update, No VST Specific Plan Alternative.

Furthermore, the No Project/No UCP Update, No VST Specific Plan Alternative would not meet any of the objectives established for the UCP Update, which are intended to amend the UCP to reflect current land ownership and adjacent development, as well as improve consistency between planning documents. Without update to the UCP boundary, as proposed in the UCP Update, the VST Specific Plan area would not extend east of the Fairfield Canal. The addition of land east of the Fairfield Canal is proposed to offset loss of development capacity on lands now owned exclusively by UC Merced (refer to 2-5 in Chapter 2, “Project Description”). Without this boundary change, project objective related to providing a mix of uses and a financially feasible phasing and implementation plan that will maximize the contribution to the VST scholarship endowment to provide college scholarships to county residents per the provisions of the VST would not be met.

4.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

4.5.1 2001/2004 UCP EIR Environmentally Superior Alternative

The No Project/No Development Alternative would not result in any of the impacts identified for the proposed UCP because the land would remain undeveloped. Maintaining the 2,133-acre UCP area as grazing and farming land would eliminate significant, physical impacts on Prime Farmland, air quality, biological resources, water quality, and noise. Although it would be consistent with the objectives of the Adopted UCP to support regional programs to conserve and protect the county’s important agricultural and natural resources, it would not meet any of the other basic objectives of the project. It could result in greater impacts to transportation, air quality, GHG emissions, or

energy due to locating the UCP land uses at multiple locations which are at a greater distance from the UC Merced campus.

The No Loss of Prime Farmland Alternative would eliminate Prime Farmland loss but could also result in impacts related to biological resources, cultural resources, and drainage that could be more severe than the proposed UCP. The No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative would reduce some impacts but would not achieve project objectives related to regional development. The Increased Community Size and Population Alternative would not reduce or avoid impacts. The Reduced Residential Density Alternative would result in the same significant impacts as the Adopted UCP, but at a lesser overall magnitude.

Of the alternatives evaluated in the 2001/2004 UCP EIR, the No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative (which are identical in configuration, acreage, and population projections) would be the environmentally superior alternatives. These alternatives would reduce impacts on important productive agricultural land and loss of Prime Farmland. They could also reduce the magnitude of impacts related to adjacency to agricultural operations and visual buffers along Yosemite Avenue. Further, because these alternatives would reduce the population and development capacity of the UCP by approximately 40 percent, impacts related to transportation, vehicular emissions and air quality, transportation noise, public services, and water supply would be substantially diminished. Notwithstanding the determination that the No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative would be the environmentally superior alternatives, these alternatives would fail to achieve most of the basic objectives of the Adopted UCP. In particular, these alternatives would (1) fail to provide adequate land and development opportunities to absorb the equivalent of 100 percent of the new growth demand generated by UC Merced and (2) fail to provide adequate circulation that supports the long-term sustainability of the UC Merced campus.

4.5.2 UCP Update and VST Specific Plan Environmentally Superior Alternative

As described above, because the No Project Alternative/No Development Alternative would avoid all adverse impacts resulting from construction and operation of the UCP Update analyzed in Chapter 3, it is the environmentally superior alternative. However, the No Project Alternative would not meet the objectives the project. When the environmentally superior alternative is the No Project Alternative, the State CEQA Guidelines (Section 15126[d][2]) require selection of an environmentally superior alternative from among the other action alternatives evaluated.

As analyzed in Chapter 3 of this SEIR, a No Project/No UCP Update, No VST Specific Plan Alternative would be anticipated to result in impacts that are generally consistent with the UCP Update and VST Specific Plan. However, due to the potential for greater impacts related to vehicle miles traveled and greenhouse gases, this alternative is not considered environmentally superior.

As indicated above, the 2001/2004 UCP EIR identified a set of alternatives (which differed only in relation to the assumed population of UC Merced) as the environmentally superior alternatives. The No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative included the area east of Fairfield Canal that is now included in the VST Specific Plan area with the UCP Update and would eliminate the UCP South/Hunt property south of Cardella Road from the UCP. Population and development capacity would be reduced by 40 percent. The 2001/2004 UCP EIR indicates that several impacts would be reduced under these alternatives. Also of note, the 2001/2004 UCP EIR indicated that the eastern expansion of the UCP would result in the potential for greater impacts to biological and cultural resources than the Adopted UCP. However, since certification of the 2001/2004 UCP EIR, VST obtained permits and completed mitigation actions related to loss of habitat east of Fairfield Canal and site site-specific cultural resources evaluations have indicated no increased potential to encounter cultural resources in the area. Therefore, development of this area is no longer anticipated to result in greater impacts than the Adopted UCP.

The UCP Update proposes to reduce the UCP area from 2,100 acres to 1,841 acres (22 percent reduction). Within the revised UCP boundary, the total number of dwelling units would decrease from 11,616 to 9,700 units (16 percent reduction), and the potential area for non-residential development would decrease from 2,022,900 square feet to 1,247,000 square feet (38 percent reduction). The UCP Update has a development capacity between that of the Adopted UCP and No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative. It is anticipated that the No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative would result in impact reductions compared to the UCP Update. The alternative essentially limits the UCP to the boundaries proposed for the VST Specific Plan. With the No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative development capacity in the VST Specific Plan area would be reduced. Within the VST Specific Plan area, impacts would be similar.

Therefore, the No Loss of Prime Farmland/Reduced Community Size Alternative and Reduced Community Size and Population Alternative remain environmentally superior. However, as described in the 2001/2004 UCP EIR analysis, two key project objectives would not be met related to providing adequate housing to support buildout of UC Merced and providing adequate transportation. This alternative would not achieve any of the eight objectives of the UCP Update.

5 SUMMARY OF SIGNIFICANT IMPACTS

5.1 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

5.1.1 2001/2004 UCP EIR Significant and Unavoidable Impacts Not Evaluated in Detail in this SEIR

The UCP Update and VST Specific Plan would result in impacts that are similar to the environmental effects disclosed in the adopted 2001/2004 UCP EIR. As discussed in Chapter 1, "Introduction," of this SEIR, impacts related to aesthetics, agriculture and forestry, cultural resources, energy, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire would be consistent with the 2001/2004 UCP EIR. Impact determinations reached in the 2001/2004 UCP EIR remain generally accurate and mitigation measures identified to reduce significant impacts would remain applicable.

AESTHETICS

Visual Character: The UCP Update and VST Specific Plan would alter the visual character of the UCP area and could be visually incompatible with surrounding land uses. Mitigation Measure 4.1-1, which provides design standards for above-ground infrastructure would be implemented. No feasible mitigation is available to reduce this impact that would allow the scale of development approved in the Adopted UCP. Impacts would remain significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

Scenic Resources: The UCP Update and VST Specific Plan could intrude into major view corridors and adversely affect scenic resources. No feasible mitigation is available to reduce this impact that would allow the scale of development approved in the Adopted UCP. Therefore, impacts would remain significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

Light and Glare: The UCP Update and VST Specific Plan would create a new source of nighttime light and glare in the UCP area. No feasible mitigation is available to reduce this impact that would allow the scale of development approved in the Adopted UCP. Therefore, impacts would remain significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

AGRICULTURAL RESOURCES

Conversion of Farmland: Development of the UCP area would result in the conversion of Important Farmland, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. No feasible mitigation is available to reduce this impact that would allow the scale of development approved in the Adopted UCP. Therefore, impacts would remain significant and unavoidable and would be cumulatively considerable in combination with other cumulative development.

LAND USE

Incompatible Land Uses: The UCP Update and VST Specific Plan could result in incompatible land uses due to conflicts with surrounding land uses. No feasible mitigation is available to reduce this impact that would allow the scale of development approved in the Adopted UCP. Therefore, impacts would remain significant and unavoidable.

RECREATION

Lake Yosemite Regional Park: Cumulatively, the UCP Update and VST Specific Plan and other development in Merced County would contribute to an increase in the use of Lake Yosemite Regional Park and could result in the physical deterioration of the park. As described in Chapter 1, the UCP Update would decrease the anticipated population of the UCP and increase the ratio of parkland per 1,000 residents. No feasible mitigation is available to reduce this impact that would allow the scale of development approved in the Adopted UCP. Therefore, impacts would remain significant and unavoidable.

5.1.2 2001/2004 UCP EIR Significant and Unavoidable Impacts Not Evaluated in Detail in this SEIR that would be Eliminated

RECREATION

Merced Hills Golf Course: The Merced Hills Golf Course was closed in 2002 and fully removed in conjunction with development of UC Merced. The UCP Update and VST Specific Plan would not eliminate a portion of the Merced Hills Golf Course. The entire golf course was removed when UC Merced was developed. Therefore, there would be no impact.

5.1.3 Significant and Unavoidable Impacts Evaluated in Detail in this SEIR

The 2001/2004 UCP EIR also identified significant and unavoidable impacts in the following resource areas, which were evaluated in detail in Chapter 3, "Environmental Impacts and Mitigation Measures," of this SEIR: air quality, biological resources, noise, transportation, and utilities. The UCP Update and VST Specific Plan would not result in any new or substantially more severe impacts compared to the Adopted UCP.

IMPACTS THAT REMAIN SIGNIFICANT AND UNAVOIDABLE

Biological Resources

Cumulative Impacts to Biological Resources: Development of the UCP Update and VST Specific Plan, in conjunction with other cumulative development, would result in the loss or adverse modification of important native plant and wildlife habitat, including wetlands, vernal pool habitat, alkaline clay playa habitat, and annual grassland habitat, and adverse effects to special-status species associated with these habitats. Adopted Mitigation Measures 4.4-2, 4.4-4(a), and 4.4-5; CDFW ITP conditions; USFWS Biological Opinion Conservation Measures; and new Mitigation Measures 3.2-2a, 3.2-2b, 3.2-2c, 3.2-2d, 3.2-2e, and 3.2-2f would reduce project impacts to a less-than-significant level. Nonetheless, buildout of the UCP would result in the loss of grassland habitat that would contribute to the cumulative loss of this habitat in the region in the same manner described in the 2001/2004 UCP EIR. Impacts would remain significant and unavoidable.

Noise

Construction Noise: The 2001/2004 UCP EIR disclosed that construction within the UCP area has the potential to expose noise-sensitive land uses to excessive noise levels and noticeable noise level increases relative to existing conditions. The UCP Update and VST Specific Plan would generally result in similar construction activities to those discussed in the 2001/2004 UCP EIR; and thus, would generate similar levels of noise which could result in the exposure of off-site noise-sensitive receptors to excessive noise levels. Adopted Mitigation Measure 4.10-4 from the 2001/2004 UCP EIR applies to the UCP and VST Specific Plan areas and would minimize levels of construction-generated noise at off-site receptors. Construction-generated noise under the proposed UCP Update and VST Specific Plan would remain significant and unavoidable with implementation of Adopted Mitigation Measure 4.10-4

from the 2001/2004 UCP EIR and Policy N 2.6 of the Adopted UCP, as proposed for revision through Mitigation Measure 3.6-1.

Long-term Operational Traffic Noise: The 2001/2004 UCP EIR determined that the impact from traffic noise would be significant and unavoidable because multiple roadway segments within the Adopted UCP area would experience increases in noise levels of more than 5 dB, and the ambient noise level would still increase to levels that exceed adopted standards with mitigation. New modeling was conducted to analyze traffic noise as the baseline scenario (existing conditions) has changed. The UCP Update would include the reconfiguration and extension of Campus Parkway. New sensitive receptors located along Campus Parkway would be required to comply with Adopted Mitigation Measures 4.10-3(a) and 4.10-3(b). Although Bellevue Avenue between G Street and Lake Road would exceed the City's incremental noise increase of 1.5 dB for roadway segments with an existing noise level of 65 dB Ldn, the difference in noise would be far below that which was analyzed under the 2001/2004 UCP EIR (16 dB as opposed to 2.8 dB). Additionally, the overall noise level along this segment with implementation of the UCP Update and VST Specific Plan (i.e., 68dB Ldn) would be less than what was anticipated with implementation of the Adopted UCP (i.e., 70 dB Ldn i). Therefore, there would be no new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR. This impact would remain significant and unavoidable.

Cumulative Noise Impacts: The 2001/2004 UCP EIR identifies the potential for regional impacts associated with noise, which are addressed through adopted mitigation measures. The overall scope of development anticipated in the UCP area and potential for cumulative impacts has not changed substantially since certification of the 2001/2004 UCP EIR and the UCP Update and VST Specific Plan would not change the potential for the project to exacerbate cumulative impacts. Cumulative impacts associated with noise remain significant and unavoidable.

NEW SIGNIFICANT AND UNAVOIDABLE IMPACTS

Greenhouse Gas Emissions and Climate Change

Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases (UCP Update Only): The UCP Update would result in approximately 40,912 metric tons of carbon dioxide equivalent during the project's first year of operation. Because the UCP Update would not include project design features to achieve carbon neutrality by 2045, and the feasibility and effectiveness of such design features cannot be assured at this time, the UCP Update would result in a significant and unavoidable impact.

Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency (UCP Update Only): The UCP South portion of the UCP Update does not prohibit on-site natural gas infrastructure, nor does it incorporate on-site renewable energy systems. It is foreseeable that future project-level specific plans developed for the UCP South portion of the UCP Update may include these measures; however, it cannot be assured at this time that the UCP South would be constructed to align with the 2022 Scoping Plan, or a future version of the County of Merced's Climate Action Plan upon its completion. Therefore, the UCP Update would be inconsistent with the 2022 Scoping Plan's direction as it pertains to the promotion of renewable energy and energy efficiency. This impact would be significant and unavoidable.

Noise

Groundborne Vibration or Noise (UCP Update Only): The 2001/2004 UCP EIR analyzed the project's effects on groundborne vibration from construction activities as it pertains to structural damage and determined the impact to be less than significant with the implementation of Adopted Mitigation Measure 4.10-5. Human response from vibration was not analyzed in the 2001/2004 UCP EIR. Modeling for the UCP Update identified that pile driving within approximately 630 feet of residential uses would result in an exceedance of the County's 70 vibration decibels threshold. Because project-specific details are not available at this time, it cannot be guaranteed that pile driving would not occur within 630 feet of sensitive receptors, and thus the impact would be potentially significant. Mitigation Measure 3.6-3 would amend the Adopted UCP to include provisions for potential vibration-inducing activities; however, it is not possible to ensure that potential impacts would be reduced sufficiently without project-

specific information. Therefore, the UCP Update could potentially generate excessive groundborne vibration. There would be new significant effects or more severe impacts than identified in the 2001/2004 UCP EIR, and the impact would be significant and unavoidable.

PREVIOUSLY IDENTIFIED SIGNIFICANT AND UNAVOIDABLE IMPACTS THAT WOULD BE ELIMINATED

Air Quality

Long-Term, Operational (Regional) Emissions of Criteria Air Pollutants and Precursors: The 2001/2004 UCP EIR evaluated the generation of long-term regional emissions of criteria air pollutants and ozone precursors and determined that emissions of ROG, NO_x, and CO would exceed SJVACPD's thresholds of significance. Since certification of the 2001/2004 UCP EIR, SJVACPD has issued new guidance and thresholds of significance for determining long-term operational emissions of criteria air pollutants and ozone precursors. The UCP Update and VST Specific Plan would generate emissions of ROG, NO_x, CO, PM₁₀, and PM_{2.5} in exceedance of SJVACPD's operational thresholds of significance, consistent with the findings of the 2001/2004 UCP EIR. However, this impact would be less severe than the impact identified in the 2001/2004 UCP EIR and would become less than significant with implementation of Mitigation Measures 3.1-2a, 3.1-2b, and 3.1-2c.

Transportation

Level of Service: As explained in Section 3.7, "Transportation," there would no longer be a significant and unavoidable traffic impact associated with implementation of the UCP. This is because of legislation that changed the methods used to determine impacts to the transportation system. Pursuant to Senate Bill (SB) 743, Public Resources Code (PRC) Section 21099, and California Code of Regulations (CCR) Section 15064.3(a), a project's effect on automobile delay shall no longer constitute a significant impact under CEQA. Therefore, this transportation analysis does not consider the potential for the UCP increase congestion on local and regional roads as a significant and impact of the project.

Utilities

Cumulative Impacts to Wastewater Treatment Facilities: The 2001/2004 UCP EIR concluded that the Adopted UCP would not contribute to a cumulative impact on wastewater treatment facilities, if wastewater generated in the University Community is treated with on-site treatment systems or is conveyed and directed to the Merced Wastewater Treatment Facility (WWTF). However, the 2001/2004 UCP EIR concluded that the Adopted UCP would contribute to a cumulative impact on wastewater treatment facilities if wastewater generated in the University Community is conveyed and directed to the Atwater WWTF.

Conveyance of wastewater to the Atwater WWTF is no longer contemplated. Wastewater from the UCP area would be conveyed and directed to the Merced WWTF, which is planned to be expanded to serve the area upon buildout. The City's existing wastewater collection system has sufficient capacity to accommodate flows through buildout of all projects on the City's planned and approved development list as of September 2021, including buildout of the VST Specific Plan development (MKN 2021). Therefore, the UCP Update's contribution to the cumulative impact to wastewater collection and treatment systems would be reduced compared to the Adopted UCP and the VST Specific Plan's contribution to the cumulative impact on wastewater collection and treatment systems would not be considerable.

5.2 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the project. Specifically, the State CEQA Guidelines 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 generation to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irrecoverable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

- the primary and secondary impacts would generally commit future generations to similar uses;
- the project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project;
- the project would involve a large commitment of nonrenewable resources; or
- the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

The project would result in the irreversible and irretrievable commitment of energy and material resources during construction and operation, including the following:

- construction materials, including such resources as soil, rocks, wood, concrete, glass, roof shingles, and steel;
- land area committed to new project facilities;
- water supply for project operation; and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operation.

The 2001/2004 UCP EIR discloses that implementation of the Adopted UCP would result in or contribute to the following irreversible environmental changes: (1) commit undeveloped land and open vistas to future development; (2) convert Important Farmland to urban and suburban land uses; (3) increase air pollutant emissions; (4) convert existing habitat and result in the loss of endangered species; (4) degrade water quality; (5) consume non-renewable energy resources and slowly-renewable natural resources, such as gas, oil, gasoline, water, lumber, asphalt, metals, sand, and gravel; and (6) consume goods, services, and resources associated with the future population.

Implementation of the UCP Update and VST Specific Plan would also result in the conversion of undeveloped land to residential, commercial, parks and recreation, and public facilities land uses. Once the land is annexed by the City, it is expected that some of the developed properties would redevelop or expand as infrastructure facilities become available. Future development in the project area would constitute a long-term commitment to urban and suburban land uses.

Effects on nonrenewable resources, including wildlife habitat and mineral resources, are evaluated in this Draft SEIR (see Section 3.2, "Biological Resources," and Section 1.3.2, "Topics with No New or Substantially More Severe Impacts"). Development of the project would also irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure. The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy or natural resources.

With respect to operational activities, compliance with all applicable building codes, as well as project mitigation measures or project requirements, would ensure that natural resources are conserved or recycled to the maximum extent feasible. It is also possible that new technologies or systems would emerge, or would become more cost-

effective or user-friendly, that would further reduce the site's reliance upon nonrenewable natural resources. The VST Specific Plan includes a number of sustainable energy features that would result in efficient use of resources. Additionally, the consumption of water resources associated with implementation of the project is anticipated to be significantly less than the historical groundwater usage for irrigation of existing agricultural operations within the project area (refer to Impact 3.8-2 in Section 3.8, "Utilities and Service Systems"). Buildout of the VST Specific Plan would not result in substantial long-term consumption of energy and natural resources beyond what was evaluated in the 2001/2004 UCP EIR.

6 REPORT PREPARERS

Merced County (Lead Agency)

Mark J. Hendrickson Department of Community and Economic Development Director
Tiffany Ho Planner III

City of Merced (Responsible Agency)

Scott McBride Development Services Director
Kim Espinosa Planning Manager

Ascent Environmental, Inc. (CEQA Compliance)

Michael J. Parker, AICP Principal
Jessica Babcock Project Manager
Nicole Greenfield Assistant Project Manager
Alison Fuller Wildlife Biologist
Bryn Kirk Environmental Planner
Kelley Kelso Environmental Scientist
Julia Wilson Environmental Planner, Air Quality and Greenhouse Gas Emissions
Peter Hoholick Air Quality and Greenhouse Gas Analyst
Alta Cunningham Environmental Planner, Cultural Resources
Jazmin Amini Environmental Planner, Transportation
Zachary Miller Environmental Planner, Noise and Transportation
Lisa Merry GIS Specialist
Brian Perry Graphics Specialist
Gayiety Lane Publishing Specialist
Riley Smith Publishing Specialist

Virginia Smith Trust (Applicant)

Stephen J. Peck, AICP Peck Planning and Development, LLC

This page intentionally left blank.

7 REFERENCES

Executive Summary

No references are used in this chapter.

Chapter 1 Introduction

California Department of Forestry and Fire Prevention. 2020a. California Fire Hazard Severity Zone Viewer. Accessed October 13, 2020. Available: <https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414>

———. 2020b. SCU Lightning Complex. Accessed October 11, 2020. Available: <https://www.fire.ca.gov/incidents/2020/8/18/scu-lightning-complex/>

City of Merced. 2010 (August). *Merced Vision 2030 General Plan Draft Program Environmental Impact Report*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/8600/637064929901770000>. Accessed December 29, 2021.

Live Oak Associates, Inc. 2019. *Existing Conditions and Comparative Analysis Virginia Smith Trust 650-Acre Property Merced County, California*. Prepared for Provost & Pritchard Consulting Group.

Merced County. 2012 (November). *2030 Merced County General Plan Draft Program EIR*. Accessed October 13, 2020. Available: <https://www.co.merced.ca.us/1926/Draft-General-Plan-Draft-Program-EIR>.

———. 2013 (December). *2030 Merced County General Plan*. Prepared by Merced County in consultation with Mintier Harnish Planning Partners KD Anderson Nolte Economic & Planning Systems Dunn Environmental Bollard Acoustical Consultants. Available: <https://countyofmerced.com/100/General-Plan>. Accessed January 2023.

Natural Investigations Company. 2021. *Cultural and Paleontological Resources Project-Level Inventory for the Virginia Smith Trust (VST) Specific Plan Area, Merced County, California*. Prepared for Virginia Smith Charitable Trust.

NIC. See Natural Investigations Company.

State Water Resources Control Board. 2023. Geotracker Database search. Available: <https://geotracker.waterboards.ca.gov/>. Accessed January 2023.

SWRCB. See State Water Resources Control Board.

U.S. Army Corps of Engineers. 2008 (November). *UC Merced and University Community Project Draft Environmental Impact Statement/ Environmental Impact Report*. Volume 2. SCH # 2008041009.

Virginia Smith Trust. 2019 (December). *Existing Conditions Report*.

———. 2020. (September). *Preliminary Geotechnical Investigation Report Proposed VST Master Planned Development Northeast of Lake Rd and E. Cardella Rd Merced, California*. Prepared by Kleinfelder. Fresno, CA.

VST. See Virginia Smith Trust.

Chapter 2 Project Description

City of Merced. 2017. *City of Merced Draft Wastewater Collection System Master Plan*. Prepared by Stantec Consulting Services, Inc.

JBREC. See John Burns Real Estate Consulting.

John Burns Real Estate Consulting. 2020 (February). *Market Feasibility Analysis: Virginia Smith Trust MPC, Merced CA*. Prepared for Peck Planning & Development, LLC.

MKN. 2020 (July). *VST Wastewater Study – Recommended Improvements to Mitigate Surcharging Along West Avenue in Buildout Scenarios*.

- USACE and UC Merced. See US Army Corps of Engineers, Sacramento District and University of California, Merced.
- US Army Corps of Engineers, Sacramento District and University of California, Merced. 2008 (November). *UC Merced and University Community Project Draft Environmental Impact Statement/Environmental Impact Report*. SCH # 200804009. Prepared by Impact Sciences, Inc, ICF Jones and Stokes, and Fehr & Peers. Available: <https://planning.ucmerced.edu/2020LRDP>. Accessed December 23, 2022.
- VRPA. See VRPA Technologies.
- VRPA Technologies. 2020 (June). *Traffic Impact Study Assumptions/Methodology for the Virginia Smith Trust Property Planning Project*.

Chapter 3 Environmental Impacts and Mitigation Measures

City of Merced. 2012. *City of Merced Vision 2030 General Plan*.

Section 3.1 Air Quality

- California Air Resources Board. 2003. *HARP User Guide*. Sacramento, CA.
- . 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. Available: <https://ww3.arb.ca.gov/ch/handbook.pdf>. Accessed June 16, 2022.
- . 2013. *California Almanac of Emissions and Air Quality – 2013 Edition*. Available: <https://ww2.arb.ca.gov/our-work/programs/resource-center/technical-assistance/air-quality-and-emissions-data/almanac>. Accessed October 6, 2020.
- . 2019 (May 4). *Ambient Air Quality Standards*. Available: <https://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed January 4, 2017.
- . 2020. *State Area Designations*. Available: <https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations/state-area-designations>. Accessed April 19, 2023.
- CARB. See California Air Resources Board.
- County of Merced. 2013. *2030 Merced County General Plan*. Available: https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/MCGPU_2030/MCGPU_2030GP_COMPLETE-DRAFT_2012-11-30.pdf
- EPA. See U.S. Environmental Protection Agency.
- Merced, City of. 2012. *2030 General Plan Chapter 8 – Sustainable Development*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/4660/637028296396370000>. Accessed April 19, 2023.
- OEHHA. See Office of Environmental Health Hazard Assessment.
- Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments*. Available: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>. Accessed February 6, 2023.
- San Joaquin Valley Air Pollution Control District. 2004 (August 19). *Rule 8021 Construction, Demolition, Excavation, and Other Earth Moving Activities*. Available: <http://www.valleyair.org/rules/curnrules/CLEAN%20VERSION%20OF%20RULE%208021.pdf>. Access February 6, 2023.
- . 2015 (March 19). *Guide for Assessing and Mitigating Air Quality Impacts*. Available: http://www.valleyair.org/transportation/ceqa_guidance_documents.htm. Accessed October 6, 2020.
- Seinfeld, J. H., and S. N. Pandis. 1996. *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change*. John Wiley & Sons, Inc. Hoboken, NJ.
- South Coast Air Quality Management District. 2015. *Application of the South Coast Air Quality Management District for Leave for File Brief of Amicus Curiae in Support of Neither Party and Proposed Brief of Amicus Curiae*.

Available: <https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf>. Accessed April 19, 2023.

U.S. Environmental Protection Agency. 2022. *Criteria Air Pollutants*. Available: <https://www.epa.gov/criteria-air-pollutants#self>. Last updated October 19, 2016. Accessed December 15, 2022.

Section 3.2 Biological Resources

California Department of Fish and Wildlife. 2012. *Staff Report on Burrowing Owl Mitigation*. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>. Accessed January 5, 2022.

———. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>. Accessed January 5, 2022.

CDFW. See California Department of Fish and Wildlife.

California Native Plant Society. 2021. *Inventory of Rare and Endangered Plants of California* (online edition, v9-01 1.0). Available: <http://www.rareplants.cnps.org>. Retrieved November 29, 2021.

California Natural Diversity Database. 2021. Results of electronic records search. Sacramento: California Department of Fish and Wildlife, Biogeographic Data Branch. Retrieved November 29, 2021.

CNDDB. See California Natural Diversity Database.

CNPS. See California Native Plant Society.

Live Oak Associates, Inc. 2019. *Existing Conditions and Comparative Analysis Virginia Smith Trust 650-Acre Property Merced County, California*. Prepared for Provost & Pritchard Consulting Group.

———. 2020a. *Biological Evaluation for CEQA Compliance: Virginia Smith Trust Land Plan Revisions Project, UC Merced and University Community Project*.

———. 2020b. *UC Merced Incidental Take Permit and Biological Opinion 2019 Annual Status Reports Compliance, Virginia Smith Trust 650-Acre Parcel, Merced County, California*

Live Oak Associates, Inc. 2022. *Biological Constraints Analysis, Virginia Smith Trust Intersections Project, Merced, CA*.

Merced County. 2013. *2030 Merced County General Plan*. Available: <https://www.co.merced.ca.us/DocumentCenter/View/6766/2030-General-Plan?bidId=>. Accessed December 28, 2021.

UC Merced. See University of California Merced.

University of California, Merced. 2019a. *2018 Annual Status Report Incidental Take Permit Number 2081-2009-010-04*. Prepared for California Department of Fish and Wildlife, Fresno, CA.

———. 2019b. *2018 Annual Status Report Biological Opinion UC Merced Project*. Prepared for U.S. Fish and Wildlife Service, Sacramento, CA.

U.S. Fish and Wildlife Service. 2018. *Survey Protocols for the Rusty Patched Bumble Bee (Bomubs affinis)*. Available: <https://www.fws.gov/midwest/endangered/insects/rpbb/pdf/SurveyProtocolsRPBB28Feb2018.pdf>. Accessed January 7, 2022.

———. 2021. Information for Planning and Consultation electronic records search. Available: <https://ecos.fws.gov/ipac/>. Accessed November 29, 2021.

Section 3.3 Tribal Cultural Resources

Natural Investigations Company. 2021. *Cultural and Paleontological Resources Project-Level Inventory for the Virginia Smith Trust (VST) Specific Plan Area, Merced County, California*. Prepared for Virginia Smith Charitable Trust.

NIC. See Natural Investigations Company

Section 3.4 Greenhouse Gas Emissions and Climate Change

CalEPA et al. See California Environmental Protection Agency, California Natural Resources Agency, California Department of Food and Agriculture, California Air Resources Board, and California Strategic Growth Council.

California Air Pollution Control Officers Association. 2021. California Emissions Estimator Model (CalEEMod), Version 2022.1.0.14. Available: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/01_user-39-s-guide2020-4-0.pdf?sfvrsn=6. Accessed March 15, 2023.

California Air Resources Board. 2018. *SB 375 Regional Greenhouse Gas Emissions Reduction Targets*. Approved by the California Air Resources Board March 22, 2018. Available: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>. Accessed March 15, 2023.

California Natural Resources Agency. 2018 (January). *Safeguarding California Plan: 2018 Update*. Available: <http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf>. Accessed March 15, 2023.

———. 2022. *California Greenhouse Gas Emissions for 2000 to 2020 Trends of Emissions and Other Indicators*. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/2000-2020_ghg_inventory_trends.pdf. Accessed March 15, 2023.

California Energy Commission. 2021. Energy Commission Adopts Updated Building Standards to Improve Efficiency, Reduce Emissions from Homes and Business Announcement. Available: <https://www.energy.ca.gov/news/2021-08/energy-commission-adopts-updated-building-standards-improve-efficiency-reduce#:~:text=Over%20the%20next%2030%20years,the%20road%20for%20a%20year>. Accessed March 15, 2023.

California Environmental Protection Agency, California Natural Resources Agency, California Department of Food and Agriculture, California Air Resources Board, and California Strategic Growth Council. 2019. *January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan*. Available: <https://ww2.arb.ca.gov/sites/default/files/2020-10/draft-nwl-ip-040419.pdf>. Accessed March 15, 2023.

CARB. See California Air Resources Board.

CAPCOA. See California Air Pollution Control Officers Association.

CARB. See California Air Resources Board.

CEC. See California Energy Commission.

CNRA. See California Natural Resources Agency.

County of Merced. 2012. Merced County General Plan, Revised Draft Background Report. Available: http://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/BackgroundRpt_2030/MCGPU_BR_Ch12_Climate-2012-11-30.pdf. Accessed October 16, 2020.

European Commission Joint Research Centre. 2018 (March 16). *Climate Change Promotes the Spread of Mosquito and Tick-Borne Viruses*. Available: <https://www.sciencedaily.com/releases/2018/03/180316111311.htm>. Accessed March 15, 2023.

Governor's Office of Planning and Research California Energy Commission, and California Natural Resources Agency. 2018. *California's Fourth Climate Change Assessment. Statewide Summary Report*. Available: https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf. Accessed March 15, 2023.

Intergovernmental Panel on Climate Change. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in *Climate Change 2013: The Physical Science Basis*. Working Group I Contribution to the Fifth

- Assessment Report of the Intergovernmental Panel on Climate Change. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed March 15, 2023.
- . 2014. *Climate Change 2014 Synthesis Report: Summary for Policymakers*. Available: https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf. Accessed March 15, 2023.
- IPCC. See Intergovernmental Panel on Climate Change.
- Lister, B. C., and A. Garcia. 2018. Climate-Driven Declines in Arthropod Abundance Restructure a Rainforest Food Web. *PNAS* 115(44):E10397–E10406. Available: <https://www.pnas.org/content/pnas/115/44/E10397.full.pdf>. Accessed March 15, 2023.
- MCAB. See Merced County Association of Governments.
- Merced, County of. 2012. Merced County General Plan, Revised Draft Background Report. Available: https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/BackgroundRpt_2030/MCGPU_BR_Ch12_Climate-2012-11-30.pdf. Accessed March 15, 2023.
- . 2013. *2030 General Plan*. Available: <https://www.countyofmerced.com/DocumentCenter/View/6766/2030-Merced-County-General-Plan?bidId=>. Accessed March 15, 2023.
- Merced County Association of Governments. 2022. *Final Regional Transportation Plan/Sustainable Communities Strategy*. Available: <https://www.mcagov.org/DocumentCenter/View/3689/MCAG-2022-RTP-SCS-Final-080922-dg-07-Clean?bidId=>. Accessed March 15, 2023.
- NOAA. See National Oceanic and Atmospheric Administration.
- National Oceanic and Atmospheric Administration. 2022. *2021 Was World's 6th-Warmest Year on Record*. Available: <https://www.noaa.gov/news/2021-was-worlds-6th-warmest-year-on-record>. Accessed March 15, 2023.
- OPR et al. See Governor's Office of Planning and Research, California Energy Commission, and California Natural Resources Agency.
- United Nations. 2015. Paris Agreement. Available: https://unfccc.int/sites/default/files/english_paris_agreement.pdf. Accessed March 15, 2023.
- U.S. Army Corps of Engineers. 2008 (November). *UC Merced and University Community Project Draft Environmental Impact Statement/ Environmental Impact Report*. Volume 2. SCH # 2008041009.
- Wade, Samuel. Branch chief. Transportation Fuels Branch, Industrial Strategies Division, California Air Resources Board, Sacramento, CA. June 30, 2017—e-mail to Austin Kerr of Ascent Environmental regarding whether the Low Carbon Fuel Standard applies to fuels used by off-road construction equipment.

Section 3.5 Hydrology and Water Quality

- California Department of Water Resources. 2004. (February). *2004 California's Groundwater Bulletin 118. San Joaquin Valley Groundwater Basin Merced Subbasin*. Available: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/5_022_04_MercedSubbasin.pdf. Accessed December 12, 2022.
- . 2021 (November). *California's Groundwater (Bulletin 118) Update 2020*. Available: https://data.cnra.ca.gov/dataset/calgw_update2020/resource/d2b45d3c-52c0-45ba-b92a-fb3c90c1d4be. Accessed December 8, 2022.
- Central Valley Regional Water Quality Control Board. 2019 (February). *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board: Central Valley Region (Fifth Edition) for the Sacramento River Basin and the San Joaquin River Basin*. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201902.pdf. Accessed December 21, 2022.
- City of Merced. 2021 (June). *2020 Urban Water Management Plan*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/14710/637605779761400000>.

DWR. See California Department of Water Resources.

Merced County. 2004. University Community Plan. Adopted December 21, 2004. Resolution 2004 2004-239.

———. 2012 (November). *2030 Merced County General Plan Draft PEIR*. Chapter 13: Hydrology and Water Resources. Available: https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/DEIR/13_hydro_mcgpu_eir_2012_11_23f.pdf. Accessed December 12, 2022.

———. 2013 (December). *2030 Merced County General Plan*. Available: <https://countyofmerced.com/DocumentCenter/View/6766/2030-Merced-County-General-Plan?bidId=>. Accessed December 12, 2022.

Merced SGMA. See Sustainable Groundwater Management Agency.

Merced Sustainable Groundwater Management Agency. 2022a. *Merced Groundwater Subbasin*. Available: <http://mercedsgma.org/>. Accessed December 12, 2022.

———. 2022b. (July). *Merced Groundwater Subbasin Groundwater Sustainability Plan*. Prepared by Woodard & Curran. Available: http://mercedsgma.org/assets/pdf/gsp-sections/Merced-Subbasin-GSP-no-appendices_2019-11-12.pdf. Accessed December 18, 2022.

MKN. 2021 (November). *Virginia Smith Trust Development: Senate Bill 610 Water Supply Assessment (Administrative Draft)*. Fresno, CA.

rrm design group. 2020 (December). *Virginia Smith Storm Drain Master Plan*.

RWQCB. See Regional Water Quality Control Board.

State Water Resources Control Board. 2022. *California 2018 Integrated Report*. Available: <https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=e2def63cce54eedbee4ad726ab1552c>. Accessed: December 12, 2022.

USACE and UC Merced. See US Army Corps of Engineers, Sacramento District and University of California, Merced.

US Army Corps of Engineers, Sacramento District and University of California, Merced. 2008 (November). *UC Merced and University Community Project Draft Environmental Impact Statement/Environmental Impact Report*. SCH # 200804009. Prepared by Impact Sciences, Inc, ICF Jones and Stokes, and Fehr & Peers. Available: <https://planning.ucmerced.edu/2020LRDP>. Accessed December 23, 2022.

Section 3.6 Noise and Vibration

Ambient Air Quality & Noise Consulting. 2019. *Virginia Smith Trust Property – Review of Existing Noise Conditions Memo*.

California Department of Transportation. 2013a (September). *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Noise, Division of Environmental Analysis. Sacramento, CA.

———. 2013b (September). *Technical Noise Supplement*. California Department of Transportation Division of Environmental Analysis. Sacramento, CA. Prepared by ICF Jones & Stokes.

Caltrans. See California Department of Transportation

County of Merced. 2013 (December). *2030 Merced County General Plan*. Adopted December 10, 2013. Merced, CA. Available: <https://www.countyofmerced.com/DocumentCenter/View/6766/2030-Merced-County-General-Plan?bidId=>. Accessed December 26, 2022.

———. 2022 (December). *Merced County Municipal Code*. Available: https://library.qcode.us/lib/merced_county_ca/pub/county_code. Accessed December 26, 2022.

City of Merced. 2012 (January). *Merced Vision 2030 General Plan*. Merced, CA. Available: <https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan>. Accessed December 26, 2022.

EPA. See US Environmental Protection Agency.

Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5. Available for download at https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/index.cfm. Accessed December 26, 2022.

———. 2006 (January). *Roadway Construction Noise Model User's Guide*. Washington, D.C. Prepared by the Research and Innovative Technology Administration, Cambridge, MA.

Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment*. FTA Report No. 0123. Prepared by John A. Volpe National Transportation Systems Center, Cambridge, MA. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed December 26, 2022.

FHWA. See Federal Highway Administration.

FTA. See Federal Transit Administration.

Governor's Office of Planning and Research. 2017 (August). *State of California General Plan Guidelines*. Sacramento, CA. Available: <http://www.opr.ca.gov/planning/general-plan/>. Accessed December 26, 2022.

OPR. See Governor's Office of Planning and Research.

VRPA Technologies. 2022 (February). *Virginia Smith Trust Transportation Impact Study*.

Section 3.7 Transportation/Traffic

California Department of Transportation. 2018 (May). Design Information Bulletin 89-01. Available: https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib-89-01_kf-a11y.pdf.

———. 2020 (May). *Vehicle Miles Traveled-Focused Transportation Impact Study Guide*. Available: <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf>.

California Governor's Office of Planning and Research. 2018 (April). *Technical Advisory on Evaluating Transportation Impacts In CEQA*. Available: https://opr.ca.gov/docs/20180416-743_Technical_Advisory_4.16.18.pdf.

Caltrans. See California Department of Transportation.

City of Merced. 2012 (January). *Merced Vision 2030 General Plan*. Merced, CA. Available: <https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan>. Accessed December 26, 2022.

———. 2013. *Bicycle Transportation Plan*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/2764/637062527211470000>.

County of Merced. 2013 (December). *2030 Merced County General Plan*. Available: <https://www.countyofmerced.com/DocumentCenter/View/6766/2030-Merced-County-General-Plan?bidId=>.

MCAG. See Merced County Association of Governments.

Merced County Association of Governments. 2008 (October). *Merced County Regional Bicycle Transportation Plan*. Available: <https://www.ca-ilg.org/sites/main/files/file-attachments/finalregbp.pdf?1383107255>.

———. 2022 (November). *VMT Thresholds and Implementation Guidelines*. Available: https://www.mcagov.org/DocumentCenter/View/3872/MCAG-SB-743-VMT-Thresholds-and-Implementation-Guidelines_11-10-2022?bidId=.

OPR. See California Governor's Office of Planning and Research.

VRPA Technologies. 2022a (January). *Virginia Smith Trust Vehicle Miles Traveled Analysis*.

———. 2022b (February). *Virginia Smith Trust Transportation Impact Study*.

Section 3.8 Utilities and Service Systems

Beltran, Michael. City Engineer. City of Merced, Merced CA. April 20, 2023 – email to Stephen Peck of Peck Planning regarding review of the MKN sewer report.

California Department of Resources Recycling and Recovery. 2021 (February). *California's 2019 Per Capita Disposal Rate Estimate*. Available: <https://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/mostrecent>. Accessed December 21, 2021.

California Energy Commission. 2022a. *Integrated Energy Policy Report – IEPR*. Available: <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report>. Accessed December 12, 2022.

———. 2022b. *Clean Energy and Pollution Reduction Act – SB 350*. Available: <https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350>. Accessed December 12, 2022.

California Public Utilities Commission. 2008 (September). *California Long-Term Energy Efficiency Strategic Plan*. Available: <https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/e/5305-eestrategicplan.pdf>. Accessed December 12, 2022.

———. 2011 (January). *California Energy Efficiency Strategic Plan January 2011 Update*. Available: <https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/c/5303-caenergyefficiencystrategicplan-jan2011.pdf>. Accessed December 12, 2022.

CalRecycle. See California Department of Resources Recycling and Recovery.

CEC. See California Energy Commission.

City of Merced. 2002 (April). *City of Merced Storm Drain Master Plan*. Prepared by Stantec Consulting Services, Inc. Available: <https://www.cityofmerced.org/home/showpublisheddocument/7358/637038734396530000>. Accessed November 29, 2021.

———. 2012 (January). *Merced Vision 2030 General Plan*. Available: <https://www.cityofmerced.org/departments/development-services/planning-division/merced-vision-2030-general-plan>. Accessed October 29, 2021.

———. 2014 (January). *City of Merced Water Master Plan*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/7546/637066969872270000>. Accessed December 21, 2021.

———. 2017a (December). *City of Merced Wastewater Collection System Master Plan*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/8632/637354170547800000>. Accessed December 21, 2021.

———. 2017b (January). *Mitigated Negative Declaration and Initial Study for City of Merced 2016 Water Master Plan Update*. Prepared by AECOM. Available: <https://www.cityofmerced.org/home/showpublisheddocument/7548/637701617245330000>. Accessed January 2023.

———. 2020 (September). *City of Merced Wastewater Collection System Master Plan Draft Environmental Impact Report*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/12703/637354169305170000>. Accessed December 21, 2021.

———. 2021 (June). *2020 Urban Water Management Plan*. Available: <https://www.cityofmerced.org/home/showpublisheddocument/14710/637605779761400000>. Accessed December 20, 2021.

———. 2023 (February). *City of Merced Wastewater Collection System Master Plan 2022 Update, City Council Presentation*.

CPUC. See California Public Utilities Commission.

MCAG. See Merced County Association of Governments.

Merced County. 2001 (August). *Environmental Impact Report for the University Community Plan*. Prepared by EIP Associates, Sacramento, CA.

- . 2013 (December). *2030 Merced County General Plan*. Available: <https://www.co.merced.ca.us/DocumentCenter/View/6766/2030-General-Plan?bidId=>. Accessed October 21, 2021.
- Merced County Association of Governments. 2016 (May). *Highway 59 Landfill Valley Fill Project*. Available: <https://www.mcagov.org/233/Valley-Fill-Project>. Accessed December 20, 2021.
- Merced SGMA. See Merced Subbasin Groundwater Management Agency.
- Merced SGMA. 2020 (April). *Merced Groundwater Subbasin Groundwater Sustainability Plan Annual Report Water Years 2016-2019*. Available: <http://mercedsgma.org/assets/pdf/reports/Merced-Subbasin-GSP-Annual-Report-Water-Years-2016-2019.pdf>. Accessed December 21, 2021.
- MIRWMA. See Merced Integrated Regional Water Management Authority.
- MKN. See MKN & Associates Inc.
- MKN & Associates, Inc. 2020 (July). *City of Merced Per Capita Wastewater Flows*.
- . 2021a (November). *Virginia Smith Trust Development, Senate Bill 610 Water Supply Assessment*. Prepared for Virginia Smith Trust Development, Merced, CA.
- . 2021b (October). *Merced Wastewater Collection System Analysis 2021 Update*. Prepared for Peck Planning and Development, Merced, CA.
- RRM Design Group. 2020 (December). *Virginia Smith Storm Drain Master Plan*. Prepared for Virginia Smith Trust, Merced, CA.
- USACE and UC Merced. See US Army Corps of Engineers, Sacramento District and University of California, Merced.
- US Army Corps of Engineers, Sacramento District and University of California, Merced. 2008 (November). *UC Merced and University Community Project Draft Environmental Impact Statement/Environmental Impact Report*. SCH # 200804009. Prepared by Impact Sciences, Inc, ICF Jones and Stokes, and Fehr & Peers. Available: <https://planning.ucmerced.edu/2020LRDP>. Accessed December 23, 2022.

Chapter 4 Alternatives

No references are used in this chapter.

Chapter 5 Other CEQA Sections

MKN. See MKN & Associates Inc.

MKN & Associates, Inc. 2021 (October). *Merced Wastewater Collection System Analysis 2021 Update*. Prepared for Peck Planning and Development, Merced, CA.

This page intentionally left blank.